A Study on the Relationships among Knowledge Management, Situational Factors, Professionals’ Core Competencies and Job Performance — Taking the Vocational Training Centers and Employment Service Centers as Example

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ABSTRACT

Facing the advent of the knowledge-based economy, enterprises realization that the continuous competitive advantages are no longer land, labor and capital, but have been replaced by knowledge capital such as intellectual and innovation. Therefore, using individual variable, situational factors, professionals’ core competencies as independent variables, knowledge management as interfered variable, and job performance as dependent variable to probe into the relation among the situational factors, professionals’ core competencies, knowledge management and job performance. Furthermore, using knowledge management as interfered variable to investigate the effect of interference to situational factors, professionals’ core competencies on job performance.

This research was using the method of questionnaire survey together with various kind of statistic analysis and got the important discoveries are stated separately as follows:
The different individual variables to knowledge management and professionals’ core competencies come out a partly remarkable discrepancy.
Knowledge management, professionals’ core competencies, situational factors and job performance reveals outstanding positive relation.
The interaction of situational factors and knowledge management reveal interference effect to the job performance.
The interaction of professionals’ core competencies and knowledge management reveal interference effect to the job performance.

Keywords: Knowledge Management, Professionals’ Core Competencies, Situational Factors, and Job Performance

I. Research purpose

Study the correlation of employee’s background to knowledge management, situational factors, professionals’ core competencies, and work performance.
Study the correlation of job performance, situational factors, professionals’ core competencies, and knowledge management.
Study whether situational factors and professional’s core competencies influence job performance through knowledge management.
Propose suggestions according to the research results for the reference of vocational training centers and employment service centers; also, the succeeding researchers.
II. Research structure

III. Research hypotheses

Hypothesis (1): Different individuals to knowledge management reveal significant difference.

Hypothesis (2): Different individuals to professionals’ core competencies reveal significant difference.

Hypothesis (3): Different individuals to job performance reveal significant difference.

Hypothesis (4): Different individuals to situational factors reveal significant difference.

Hypothesis (5): Knowledge management and professionals’ core competencies reveals an outstanding relation.


Hypothesis (7): Knowledge management and situational factors reveal an outstanding relation.
Hypothesis (8): Professionals’ core competencies and job performance reveals an outstanding relation.
Hypothesis (9): Professionals’ core competencies and situational factors reveal an outstanding relation.
Hypothesis (11): The interaction of knowledge management and situational factors reveal interference effect to job performance.
Hypothesis (12): The interaction of professionals’ core competencies and knowledge management reveal interference effect to job performance.

IV. Study subjects
There are 13 public training centers available in Taiwan: Taisun Training Center (Bureau of Employment and Vocational Training), Northern Training Center (Bureau of Employment and Vocational Training), Central Training Center (Bureau of Employment and Vocational Training), Southern Training Center (Bureau of Employment and Vocational Training), Taoyuan Training Center (Bureau of Employment and Vocational Training), Tainan Training Center (Bureau of Employment and Vocational Training), Training Center of Youth Vocational Training Center, Veterans Affairs Commission, Executive Yuan, Deep Sea Fishery Research and Development Center of Fisheries Agency Council and Agriculture Executive Yuan, Taipei Vocational Training Center, Kaohsiung Vocational Training Center, CVTC Training Center, and VTCE. There are seven Taiwan Provincial Employment Service Centers available: Employment Service Center of Keelung (Bureau of Employment and Vocational Training), Employment Service Center of Taipei County (Bureau of Employment and Vocational Training), Employment Service of Taipei City, and Employment Service Center of Kaohsiung.

Questionnaires were distributed to the aforementioned 20 training centers and employment service centers; however, CVTC Training Center refused to be interviewed. Questionnaires were distributed to teachers; however, since there was not any teacher in the employment service centers, a survey was done with screening process.

V. Factors analysis
In order to have this study tool developed effectively, 80 questionnaires were distributed to the Taipei Employment Service Center upon the completion of the pre-test scale and with 70 valid questionnaires collected (87.5%) that were used for statistic analysis to validate the validity and reliability of the scale.

