

# Performance Improvement through Knowledge Management and Innovation in Educational Institutions: Teachers' Perception

Najmeh Shaghaei<sup>1</sup>, Tayfun Turgay<sup>2</sup>  
Business & Economics Faculty  
Girne American University, North Cyprus  
<sup>1</sup> n.shaghaei@gmail.com  
<sup>2</sup> tayfunturgay@gau.edu.tr

**Abstract** - Educational institutions worldwide are using knowledge management and innovation process to better manage their knowledge and help teachers to improve performance. Teachers need to be support to take responsibility, cooperative, and share what they know and learn. This study aimed to emphasize the need for knowledge management and innovation in schools with focus on teachers' perception, and highlight the significant role of knowledge management (KM) in improving the performance of educational institutions. Survey questionnaire was distributed to a sample of 60 teachers in secondary schools in North Cyprus. The data analyse methods include descriptive statistic, means comparison, Likert scales, regression analysis, and Cronbach's alpha. It was determined that KM has some value to bring innovation, and direct effect in improving schools' performance. Based on the findings, we propose relevant suggestions for implementing KM in educational institutions.

**Keywords:** Knowledge Management, Innovation, Performance Improvement, Teachers' perception

## I. INTRODUCTION

Nowadays, knowledge management has been illustrated as a significant discipline in leading to positive performance in the organization. Without synchronization of knowledge management and core competencies, the organization would not succeed in long-term survival and remain in competitive advantage.

Organizations have adopted different strategies and technologies to manage intra-organizational knowledge. In terms of school organizations, however, there are still many potential restrictions regarding the implementation of knowledge management [1] - [2].

Knowledge management can be defined as a systemic and organizationally specified process for acquiring, organizing and communicating knowledge of employees so that other employees may make use of it to be more effective and productive in their work [3]. Schools, like most organizations, should learn and gain knowledge to improve decision making and innovation

especially in the age of increased external and internal pressures for change and improvement.

Zhao [4] points out that school KM can facilitate acquisition, sharing and application of teacher knowledge in school to better manage and apply schools tangible and intangible knowledge assets, especially the professional knowledge, experiences and competencies of teachers.

To succeed in a rapidly changing education world, teachers need to advance their knowledge and skills and share what they know, leading to improved services and outcomes. Km plays an important role in the improvement performance through sharing of best practices, achieving better decision making, faster response to key institutional issues, better process handling and improved people skills. Therefore, the significance of knowledge management and innovation on the one hand, and the role and the relationship of those with performance improvement in education on the other hand, justify the importance of the present research.

## Research Objectives

Studying the relationship between knowledge management and innovation and performance improvement in education is the general objective of this study. The specific objectives are to:

- Find out the dimensions of KM those enhance the educational performance
- Explore the importance of KM and innovation in educational institutions
- Discover the results of promotion and implementing KM process in educational institutions
- Determine the best predictors of performance improvement through KM with focus on teachers' perception

## II. LITERATURE REVIEW

### A. Schools as "learning organizations"

The idea of a learning organization was developed and made popular by Senge [5].

According to Peter Senge [5], learning organizations are:

“...organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to see the whole together.”

#### *B. Knowledge management in education*

Barron [6] defines KM as an integrated, systematic approach to identifying, managing and sharing all of an enterprise's information assets, including databases, documents, policies and procedures.

The successful KM initiatives in schools are the sharing of all forms of knowledge, both explicit and tacit. Explicit knowledge comes in a wide range of media such as computer files, emails, videotapes, CD-ROMs, digital libraries and textbooks. It can be the result of the work of individuals or project groups, recorded and stored within any type of media so that it can be accessed and used when needed. This type of knowledge is very common but is still important in learning. Scheepers and Rose [7] discuss the role of intranets and the role of people sharing information through the intranets.

