The Practice of Knowledge Management in Private Higher Education Institutions in Egypt: The Demographics Effect

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Abstract

Managing knowledge in higher education institutions is under scrutinizing due to the mismatch between the demands of the labor market and the education output. Knowledge management research focuses on the technical aspect rather than the humane one which includes the employees who directly interact with the system. The aim of this paper is to analyze the interaction of age and gender of Egyptian academicians, and its effect, on Knowledge Management. Data was gathered using questionnaire in which 73 academicians from two private HEIs in Egypt. Results have shown that age and gender did not affect knowledge management processes. The generalized linear model reflects that the interaction of age and gender affects the knowledge disseminating process. Several trends regarding the interaction of age and gender are discussed. This paper raises the attention to how important it is to implement KM processes and communicate KM initiatives within educational institutions.

Keywords: knowledge management, higher education institution, Egypt

1. Introduction

The 1990s marked the beginning of the rising interest in Knowledge Management (KM) in the academia and management fields (Schmitz, Rebelo, Gracia &Tomas, 2014). Knowledge is the means individuals use to solve problems. It constitutes of theoretical knowledge, general wisdom and attitudes. Knowledge is also defined as the individual's store of information that contributes to the fulfillment of tasks. It is also acknowledged as the developed and executed processes in the brains of the knowledge bearer, growing slowly and shaped into unique direction by the means of hundreds of daily choices and decisions. This would be the basis of productive activities (Madhar, 2010).

In Higher education institutions (HEIs) per say, the integration of KM systems is countered with two main concerns. First, many faculty members regard the knowledge they have as a trademark that is not to be shared freely. This is normal according to the nature of the academia and the prominence it places on conducting primary research as faculty members view knowledge as a source of differentiation (Wiig, 1993). Second, HEIs are usually organized around functional areas such as research and development or marketing, which are operating independently. Accordingly functional areas at the HEIs usually fail to share knowledge that can be the result of establishing higher standards of education (Ramachandran, Chong & Ismail, 2009).

Very few studies focus on the humane aspect of KM; mostly, studies analyze the technical aspects of implementing KM in an organization. However, the people element faces many challenges when it comes to KM. Employees are reluctant to participate in KM initiatives and specifically participate in sharing knowledge due to several reasons. Alyateem (2014) reports that employees see many challenges when it comes to integrating KM in an organization. Among those challenges were lack of enough time, de-motivating culture and lack of awareness about the returns of KM. In addition, employees do not realize the benefits; there are no incentives or funds for KM. This represents a significant problem in any institution or organization aiming to implement KM.

The importance of this study lies in the lack of understanding of the underlying assumptions of the aforementioned problem. For example, to the authors' knowledge, there is a lack of studies on the interaction of age and gender with

KM implementation (Pejorava & Klimek, 2014; Stam, ND; Darvish, Ahmadnia & Qryshyan, 2013). The problem heightens in educational institutions as they are considered knowledge manufacturers. Educational institutions face challenges to remain competitive in articulating adequate curricula and graduating qualified candidates. Al-Zoubi (2014, p. 32) believes that "universities can shift from managing teaching staff and students to managing knowledge and innovation to achieve their goals" (2014, p. 32).

This paper is a continuation of the study conducted by researchers El Badawy, Kamel and Wagdy (2014) in which KM processes in Egyptian HEIs were analyzed. However, the focus of this paper is on analyzing the interaction of age and gender with KM processes. A Generalized Linear Model regression test was performed on the data collected. The organization of the paper is as follows. First, a brief on the literature focusing on Knowledge Management, KM processes and the demographics affecting KM is explored. This is followed by discussing the high education system in Egypt. Afterwards, the methodology of how this study was conducted is explained. This is followed by the results, discussion and concluding remarks.

1.1 Knowledge Management

Knowledge is the means individuals use to solve problems. It constitutes of theoretical knowledge, general wisdom and attitudes. Knowledge is also defined as the individual's store of information that contributes to the fulfillment of tasks. It is also acknowledged as the developed and executed processes in the brains of the knowledge bearer, growing slowly and shaped into unique direction by the means of hundreds of daily choices and decisions. This would be the basis of productive activities (Madhar, 2010).

Knowledge Management (KM) refers to the management of useful information to make decisions that maximize the outcome of the organization. KM usually relates to the competitive advantage of companies that have managed to succeed in using knowledge resources to enhance their position in the market. Consequently, they increase profits due to knowledge accumulation. Nowadays, knowledge is considered a primary resource for individuals and for the economy as a whole. Indeed globalization and increased competition have clarified the importance of KM and brought it to its new heights (Drucker, 1992). Effective KM is the key to creating competitive advantage. For that reason organizations are standing on different levels of planning and execution of knowledge-based strategies with efforts to enhance their productivity, competitiveness, efficiency and customer service.

