Effects of Knowledge Management Establishment on Self-Efficacy of School Principals (Case Study: Secondary Schools for Boys in Tehran)

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Abstract: Many factors affect the achievement of success in life and career. As a cognitive factor, self-efficacy can help people pave the way to their success; thus, understanding the concept of self-efficacy and ways to improve it is very important. The aim of this descriptive study was to investigate the relationship between establishment of Knowledge Management (KM) and self-efficacy of school principals of boys' secondary schools in Tehran (Iran). The population consisted of all school principals of boys' secondary schools in Tehran (n = 204). According to Morgan's Table, the sample size was determined 140. Using cluster and stratified random sampling methods, the samples were selected. For data collection, two researcher-made questionnaires, validated based on the theoretical foundations and experts' views were used. In a pilot study, the Cronbach's Alphas 0.88 (for self-efficacy scale) and 0.91 (for KM questionnaire) were obtained. The results showed a significant relationship between in-service training and self-efficacy of school principals of boys' secondary schools.

Key words: Self-efficacy, knowledge management, school principals, experts, samples

INTRODUCTION

The workplace is like the second home and many people spend most of their time in their working environments. Thus, it is obvious that workplaces should be designed in a way that meets employees' mental health requirements. In such a working environment, employees can improve their knowledge and professional skills in addition to earning money (Soltani, 2005). Many factors affect people's success in life. Self-efficacy as a cognitive factor, can help people pave their ways to success. Therefore, understanding this concept and ways to improve it is very important for reaching the life's goals. Human life requires collaboration, cooperation and an understanding of mutual needs. Although, belief systems improve people's behavior, health, life quality and satisfaction, they simultaneously lead their holders towards experiencing many life problems. Self-efficacy beliefs are strong predictors of people's behaviors. Self-efficacy affectspeople's motivations through their choices and objectives in life. A high level of self-efficacy leads to a greater endurance in overcoming obstacles (Schunk, 1991). Various studies have shown that the most important factor in achieving organizational goals is human capital and there is no doubt that the success of every organization depends on its human resources (Soltani, 2005). Ministries of education areamong those

organizations in which human resources are mostly reliable and capable people whose talents and skills can be fully manifested in a favorable and encouraging work environment. School principals as key figures in any school have a difficult task which requires an optimum level of individual capabilities and management skills (Mohammadi, 2003). According to Bandera's Social Cognitive Theory (SCT), the most important factor that can determine managers' success is their level of self-efficacy. Managers can judge their self-efficacy based on their cognitive and problem-solving skills that are essential for efficient performance (Bandera, 1997). Derived from SCT, self-efficacy refers to an individual's beliefs in or judgements about his/her capacity to perform duties and responsibilities. Bandera's SCT is based on a tripartite pattern of behavior, environment and individual. Research has also shown that the quality of management in any organization determines organizational competitiveness and success. Effective and creative application of knowledge leads to the formation of intelligent organizations. Thus, educational institutions should help students learn skills, efficiency and application of knowledge simultaneously in order to activate their full potential. Despite schools are normally considered as the most important centers of knowledge, not enough attention has been paid to intellectual capital and knowledge resources by the

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ministry of education (Lahijian, 2005). With the formation of a knowledge-based society and a movement towards creating a knowledge-based economy, the importance of knowledge-as the most important organizational asset has been revealed. The term Knowledge Management (KM) has been introduced in the late 1970s by theoreticians like Drucker (focusing on knowledge development) and Peter Seng (focusing on the cultural dimensions of KM) (Wiig, 2000).

Schools are also among the most important creators and users of knowledge. Accordingly, if they face many difficulties in collecting knowledge, they may put aside their main responsibility and do marginal activities. Nonetheless, several solutions have been proposed to apply knowledge efficiently such as KM which is a new approach for the development and application of organizational intangible assets. Wiig (2000) believed that KM is the creation of processes necessary for the identification and absorption of knowledge needed by an organization from internal and external sources and application of that knowledge in organizational and individual decision-makings. Gist (1987) defined KM as the ability of collective wisdom to increase accountability and innovation. Self-efficacy beliefs affect how people think, deal with problems and decide (Bandera and Lock, 2003). If equipped with the skills required to collect, organize and disseminate knowledge, school principals can play an important role in the establishment of KM in schools which is an important issue in today's knowledge-based era.

Given the prominent position of the school as the most social organization in any country, the present study sought to figure out if there is any relationship between establishment of KM and school principals' self-efficacy.