However, tacit knowledge is equally valuable. Tacit knowledge is personal and deeply rooted in include those affiliated to school and all for quality education

KM can also be used as an alternative strategy by institutions to improve competitive performance. Petrides and Nodine [8] consider broadly that knowledge management in education can be thought of as a framework or an approach that enables people within an organization to develop a set of practices to collect information and knowledge and share what they know, leading to action that improves services and outcomes.

In a climate of increased external and internal pressures for improvement, the information needs of school teachers and staff have never been greater, yet the perils of information overload are real. Schools, like most organizations, should learn and gain knowledge so as to enhance teacher competency. There are many sorts of knowledge, which need to be managed in schools.

One of the primary benefits of knowledge management is that it actively addresses both the technology culture and the information culture at the institution. Both the technology culture and the information culture are unique to the organizational context of the school. The technology culture can be thought of as the institution's use and integration of technology in planning, development, operations, and assessment.

The information culture, on the other hand, is distinct from what has become known as “information system”. It involves information politics and processes for sharing information within and across the organization [8].

Knowledge management increases the ability to learn from its environment and to incorporate knowledge into the

business processes by adapting to new tools and technologies [9]. While it is generally understood that a robust technological infrastructure plays a crucial role in helping educational institutions gather and analyse data to improve outcomes, the barriers to successful technology and information systems implementation in educational institutions can be attributed to a narrow understanding of just how these systems and technologies manifest themselves within organizations [10].

Knowledge Management (KM) can be viewed as a mechanism to support Organizational Learning [11] - [12]. Because of this link, we argue that a central role of KM tools and Innovation factors should be to provide performance improvement in education.

Improved decision-making, enhanced creativity and innovation, and stronger lines of lateral, as well as vertical, communication are important outgrowths of knowledge management. For educational institutions, however, the full promise of knowledge management lies in its opportunities for improving student outcomes. The ultimate benefit of this, of course, is to students, teachers, and the education community as a whole.

Different learning and teaching strategies are effective to varying degrees for different groups of students. Knowledge management practices seek to help teachers and faculty gather data and share information about which teaching approaches are most effective in specific learning environments [8].

#### *C. Knowledge Management Processes Cycle*

The study is based on KM process model of Nonaka [13]. The model of Fig. 1 shows that the initiation of KM cycle involves either the creation or the acquisition of knowledge by an organization. Knowledge creation involves developing new knowledge or replacing existing knowledge with new content [13]. The focus of this is usually on knowledge creation inside the boundary of the organization.

#### *D. Innovation*

In the literature, innovation is defined as “the creation of new knowledge and ideas to facilitate new business outcomes, aimed at improving internal business processes and structures and to create market driven products and services”[14].

Innovation is critical to the continuous improvement of education and the delivery of increased learning outcomes, equity, cost-efficiency and student satisfaction.

The previous studies have introduced many types of innovation according to academic dedications. Despite innovation is a multi-type activity, this study will adopt the results of previous studies that considered the technological innovation and administrative innovation to improve educational performance.

In this regard, Gloet and Terziovski [15] indicate that the success of innovation performance, which includes new process, product and service, depends highly on the

integration of KM processes with soft HRM activities and hard information technology activities.

#### *E. Organizational Performance*

Organizational performance has been defined in different ways. According to Amaratunga & Baldry [16], it is defined as a process of assessing progress towards achieving pre-determined goals, including information on the efficiency by which resources are transformed into goods and services, the quality of these outputs and outcomes, and the effectiveness of organizational objectives.

Improving performance levels critically relies on effective support systems. In previous studies, researchers have identified some factors of KM which influence on performance improvement. Hassan & Al-Hakim [17] stated that seven critical factors of KM which are human resource management, information technology, leadership, organizational learning, organizational strategy, organizational structure and organizational culture are important for successful KM implementation in order to improve organizational performance. So obviously, there are studies focusing on the performance results of knowledge management and innovation. Regarding to previous studies, performance variables will be used to measure performance improvement in educational settings in this study.