The pre-test scales in this study are developed with excellent validity and reliability according to the validation performed. Therefore, it is indeed an effective tool to be referred to and used for evaluating knowledge management.

VI. Research analysis and conclusion
1. Questionnaires collected and corresponding reliability test
The staffs of employment service centers and the teachers of vocational training centers are the subjects of this study. A total of 950 questionnaires were distributed in early April 2004 and with 720 (75.79%) valid questionnaires collected. The reliability of the scales in this study is examined with Cronbach Alpha test and with the reliability value of 0.9436 derived for knowledge management, 0.9136
for professionals’ core competencies, 0.9335 for job performance, and 0.8783 for situational factors that are all above the 0.7 suggested by Nunnally (1978). Apparently, all dimensions are developed with high consistency.

2. Variables correlation analysis

(1) Correlation analysis of knowledge management and professionals’ core competencies

There is a significant positive relation between knowledge management and professionals’ core competencies. It means that core competencies of professionals would be higher if employees have sensed a good knowledge management environment within the organization. In other words, knowledge management is able to have individual and individual; also, individual and information linked and those links are to bring values to the organizations. Therefore, knowledge management can help have personal knowledge compile as the memory of the enterprise; also, help reinforce professionals’ core competencies and enterprise competitiveness.

(2) Correlation analysis of knowledge management and job performance

There is a significant positive relation between knowledge management and job performance. It meant that job performance of employees would be better if they have sensed a good knowledge management environment within the organization.

Knowledge management is to create and use new knowledge improving productivity and generating wealth.

(3) Correlation analysis of knowledge management and situational factors

There is a significant positive relation between knowledge management and situational factors. It means that the organization is to use information technology to expand knowledge broadcasting, to speed up knowledge integration, diffusion, and transformation; also, to assist knowledge sharing and to inspire knowledge development; also, to create organizational culture with “trust” and “teamwork” in order to have knowledge management promoted successfully.

(4) Correlation analysis of professionals’ core competencies and job performance

There is a significant positive relation between professionals’ core competencies and job performance. It means that the job performance of professionals would be high if they are with better core competencies. In other words, the accumulation of core competencies will help create organizational value and improve organizational innovation.

(5) Correlation analysis of professionals’ core competencies and situational factors

There is a significant positive relation between professionals’ core competencies and situational factors. It means that information technology could help improve the learning ability and innovation ability of personnel within the organization.

(6) Correlation analysis of situational factors and job performance

There is a significant positive relation between situational factors and job performance. Job performance is the function of individual and environment; therefore, comprehensive information technology and excellent organizational culture will help provide a comprehensive organizational environment.

3. Difference analysis of variables

(1) Correlation between gender and other variables

There is a significance difference of gender to the variables of knowledge capture/creation, knowledge sharing/diffusion, and innovation. Except for innovation, the average value of the said
variables is higher in female workers than male workers; apparently, female workers have sensed the knowledge capture/creation and knowledge sharing/diffusion policy of the organization stronger than male workers. In terms of innovation, in general, male workers outperform female workers.

(2) Correlation between education and other variables

There is a significance difference of education to the variables of innovation and professional knowledge. In terms of innovation, in general, the average value of gradate school students exceeds the average value of college students; also, in terms of professional knowledge, the average value of graduate school students exceeds the average value of high school students.

(3) Correlation between service seniority and other variables

There is a significance difference of service seniority to the variables of knowledge capture/creation, knowledge transformation, and knowledge sharing/diffusion. In terms of knowledge capture/creation, the average value of workers with 5-year (or less) service seniority exceeds the workers with 16~20 years of service seniority. Knowledge management is a relatively new technology; therefore, workers with shorter service seniority have sensed the technology of the center stronger.

(4) Correlation between job position and other variables

There is a significance difference of job position to the variables of knowledge transformation and knowledge sharing/diffusion. In terms of knowledge sharing/diffusion, the average value of supervisors exceeds the average value of engineers since the management is usually the decision-maker; therefore, they cognize the knowledge sharing/diffusion of the center.