In other words, can school principals' self-efficacy be predicated by the level of KM established in their schools? Many factors affect people's success in life. As a cognitive factor, self-efficacy can help people pave the way to their success; thus, understanding the concept of self-efficacy and ways to improve it is very important. Self-efficacy has been defined as an individual's judgement about his/her capacity for creating an optimal level of performance based on life experiences. It has also been defined as people's emotions, thoughts, motivations and behaviors. Self-efficacy produces different effects through cognitive, motivational, affective and selection processes (Bandura, 2000).

Self-efficacy beliefs originate from four main sources) successful experiences) vicarious experiences) verbal persuasions) emotional and physiological status. It must be noted that self-efficacy sources are not inherently revealing. These sources can be informativeonly through cognitive processing of efficacy and reflective thinking. Therefore, knowledge acquired from events and experiences must be distinguished from knowledge affecting self-efficacy. Self-efficacy plays a key role in human performance because it affects not only behaviors, but also other decisive factors such as aspirations, outcome expectations, emotional tendencies and perceptions of barriers and opportunities in the social environment. Self-efficacy beliefs affect people's strategic or irregular thinking, optimism or pessimism, reactions, objectives, commitment, attempts, outcome expectations, resistance, stress, depression and development (Bandura, 2000).

In practice, understanding self-efficacy is an important part of the motivation process. The level of self-efficacy can be effective in increasing or preventing motivations. People with high self-efficacy usually choose competitive tasks.

Actions are determined by thoughts and people can predict positive or negative outcomes based on their level of self-efficacy. Basically, people with higher levels of self-efficacy try harder and resist more than people with lower levels of self-efficacy. Dealing with obstacles, people with higher levels of self-efficacy usually remain faithful to their goals and can solve their problems efficiently. In other words, these people do not suddenly change their minds. In contrast, people with low levels of self-efficacy usually experience depression, anxiety, distress, low self-esteem and pessimism over their growth and capabilities.

People's perception of their level of self-efficacy acts as a cognitive mediator affecting their thoughts and actions. To help students, they can be encouraged to break their goals into mana geable objectives. Monitoring the students' performance and giving productive feedback to them increase their interest in learning and enhance their productivity. Internal incentives can be developed by trying hard to achieve emotional objectives. In that case, a potential feeling of self-efficacy will be activated for achieving the desired objective and a positive self-assessment will be the result of that achievement. Such an internal incentive can also facilitate long-term efforts in the absence of environmental rewards. For example, despite the huge appeal of acting, a person feels motivated to do so only when he thinks he has the ability to perform fictional roles. In the absence of that sense of self-efficacy being a movie star will be just a speculation that cannot be converted into actual behavior. In a study, both male and female samples participated in a physical competition. The subjects'

self-efficacy was manipulated by dividing them into two groups: one group was supposed to compete with someone with knee injury (high self-efficacy) and one was supposed to compete with a professional athlete (low self-efficacy). The results showed a significant difference in performance between the two groups. This finding indicated that high self-efficacy leads to higher levels of resistance, steadfastness, assiduousness and performance.

Research objectives: The main objective of this study was to investigate the relationship between establishment of KM and self-efficacy of school principals of boys' secondary schools in Tehran (Iran). However, there were secondary objectives as well:

- Investigating the relationship between in-service training and self-efficacy of school principals of boys' secondary schools in Tehran
- Investigating the relationship between IT application and self-efficacy of school principals of boys' secondary schools in Tehran
- Investigating the relationship between development of new organizational culture and self-efficacy of school principals of boys' secondary schools in Tehran
- Investigating the relationship between formation of specialized working groups and self-efficacy of school principals of boys' secondary schools in Tehran

MATERIALS AND METHODS

The population of the present descriptive correlational study consisted of all school principals of boys' secondary schools in Tehran (n = 240). After extracting statistics from the Ministry of Education about the exact number of school principals of boys' secondary schools in Tehran, Morgan Table was used to determine the sample size. Accordingly, a sample consisting of 132 school principals was determined as appropriate; but in order to prevent sample loss, 140 school principals were included in the study. The samples were selected from among the population by using cluster and stratified random sampling methods (Tehran was divided into five geographic areas (North, South, Center, East and West) and then the samples were selected accordingly). Since, no appropriate standard tool exists for KM measurement, the required data in this study were collected by two researcher-made

Table 1: Summary of simultaneous regression model for self-efficacy and in-service training

Model	R	R^2	Modified R^2	SE
1	0.35	0.129	0.123	0.538

SE = Standard Error

questionnaires designed based on library research and analysis of related literature, previous studies and other available scales.