### III. THEORETICAL FRAMEWORK and RESEARCH DESIGN

The current research focused on the relationship of three important elements in education namely: knowledge management, innovation, and performance improvement. The theoretical framework is shown in Fig. 2.

### IV. RESEARCH METHODOLOGY

#### *Research Procedure*

The researchers identified the functions of KM and Innovation that support the effectiveness of performance in educational institutions via a survey. According to Nonaka & Takeuchi [18], teachers are key players in organization knowledge creation, so, they are the core subjects in this study, and understanding their perception of KM and Innovation for improving organizational performance is the focus of this research. Based on the functions of KM and innovation, a questionnaire was framed. The questionnaire was designed to be simple, easy to fill, and less time to consuming.

The respondents were chosen from some Secondary schools in North Cyprus and invited to participate in the survey. The names of the schools and the respondents have not been disclosed.

Follow up efforts by the researchers, 42 fully answered questionnaires were received from the respondents out of a total of 60 forms distributed. The return rate of the survey

was 70%. According to Dillman [19], at least a minimum 60% of return rate is required in a survey.

The questionnaire was categorized into three sections and the alpha coefficient was calculated for all sections above 0.86 which according to Sekaran [20] shows the research instrument is reliable for the purpose of the study.

### V. DATA ANALYSIS and RESULT

Before exploring research objectives, in part one, the respondents have been asked about years of experience in teaching.

The results in Table I indicate that there is a good combination of experienced teachers and new teachers. According to previous studies, the experienced teachers give the schools stability and serve as mentors to the new teachers, and also the new teachers bring fresh ideas and enthusiasm to enhance performance through promotion knowledge management and innovation.

In part two, to explore research objectives 1, 2, and 3 in determining dimensions, importance, and results of using KM and innovation, multiple variance set was used to find out the highest level of all variables.

#### *A. Research Question 1*

#### **Which dimensions of KM have direct effect on enhancing of educational performance?**

As shown in Table II, the majority of participants seemed to understand the concept of KM and mentioned that an appropriate knowledge management process model may improve performance and motivation in schools through sharing (74%), transfer (74%), which are considered to be of high degree, and storage (55%), searching (55%) among members of the school (including teachers and administrators). An appropriate knowledge management process will also motivate teachers to establish and share knowledge documents to increase school performance.

#### *B. Research Question 2*

#### **What is the importance of KM and innovation in educational institutions?**

In view of the answers of respondents defined in Table III, observe that the main reasons for promote KM and innovation in schools were identified as; teaching and learning process (93%), planning and development (90%), technology and infrastructure (78%).

Improving teaching and learning is not easy. The most rapidly improving schools focus on teaching and learning process. For schools to be more effective, teachers need to understand and to help define curricular goals and standards. They need motivation and support to share classroom resources and professional knowledge to other teachers and to the community beyond the schools by better access, handling, and utilization of knowledge that can change

teaching and learning process. On the other hand, using modern technology, and building up a networked human and IT environment can facilitate development of learning and sharing of knowledge. In other words, knowledge management is as a systematic method for managing education and organizational knowledge using the appropriate means and technology, managed people, what they know, their decision making, and the way information flows.

### C. Research Question 3

#### What are the results of promotion and implementing KM process to improve educational performance?

In view of the answers of respondents defined in Table IV, observe that main results of KM implementation is leverage and share existing knowledge (88%), time saving and improve productivity (78%), and problem solving (71%). Most participants emphasized that often schools do not know what knowledge they already have. Owing on this, even the large global corporations are spending money on training and development to gain knowledge that they already have. [21] They mostly thought that KM could improve productivity and save time to access to knowledge and resources. They also emphasized that KM process could help them to solve problem easier and faster.

### D. Research Question 4

#### What are the best predictors of performance improvement through KM and innovation?

**Hypothesis:** There is a positive, linear, and significant relationship between KM and performance improvement. Based on analysing information on part 2, last part of questionnaire was designed and based on Likert scales. In view of the answers of respondents defined in Tables V, VI, VII, VIII, and IX, observe that the average most of the variables in scale Planning and Development, Teaching and Learning Process, and Technology and Infrastructure were high.