4. Interference effect analysis of knowledge management

(1) Interference effect of knowledge management on the correlation of situational factors and job performance

A. Task performance influenced by the interaction of situational factors and knowledge management

In model 1, analyze the influence of situational factors on task performance. It is concluded that information technology support has a significant positive influence on task performance ($B=0.210$, $p<0.001$), organizational culture cognition has a significant positive influence on task performance ($B=0.526$, $p<0.001$); also, the model is found with significance difference.

In model 2, the variable of knowledge management is applied to the Regression Formula. It is concluded that information technology has a significant positive influence on task performance ($B=0.102$, $p<0.05$), knowledge use has a significant positive influence on task performance ($B=0.207$, $p<0.001$); also, the model is found with significance difference.

In model 3, the interaction of situational factors and knowledge management is validated. It is concluded that the interaction of organizational culture cognition and knowledge transformation has a significant negative influence ($B=-1.338$, $p<0.05$); also, the model is found with significance difference. The significant negative influence of the interaction of organizational culture cognition and knowledge transformation shows that the personnel with high organizational culture cognition have a higher expectation in having the knowledge of the center passed on to staffs easily; therefore, they disagree with the center in having knowledge passed on to staffs easily.

B. Situational performance influenced by the interaction of situational factors and knowledge management

In model 1, analyze the influence of situational factors on situational performance. It is concluded that information technology support has a significant positive influence on situational performance
In model 2, the variable of knowledge management is applied to the Regression Formula. It is concluded that information technology has a significant positive influence on situational performance ($B=0.080$, p<0.05); knowledge capture/creation has a significant negative influence on situational performance ($B=0.125$, p<0.001).

In model 3, the interaction of situational factors and knowledge management is validated. It is concluded that the interaction of information technology support and knowledge sharing/diffusion has a significant positive influence ($B=1.127$, p<0.05).

(2) Interference effect of knowledge management on the correlation of professionals’ core competencies and job performance

A. Task performance influenced by the interaction of professionals’ core competencies and knowledge management

In model 1, analyze the influence of professional’s core competencies on task performance. It is concluded that professionals’ core competencies have a significant positive influence on task performance ($B=0.314$, p<0.001), leadership has a significant positive influence on task performance ($B=0.219$, p<0.001), and personal learning ability has a significant positive influence on task performance ($B=0.304$, p<0.001).

In model 2, the variable of knowledge management is applied to the Regression Formula. It is concluded that information technology has a significant positive influence on task performance ($B=0.089$, p<0.05) and knowledge sharing/diffusion has a significant positive influence on task performance ($B=0.107$, p<0.05).

In model 3, the interaction of professionals’ core competencies and knowledge management is validated. It is concluded that the interaction of leadership and knowledge use has a significant positive influence ($B=1.322$, p<0.05), the interaction of personal learning ability and knowledge capture/creation has a significant positive influence ($B=1.226$, p<0.05), and the interaction of personal learning ability and knowledge use has a significant positive influence ($B=1.226$, p<0.05). The significant negative influence of the interaction of personal learning ability and knowledge use shows that the personnel with high learning ability have a higher expectation in knowledge use; therefore, they consider the use of knowledge within the center is less desirable.

B. Situational performance influenced by the interaction of professionals’ core competencies and knowledge management

In model 1, analyze the influence of professional’s core competencies on situational performance. It is concluded that innovation has a significant positive influence on situational performance ($B=0.089$, P<0.01), professional knowledge ability has a significant positive influence on situational performance ($B=0.236$, p<0.001), leadership has a significant positive influence on situational performance ($B=0.267$, p<0.001), and personal learning ability has a significant positive influence on situational performance ($B=0.287$, p<0.001).