Based on the analysis of previous studies, main concepts in the construct of KM and previously proposed models, all factors that might affect KM were determined first and then those more in line with the objectives of the present study were selected and formed the KM questionnaire. The questionnaire consisted of two parts: the first part contained demographic questions such as age, sex and education; the second part consisted of 28 items scored on a 5 point Likert scale ranging from (a little) to 5 (very much). The questionnaire included 4 components of the effect of in-service training (items 1-7), the effect of IT application (items 8-14), the effect of creating a new organizational culture (items 15-21) and the effect of forming specialized working groups (items 22- 28) (Table 1).

The self-efficacy scale was designed based on theoretical foundations and scherer and colleagues' general self-efficacy scale. The scale was scored on a 5 point Likert scale and consisted of two main sub-scales confidence in occupational capabilities consisted of four subscales of inner strength, self-esteem, assertiveness and personality traits (depiction and emotional harmony) and) self-regulation consisted of two subscales of self-regulation and effort.

RESULTS

A pilot study was conducted on 40 school principals and Cronbach's alphas of 0.91 (for the KM questionnaire) and 0.88 (for the self-efficacy scale) were obtained indicating that both scales were reliable enough for being used in the present study. The collected data were analyzed using the SPSS-16 software.

The statistical tests and the relationships between variables will be discussed in the following paragraphs. Kolmogorov-Smirnov (K-S) test was used to ensure normality for each variable. In K-S test when the K-S >1.96 (regardless of its sign) or the p<0.025, the data are not normally distributed. In this study, the obtained K-S <1.96 and the obtained >0.025 in all cases indicating that all data were distributed normally. Thus, the conduction of parametric tests was acceptable.

Table 2: The F-test results for testing the significance of multiple correlation coefficient between in-service training and self-efficacy

Models	Total square	df	Mean square	F-values	Sig.
Regression	5.92	1	5.92	20.41	0.000
Residual	40.04	138	0.290	-	-
Total	45.96	139	-	-	-

Table 3: Multiple regression model for in-service training dependent variable: self-efficacy

Variables	Non-standardized coefficient		Standardized coefficient		
	β	SE	β	t	Sig.
Constant value	2.75	0.221	-	12.44	0.000
In-service training	0.276	0.061	0.359	4.51	0.000

Question 1: What is the relationship between in-service training and self-efficacy of school principals of boys' secondary schools in Tehran? Simultaneous regression analysis showed a modified coefficient of determination of 0.123 (R^2) indicating that 12% of the variance in self-efficacy can be predicted by in-service training programs. The coefficient of multiple correlation (R) was 0.35 that indicated the correlation between in-service training and self-efficacy of school principals (Table 2). The F-test was used to determine the significance of R (Table 3).

Table 3 shows the results of F-test for testing the significance of multiple correlation coefficient between in-service training and self-efficacy. According to the results (F = 20.41; df = 139; <0.5), there was a significant relationship between the examined variables. Thus to answer the first research question it can be stated that there is a significant relationship between in-service training and self-efficacy of school principals of boys' secondary schools in Tehran.

In other words, school principals who had attended in-service training courses had higher levels of self-efficacy (Table 3). A: independent variable: (constant value) in-service training. B: dependent variable: self-efficacy. The beta coefficient shown in Table 4 is 0.359 indicating that 1 unit of change in the SD of in-service training led to 0.359 unit of change in self-efficacy.

Question 2: What is the relationship between IT application and self-efficacy of school principals of boys' secondary schools in Tehran?

Simultaneous regression analysis showed a modified coefficient of determination of 0.17 (R^2) indicating that 17% of the variance in self-efficacy can be predicted by the application of IT. The coefficient of multiple correlation (R) was 0.42 that indicated the correlation

Table 4: Summary of simultaneous regression model for self-efficacy and IT application

Model	R	R^2	Modified R^2	SE
1	0.423	0.179	0.173	0.522

SE = Standard Error

Table 5: The F-test results for testing the significance of multiple correlation coefficient between IT application and self-efficacy

Models	Total square	df	Mean square	F-values	Sig.
Regression	8.23	1	8.23	30.11	0.000
Residual	37.73	138	0.273	-	-
Total	45.96	139	-	-	-

Table 6: Multiple regression model for application

Variables	Non-standardized coefficient		Standardized coefficient		
	β	SE	β	t	Sig.
Constant value	2.50	0.229		10.94	0.000
IT application	0.342	0.062	0.423	5.48	0.000

Table 7: Summary of simultaneous regression model for self-efficacy and new organizational culture

Model	R	R^2	Modified R^2	SE
1	0.45	0.207	0.201	0.513

SE = Standard Error

between IT application and self-efficacy of school principals (Table 5). F test was used to determine the significance of R (Table 4). A: Predictor variable: (constant value) IT application.