### E. Testing Research Hypothesis

For testing hypothesis, by using multiple regression, the model of independent variables explained 51 Percentage of the variance in performance improvement. Furthermore, the model reaches statistical significance ( $p=0.009$ ). Thus, there is a positive, linear, and significant relationship between knowledge management and performance improvement in educational institutions.

## VI. CONCLUSION

The results of this study add to our understanding the important role of knowledge management and innovation in performance improvement. This study recognized teachers'

perception of KM via questionnaire. From the point of view of the teachers, some of KM dimensions play important role in enhancing performance. Also they have recognized that KM is a challenge for education field and needs to be taken seriously to facilitate knowledge utilization and creation. Researchers conclude that planning and development, teaching and learning process, and technology and infrastructure can prove to be a promising techno management tools to enhance performance in education field. Development of collaborative and professional relations within teachers and among their surrounding communities, discuss, observe and acquire of new teaching skills and strategies and identify effective teaching methodologies through information and technology by support from management will improve school effectiveness.

These finding suggest that greater attention are needed to influence knowledge management and innovation in educational setting. It is hoped that, this paper will instigate more researchers to conduct studies in this area with different methods or background in order to validate the results in this study.

## REFERENCES

- [1] J. M. Carroll, C. W. Choo, D. R. Dunlap, P. L. Isenhour, S. T. Kerr, A. MacLean, and M. B. Rosson, "Knowledge management support for teachers," *Educational Technology Research and Development*, vol. 51, no. 4, 2003, pp. 42-64.
- [2] D. Tyack, and L. Cuban, *Tinkering toward utopia: A century of public school reform*. Cambridge, MA: Harvard University Press, 1995.
- [3] T. Kankanhalli, and K. Kwok, "Contributing Knowledge to Electronic Knowledge Repositories: An Empirical Investigation," *MIS Quarterly*, vol. 29, no. 1, 2005, pp. 113-145.
- [4] J. Zhao, "School knowledge management framework and strategies: The new perspective on teacher professional development," *Computers in Human Behavior*, vol. 26, no. 2, 2010, pp. 168-175.
- [5] P. M. Senge, *The Fifth Discipline. The art and practice of the learning organization*. London: Random House, 1990.
- [6] T. Barron, (2007, August). A smarter Frankenstein: The merging of e-learning and knowledge management. *Learning Circuits*. Available: <http://www.learningcircuits.org/aug2007/barron.html>
- [7] R. Scheepers, and J. Rose, "Organizational intranets: Cultivating information technology for the people by the people," 2001.
- [8] L. A. Petrides, and T. R. Nodine, (2005, March 27). Knowledge management in education: Defining the landscape. *The Institute for the Study of Knowledge Management*. Available: [www.iskme.org/kmeducation.pdf](http://www.iskme.org/kmeducation.pdf)
- [9] B. Liataud, and M. Hammond, *e- Business Intelligence: Turning Information into Knowledge into Profit*, New York: McGraw-Hill, 2001.
- [10] D. G. Oblinger, and S. C. Rush, *The learning Revolution: The Challenge of Information Technology in the Academy*. Boston: Anker Publishing Company, 1997, pp.23-89.
- [11] D. Klingner, and M. G. Sabet, "Knowledge management, organizational learning, innovation diffusion and adoption, and technology transfer: What they mean and why they matter," *Comparative Technology Transfer and Society*, vol. 3, no. 3, 2005, pp. 199-210.
- [12] J. M. Spector, and G. S. Edmonds. (2002, September). Knowledge management in instructional design. *ERIC Digest*

EDO-IR-2002-02. Syracuse, NY: ERIC Information Technology Clearinghouse. Available: <http://www.ericit.org/digests/EDO-IR-2002-02.shtml>