In model 2, the variable of knowledge management is applied to the Regression Formula. It is concluded that knowledge capture/creation has a significant negative influence on situational performance ($B=0.089$, p<0.05), knowledge transformation has a significant positive influence on situational performance ($B=0.175$, p<0.001), and knowledge sharing/diffusion has a significant positive influence on situational performance ($B=0.085$, p<0.05).
In model 3, the interaction of professionals’ core competencies and knowledge management is validated. It is concluded that the interaction of innovation and information technology has a significant positive influence (B=1.075, p<0.05), the interaction of professional knowledge ability and information technology has a significant negative influence (B=-2.221, p<0.001), the interaction of leadership and knowledge sharing/diffusion has a significant negative influence (B=-1.325, p<0.01), and the interaction of personal learning ability and knowledge use has a significant negative influence (B=-1.938, p<0.01). The significant negative influence of the interaction of professional knowledge ability and information technology shows that the personnel with more professional knowledge have a higher expectation in information technology use than the personnel with less professional knowledge. Therefore, it is concluded that there remains room for the improvement of information technology use within the center. The significant negative influence of the interaction of leadership and knowledge sharing/diffusion shows that the personnel with better leadership have a higher expectation in knowledge sharing/diffusion within the center than the personnel with poor leadership. Therefore, it is concluded that there remains room for the improvement of knowledge sharing/diffusion within the center. The significant negative influence of the interaction of personal learning ability and knowledge use shows that the individual with higher learning ability believes that there remains room for the improvement of knowledge use within the center. 

(3) While there is significant interaction of variables, analyzing the interference variable of knowledge management

A. Task performance influenced by the interaction of situational factors and knowledge management

The interaction of organizational culture cognition and knowledge transformation has a significant negative influence on task performance (B=-1.338, p<0.05). The mean value of knowledge transformation is divided into two groups including high knowledge transformation and low knowledge transformation. The equation of high knowledge transformation is: \( Y = 14.296 + 0.548X \) and the equation of low knowledge transformation is: \( Y = 8.770 + 0.700X \). Analyze organizational culture cognition and task performance with Regression. While the organizational culture cognition is high, the low knowledge transformation is with higher task performance. While the organizational culture cognition is low, the high knowledge transformation is with higher task performance. The reason why the task performance of low knowledge transformation during the organizational culture cognition is that the task performance of high organizational culture cognition is higher than the low organizational culture cognition; however, the individuals with high organizational culture cognition believe strongly that there remains room for the improvement of knowledge transformation within the center comparing to the individuals with low organizational culture cognition. Therefore, the task performance of low knowledge transformation is high while the organizational culture cognition is high.

B. Situational performance influenced by the interaction of situational factors and knowledge management

The interaction of information technology support and knowledge sharing/diffusion has a significant positive influence on situational performance (B=1.127, p<0.05). The mean value of knowledge sharing/diffusion is divided into two groups including high knowledge sharing/diffusion and low knowledge sharing/diffusion. The equation of high knowledge transformation is: \( Y = 30.652 + 0.623X \) and the equation of low knowledge transformation is: \( Y = 28.610 + 0.560X \). Analyze information technology support and situational performance with Regression. In terms of information technology support, high knowledge sharing/diffusion is with higher situational performance than low knowledge sharing/diffusion.
C. Task performance influenced by the interaction of professionals’ core competencies and knowledge management

The interaction of leadership and knowledge use has a significant positive influence on task performance \((B=1.332, p<0.05)\). The mean value of knowledge use is divided into two groups including high knowledge use and low knowledge use. The equation of high knowledge use is: \(Y= 15.904+0.521X\) and the equation of low knowledge use is: \(Y=15.524+0.472X\). Analyze leadership and task performance with Regression. In terms of leadership, high knowledge use is with higher task performance than low knowledge use.

The interaction of personal learning ability and knowledge capture/creation has a significant positive influence on task performance \((B=1.226, p<0.05)\). The mean value of knowledge capture/creation is divided into two groups including high knowledge capture/creation and low knowledge capture/creation. The equation of high knowledge capture/creation is: \(Y=11.541+0.580X\) and the equation of low knowledge capture/creation is: \(Y=12.193+0.576X\). Analyze personal learning ability and task performance with Regression. While personal learning ability is high, high knowledge capture/creation is with higher task performance. While personal learning ability is low, low knowledge capture/creation is with higher task performance.