Table 4 shows the results of F test for testing the significance of multiple correlation coefficient between IT application and self-efficacy. According to the results (F = 3.11; df = 139; p<0.5), there was a significant relationship between the examined variables. Thus, to answer the second research question it can be stated that there is a significant relationship between IT application and self-efficacy of school principals of boys' secondary schools in Tehran. In other words, school principals who had applied IT had higher levels of self-efficacy. A: Independent variable: (constant value) IT application (Table 6). B: Dependent variable: self-efficacy. The beta coefficient shown in Table 7 is 0.423 indicating that 1 unit of change in the SD of IT application led to 0.423 unit of change in self-efficacy.

Question 3: What is the relationship between new organizational culture and self-efficacy of school principals of boys' secondary schools in Tehran?

Simultaneous regression analysis showed a modified coefficient of determination of 0.201 (R^2) indicating that 20% of the variance in self-efficacy can be predicted by new organizational culture. The coefficient of multiple correlation (R) was 0.45 that indicated the correlation between new organizational culture and

Table 8: F-test results for testing the significance of multiple correlation coefficient between new organizational culture and self-efficacy

Model	Total squara	df	Mean squara	F-values	Sig.
Regression	9.514	1	9.514	36.015	0.000
Residual	36.455	138	0.264		
Total	45.969	139			

Table 9: Multiple regression model for new organizational culture dependent variable: self-efficacy

	Non-standardized coefficient		Standardized coefficient		
Variables	B	Standard error	Beta coefficient	T-values	Sig.
Constant value	2.454	0.218	11.257	0.000	
New organizational culture	0.358	0.060	0.455	6.001	0.000

Table 10: Summary of simultaneous regression model for self-efficacy and specialized working group

Model	R	R^2	Modified R^2	SE
1	0.57	0.330	0.325	0.472

SE = Standard error

self-efficacy of school principals (Table 8). The F test was used to determine the significance of R (Table 9).

A: predictor variable: (constant value) new organizational culture. Table 9 shows the results of F test for testing the significance of multiple correlation coefficient between new organizational culture and self-efficacy. According to the results (F = 36.015; dt = 139; p<0.5), there was a significant relationship between the examined variables. Thus to answer the third research question, it can be stated that there is a significant relationship between new organizational culture and self-efficacy of school principals of boys' secondary schools in Tehran.

In other words, school principals who had experienced enhanced organizational culture had higher levels of self-efficacy.

A: Independent variable: (constant value) development of new organizational culture. B: Dependent variable: self-efficacy. The beta coefficient shown in Table 10 is 0.455 indicating that 1 unit of change in the SD of development of new organizational culture led to 0.423 unit of change in self-efficacy.

Question 4: What is the relationship between specialized working group and self-efficacy of school principals of boys' secondary schools in Tehran?

Simultaneous regression analysis showed a modified coefficient of determination of 0.325 (R^2) indicating that 32 % of the variance in self-efficacy can be predicted by specialized working group. The coefficient of multiple correlation (R) was 0.57 that indicated the correlation

Table 11: F-test results for testing the significance of multiple correlation coefficient between specialized working group and self-efficacy

Model	Total squara	df	Mean squara	F-values	Sig.
Regression	15.1818	1	15.181	68.048	0.000
Residual	30.788	138	0.223		
Total	45.969	139			

Table 12:Multiple regression model for specialized working group

	Non-standardized coefficient		Standardized coefficient		
Variables	B	Standard error	Beta coefficient	T-values	Sig.
Constant value	2.082	0.204	10.185	0.000	
Specialized working group	0.446	0.054	0.575	8.249	0.000

between specialized working group and self-efficacy of school principals (Table 11). F test was used to determine the significance of R (Table 12). A: Predictor variable: (constant value) specialized working group

Table 12 shows the results of F test for testing the significance of multiple correlation coefficient between specialized working group and self-efficacy. According to the results (F = 68.048; dt = 139; p<0.5), there was a significant relationship between the examined variables. Thus to answer the fourth research question it can be stated that there is a significant relationship between specialized working group and self-efficacy of school principals of boys' secondary schools in Tehran.