- [13] Nonaka, "A dynamic theory of organizational knowledge creation," *Organization Science*, vol. 5, no.1, 1994, pp.14-37
- [14] M. Plessis, "The role of knowledge management in innovation," *Journal of knowledge management*, vol. 11, no. 4, 2007, pp. 20-29.
- [15] M. Gloet, and M. Terziovski, "Exploring the Relationship between Knowledge Management Practices and Innovation Performances," *Journal of Manufacturing Technology Management*, vol. 15, no. 5, 2004, pp.402-409.
- [16] D. Amaratunga, and Baldry, "A conceptual framework to measure facilities management performance," *Property Management*, vol. 21, no. 2, 2003, pp. 171-89.
- [17] S. Hassan, and L. Al-Hakim, "The Relationships among Critical success factors of KM, Innovation and Organizational Performance," *IPEDR*, vol 6, 2011, pp.98.
- [18] Nonaka, and H. Takeuchi, *The knowledge-creating company: how Japanese companies create the dynamics of innovation*. New York: Oxford University Press, 1995.
- [19] D. A. Dillman, *Mail and telephone surveys: the total design method*. New York: Wiley Interscience, 1978.
- [20] U. Sekaran, *Research methods for business: a skill-building approach*. (4th Ed.), New York: John Wiley and Son, Inc., 2006.
- [21] N. Goodman, and J. Schieman, " Using knowledge management to leverage training and development initiatives," *Industrial and Commercial Training*, vol.42, no.4, 2010, pp. 112 -115.



**Najmeh Shaghaei** obtained her B.A. in Iran in 2001. She moved to North Cyprus and joined to Girne American University to continue her studying. She obtained her MBA from Girne American University/North Cyprus in 2009. She immediately started her doctorate degree in Business Management and graduated in June 2013.

Her past employment consisted of fourteen years as Library Manager for well known companies in Iran, four years as Library Manager and part-time Lecturer for Girne American University. She is currently serving as Library Manager for the English School of Kyrenia/North Cyprus.

Dr. Shaghaei was a member of Industrial Managers Association of Iran from 2000 to 2007.



**Professor Dr. Turgay** obtained his B.A., and MBA from Bosphorus University Istanbul in 1973. He immediately started his professional career by first going into managerial practice and held top positions in many well known private companies. Meanwhile, he continued work on his academics and obtained his doctorate degree from Istanbul University, in 1977. In 1990, he joined to the Business and Economics Faculty of Eastern Mediterranean University North Cyprus. From 2002 to 2003, he served as the Vice Rector (Academic Affairs) of EMU. He also held the position of the Presidency of EMU Faculty Association.

Prof. Dr. Tayfun Turgay is currently the Director of the Graduate School of the American University/Girne- a post he has held since 2010. He has many nationally and internationally published articles, texts and conferences proceedings.