The interaction of personal learning ability and knowledge use has a significant negative influence on task performance \((B=-2.247, p<0.01)\). The mean value of knowledge use is divided into two groups including high knowledge use and low knowledge use. The equation of high knowledge use is: \(Y=12.184+0.581X\) and the equation of low knowledge use is: \(Y=12.769+0.573X\). Analyze personal learning ability and task performance with Regression. While the personal learning ability is high, high knowledge use is with higher task performance. While the personal learning ability is low, low knowledge use is with higher task performance.

D. Situational performance influenced by the interaction of professionals’ core competencies and knowledge management

The interaction of innovation and information technology has a significant positive influence on situational performance \((B=1.075, p<0.05)\). The mean value of information technology is divided into two groups including high information technology and low information technology. The equation of high information technology is: \(Y=36.840+0.488X\) and the equation of low information technology is: \(Y=40.493+0.484X\). Analyze innovation and situational performance with Regression. While innovation is high, low information technology is with higher situational performance. While innovation is low, high information technology is with higher situational performance. The reason why the situational performance of low information technology is high while the innovation is high is that the situational performance of personnel with high innovation is higher than the personnel with low innovation; however, the personnel with high innovation have a higher expectation for the promotion of information technology within the center than the personnel with low innovation. Therefore, the situational performance of low information technology is high while innovation is high.

The interaction of professional knowledge ability and information technology has a significant negative influence on situational performance \((B=-2.221, p<0.001)\). The mean value of information technology is divided into two groups including high information technology and low information technology. The equation of high information technology is: \(Y=33.233+0.536X\) and the equation of low information technology is: \(Y=25.691+0.622X\). Analyze professional knowledge ability and situational performance with Regression. While professional knowledge ability is high, low information technology is with higher situational performance. While professional knowledge ability is low, high information technology is with lower situational performance.
technology is with higher situational performance. The reason why the situational performance of low information technology is high while the professional knowledge ability is high is that the situational performance of personnel with high professional knowledge is higher than the personnel with low professional knowledge; however, the personnel with high professional knowledge ability have higher a higher expectation for the promotion of information technology within the center than the personnel with low professional knowledge and they do believe that there remains room for improvement. Therefore, the situational performance of low information technology is high while the professional knowledge is high.

The interaction of leadership and knowledge sharing/diffusion has a significant negative influence on situational performance ($B=-1.325, p<0.05$). The mean value of knowledge sharing/diffusion is divided into two groups including high knowledge sharing/diffusion and low knowledge sharing/diffusion. The equation of high knowledge sharing/diffusion is: $Y=32.491+0.569X$ and the equation of low knowledge sharing/diffusion is: $Y=28.578+0.575X$. Analyze leadership and situational performance with Regression. While leadership is high, low knowledge sharing/diffusion is with higher situational performance. While leadership is low, high knowledge sharing/diffusion is with higher situational performance. The reason why the situational performance of low knowledge sharing/diffusion is high while the leadership is high is that the situational performance of personnel with high leadership is higher than the personnel with low leadership; however, the personnel with high leadership have a higher expectation for the promotion of knowledge sharing/diffusion within the center than the personnel with low leadership and they do believe that there remains room for improvement. Therefore, the situational performance of low knowledge sharing/diffusion is high while the leadership is high.

The interaction of personal learning ability and knowledge use has a significant negative influence on situational performance ($B=-1.938, p<0.05$). The mean value of knowledge use is divided into two groups including high knowledge use and low knowledge use. The equation of high knowledge use is: $Y=27.571+0.571X$ and the equation of low knowledge use is: $Y=24.605+0.630X$. Analyze personal learning ability and situational performance with Regression. While personal learning ability is high, low knowledge use is with higher situational performance. While personal learning ability is low, high knowledge use is with higher situational performance. The reason why the situational performance of low knowledge use is high while the personal learning ability is high is that the situational performance of personnel with high learning ability is higher than the personnel with low learning ability; however, the personnel with high learning ability have a higher expectation for the promotion of knowledge use within the center than the personnel with low personal learning ability and they do believe that there remains room for improvement. Therefore, the situational performance of low knowledge use is high while the personal learning ability is high.