In other words, school principals who had attended specialized working group had higher levels of self-efficacy. A: Independent variable: (constant value) specialized working group. B: Dependent variable: self-efficacy. The beta coefficient shown in Table 12 is 0.575 indicating that 1 unit of change in the SD of specialized working group led to 0.517 unit of change in self-efficacy (this variable had the highest predictive power among the examined variables).

DISCUSSION

Regression analysis in response to the first question regarding the relationship between in-service training and self-efficacy of school principals of boys' secondary schools showed that almost 13% of the variance in self efficacy can be predicated by the amount of in-service training courses and 88% of the variance in self-efficacy is related to other factors. The results also showed a coefficient of 0.35 for multiple correlation between in service training and self-efficacy which was significant as the results of F test revealed. These findings were in line with findings of another study conducted by Hoseini Nasab and Rameshe who examined the relationships

between components of self-regulated learning and intelligence. They found significant relationships between intelligence and self-efficacy, test anxiety, high level cognitive strategies and self-regulation. They conducted a regression analysis and found that self-efficacy, self-regulation and test anxiety have the highest predictive power in predicting intelligence.

Regression analysis in response to the second question regarding the relationship between IT application and self-efficacy of school principals of boys' secondary schools showed that almost 17% of the variance in self-efficacy can be predicated by the amount of IT application and 83% of the variance in self-efficacy is related to other factors. The results also showed a coefficient of 0.42 for multiple correlation between IT application and self-efficacy which was significant as the results of F test revealed. These findings were in line with findings of another study conducted by Pen and Oscar Borg in 1998 who introduced three components of foundation, information structure and information culture as the most important factors in successful application of KM systems. These findings were also consistent with the results of Cordis and colleagues' study in 2003 in which some factors were examined in relation to five functional areas of an organization (i.e., strategy, human resources management, IT, quality and marketing).They also put enablers supporting the success of KM into categories of leadership, culture, structure, roles/responsibilities and IT/management infrastructure. Regression analysis in response to the third question regarding the relationship between development of new organizational culture and self-efficacy of school principals of boys' secondary schools showed that almost 20 % of the variance in self-efficacy can be predicated by the novelty of organizational culture and 80 % of the variance in self-efficacy is related to other factors. The results also showed a coefficient of 0.45 for multiple correlation between new organizational culture and self-efficacy which was significant as the results of F test revealed. These findings were in line with the results of Monavarian's study in 2005 in which significant relationships were observed between KM and organizational culture, IT, human resources and education. Monavarian also found that the most critical factor for successful implementation of organizational KM is the organizational culture. These findings were also consistent with the results of an exploratory study conducted on 31 KM projects implemented in 24 companies. In that study, Davenport and colleagues determined factors affecting the implementation of KM (clear objective, standardized and flexible knowledge structure, multiple channels of knowledge transfer, knowledge culture, technological and organizational infrastructures, changes in motivational activities and supportive senior manager). Furthermore, Gold and colleagues in 2001 found that organizational KM processes highly affect organizational performance which was in line with the present study's findings.

CONCLUSION

Regression analysis in response to the fourth question regarding the relationship between formation of specialized work groups and self-efficacy of school principals of boys' secondary schools showed that almost 33 % of the variance in self-efficacy can be predicated by the formation of specialized work groups and 67 % of the variance in self-efficacy is related to other factors. The results also showed a coefficient of 0.57 for multiple correlation between formation of specialized work groups and self-efficacy which was significant as the results of F test revealed. who examined the relationship between KM conversion process and performance of Isfahan University faculty members. They found a positive significant relationship between KM conversion process and performance of faculty members. These results were also consistent with Montana and Charnov's findings in 2008 regarding the important role of tacit knowledge as a very important incentive for organizational innovation processes, in the success of organizations. Through, a Delphi study on a number of factors extracted from the literature, proposed three groups of managerial (e.g., coordination, control, leadership, etc.), environmental (markets, time pressure, economic climate, etc.) and resource (e.g., human and financial resources) factors as factors affecting the implementation of KM which was in line with the present study's findings.

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