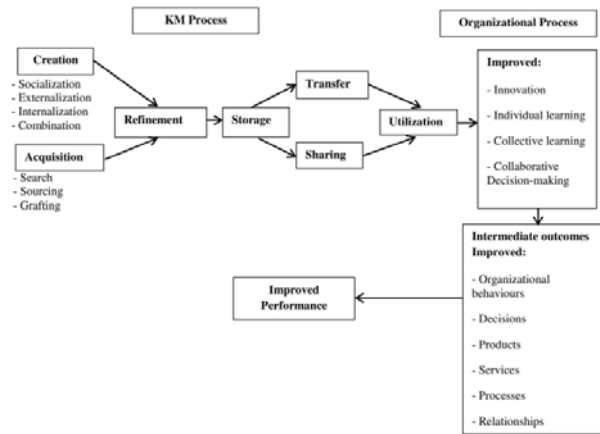


Fig. 1 KM Process Model

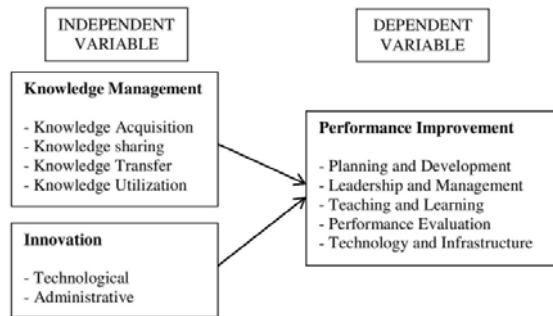


Fig. 2 The Theoretical Framework

TABLE I  
YEAR EXPERIENCE

	Frequency	Percentage
1-5 years	15	35.7
5-10 years	16	38.1
More than 10 years	11	26.2
Total	42	100.0

TABLE II  
DIMENSIONS OF KM

Dimension of KM	%	No.
Knowledge sharing	74	31
Knowledge storage	55	23
Knowledge transfer	74	31
Knowledge access	36	15
Knowledge searching	55	23
Protect knowledge	24	10
Combine knowledge	43	18
Update knowledge	36	15

TABLE III  
IMPORTANCE OF KM IMPLEMENTATION

Importance of KM and Innovation in school	%	No.
Leadership and support	40	17
Technology and infrastructure	78	33
Planning and development	90	38
Teaching and learning process	93	39
Performance evaluation of teachers	43	18
Student affairs	12	5

TABLE IV  
THE RESULTS OF PROMOTION AND IMPLEMENTING KM

Results of promotion and implementing KM and Innovation in schools	%	No.
Learning of experience from others	62	26
Leverage and share existing knowledge	88	37
Time saving and improve productivity	78	33
Benefits of students	48	20
Self enhancement	36	15
Problem solving	71	30
Promoting communication	55	23
Materials storage for future use	55	23

TABLE V  
MEASUREMENT OF PLANNING & DEVELOPMENT

	Mean	Std. Deviation	Degree
Openly discuss school vision	4.3659	.66167	High
Support reform and cooperation	4.3902	.66626	High
Encourage teamwork and knowledge sharing	4.6750	.47434	High
Focus on strategic planning	4.4762	.63392	High
Planning and Development		High	



TABLE VI  
MEASUREMENT OF LEADERSHIP & MANAGEMENT

	Mean	Std. Deviation	Degree
Express goals in adoption of KM and Innovation	4.4146	.74080	High
Efficient decision making	4.4762	.59420	High
Enhanced responsiveness of the administrative services	4.1026	.38353	High
Reduced process cycle times	3.7000	.56387	Medium
Teachers participation in organization function	4.3659	.66167	High
Transforming knowledge and support more innovation	4.4878	.55326	High
<b>Leadership and Support</b>		<b>Medium</b>	

TABLE VII  
MEASUREMENT OF TEACHING & LEARNING PROCESS

	Mean	Std. Deviation	Degree
Effective teaching and learning process	4.5854	.49878	High
Modern teaching methodologies	4.5610	.54994	High
Improved student projects	4.0488	.58954	High
Motivation towards research	4.3810	.66284	High
Improved result	4.1024	.59129	High
<b>Teaching and Learning process</b>		<b>High</b>	

TABLE VIII  
MEASUREMENT OF PERFORMANCE EVALUATION OF TEACHERS

	Mean	Std. Deviation	Degree
Enhanced support to promotion	3.9500	.67748	Medium
Better succession planning implementation	3.9756	.75789	Medium
Enhanced plans for professional development	4.1463	.61486	High
Self-improvement	4.0000	.67082	High
Motivation towards superior performance	4.0488	.54549	High
Clear understanding of responsibilities	4.0238	.56258	High
<b>Performance evaluation of teachers</b>		<b>Medium</b>	

TABLE IX  
MEASUREMENT OF TEACHING & INFRASTRUCTURE

	Mean	Std. Deviation	Degree
Encourage creation teams	4.2683	.74244	High
Skills in thinking and creativity	4.3714	.66016	High
Information technology	4.2619	.74600	High
<b>Technology and Infrastructure</b>		<b>High</b>	