VII. Suggestions

1. Suggestions to vocational training centers and employment service centers
   (1) Knowledge management system
   1. Knowledge, technology, and experience have not yet been prepared in writing form or documented in computer. Directors do not demand the said process to be implemented forcefully; therefore, it is mostly completed according to personal demand and cognition. There remains room for improvement in having the said process carried out.
   2. Vocational training centers and employment service centers must have knowledge management system established to protect cumulative experience and knowledge from getting loss due to time, personnel, or department (or even due to the limited data storage space). Especially, when there are quite a few of
personnel of vocational training centers and employment service centers been lay-off and with many contracted personnel on board. Therefore, the importance of knowledge management goes without saying.

3. Traditional management system is no longer sufficient to serve in the e-generation nowadays (and in the future). New knowledge management concept and system is to be acquired and established. It is to be started out with supervisors in order to have the attempt implemented immediately and effectively.

(2) Reinforcement of knowledge management

1. It is deducted from the research that the promotion of “knowledge management” is yet to be improved. Knowledge management is a sense of value and it is to be promoted from top down in an organization for a profound achievement.

2. For the purpose of reinforcing the innovation of personnel, encourage them to try out their new ideals without the fear of failing or making mistakes.

3. For the purpose of upgrading technical innovation, Level I departments may consider to have the “Technical Innovation Concept and Application” seminars held for the benefit of teachers and to have the outstanding works awarded materially.

4. Knowledge and technology should be passed on to employees easily within vocational training centers and employment service centers. Training must meet the needs and competence of employees. There remains room for the improvement of information technology within the centers, for example, use information technology and corporate partnership and collaboration to reinforce competitiveness or use competitor’s information to adjust business strategy. In addition to the vocational training centers and employment service centers of the Bureau of Employment and Vocational Training, there are also private vocational training centers and employment service centers available, such as, vocational training centers and employment service centers in competition.

5. The involvement and cognition of directors, an adequate incentive plan in place, and planned knowledge management are yet to be enforced.

6. The importance of knowledge goes without saying; however, it must be promoted to the staffs within the organization and with more rooms for challenges granted to employees. Personnel of the centers are without the drive of helping others voluntarily or work for the group performance; therefore, an adequate incentive plan is needed to inspire them to work for the performance of the centers taking as a whole.

7. Construct proper hardware and software and promote knowledge management system promptly.

The importance of knowledge is growing along the arrival of new economy era. The knowledge management of vocational training centers and employment service centers is crucial to the perception of the general public towards government. The construction of knowledge management will change the working habit of staffs permanently; moreover, the effect does not show for a long time. The two situational factors of “information technology support” and “organizational culture cognition” to knowledge management were proposed in Chapter 2 “Literatures and Theory.” In terms of “organizational culture cognition,” knowledge management is an organizational behavior built by “sharing” the culture of an organization. Enterprise must build up an organizational culture on the belief of “sharing,” “trust,” and “teamwork” in order to use knowledge flexible and upgrade efficiency and performance.

2. Suggestions for future study

(1) Research samples

Due to the limitation of manpower, materials, finance, and time, this study focuses only on vocational training centers and employment service centers but not the governmental offices that are with an
identical background. It is suggested for future study.

(2) Research and design (R&D)
The study is completed with a cross-sectional research and with data collected to study the research variables in a defined period of time and it cannot be analyzed chronically for better understanding of the change of variables throughout time. It is recommended for future study with a longitudinal research to study the trend of research change and to understand and validate the causality of variables.
The content of the questionnaires is based on the cognition of the personnel within the centers; therefore, it could cause difference between self-cognition and actual practice.

(3) Study fields
Knowledge management system is divided into five subsystems in this study but it is not the only way of classification. It is suggested to have knowledge management studied in depth and comprehensively. Academic profession frequently studies the subject of knowledge management without having it linked to other professions, for example, linking knowledge management to organizational structure, new product development, and production. While the subject of knowledge management is formed and maturing, it is only reasonable to have it linked to other management researches.

REFERENCES