KM initiatives have several drawbacks. First, they are expensive to integrate as financial resources tend to hinder the expansion of knowledge activities. Second, KM initiatives bear some risks. KM integration requires massive contributions in areas such as knowledge capture, storage and distribution. However, the actual returns may not be satisfactory. On the other hand, there is a huge demand for skilled managers opt for the challenges brought about by KM (Basu & Sengupta, 2007). It is believed that KM initiatives in business schools need to be studied as schools are knowledge concentrated organizations.

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1.2 Knowledge Management Processes

Different studies have managed to properly address KM processes with regard to identifying certain aspects of KM. These processes include acquisition, innovation, protection, dissemination and integration (Lee & Yang, 2000); acquisition, conversion, application, and protection (Gold, Malhotra & Segars, 2001); development, utilization, and capitalization (Kalling, 2003); creation, accumulation, sharing, utilization, and internalization (Lee, Lee & Kang, 2005); identification, collection, organizing, storage, sharing, and evaluation (Kiessling, et al., 2009). A detailed examination of these different views made researchers able to group them into five groups: Knowledge identification, acquisition, storage, sharing, and application (Liao & Wu, 2009; Kiessling et al., 2009; Daud & Abdul Hamid, 2006; Gold et al., 2001; Lee & Yang, 2000).

First, Knowledge Identification is the process where knowledge value and flow are located; in addition, occasions that influence the value of the knowledge are identified (Hall & Andriani, 2002; Zack, 1999). It is the stage where knowledge gaps are identified based on the level of knowledge expertise and the strategic capabilities of the organization. Knowledge from this point of view can be discovered by either individual employees or organizations

(Liao & Wu, 2009; Darroch, 2005). It is crucial to identify the knowledge gap correctly to be able to support the staff daily work effectively. Therefore, the knowledge identification process influences the improvement in the academic performance of institutions greatly (Sarawanawong et al., 2009).

Second, Knowledge Acquisition is the process after knowledge is identified. Knowledge has to be located and captured. Therefore, the acquisition process is oriented towards acquiring the needed knowledge from both external and internal sources (Abu-Nahleh, Mohammad, Hamdeh, & Sabri, 2010; Bouthillier & Shearer, 2002). This requires accessing knowledge in knowledge-based sources to capture the new knowledge, and take advantage of already available knowledge. Knowledge capturing through searching can be done by ways such as scanning, focused research, and performance monitoring. Organization learning takes an essential part in knowledge capturing since the organization is required to improve its performance continuously. Furthermore, it focuses on how important it is for organizations to decide the best practices to be implemented in order to attain excellent performance (Liao & Wu, 2009; Asoh, Belardo & Crnkovic, 2010; McKeen et al., 2006).

Third is the Knowledge Storage process. Knowledge is a valuable asset; for this reason it should be handled carefully. The storage process is when knowledge is put in a certain code and recorded for easy accessibility (Kiessling et al., 2009). Knowledge is stored in a certain kind of database that is referred to as "knowledge base". The knowledge base system collects, organizes and retrieves knowledge in a computerized and automated way. In HEIs, a reliable integrated system is adopted to measure the academic performance and students' achievements. For the system to be successful, it requires an effective process of knowledge storage that provides valid and reliable data.

Fourth, Knowledge Sharing process is when knowledge and information are exchanged within different sources. According to Botthillier and Sheare (2002), the success of any KM process in any organization highly depends on how effective knowledge sharing is. There is a common problem in organizations, they are not aware of the valuable knowledge stored inside the organization due to departments and employees not discussing it together (Kiessling et al, 2009; Liao & Wu, 2009). Therefore, it is very crucial to keep knowledge sharing as a vital support of KM in higher-education context (Daud & Abdul Hamid, 2006).

Finally is the Knowledge Application process. After identifying, acquiring, storing and sharing the knowledge, the final process is application of knowledge. Knowledge without application is considered as information. Knowledge application is referred to as knowledge utilization. According to many researches the knowledge management process represents actual utilization of the knowledge (Asoh, Belardo & Crnkovic, 2010; Lee et al., 2005; Gold et al., 2001; Zack, 1999).

1.3 Knowledge Management and the Workforce Demographics

Employers currently face the question of whether to keep older employees or substitute them with younger ones. Older employees are considered more knowledgeable and with higher qualifications and expertise. However, they are stereotyped to be slow, inefficient and resistant to the new technology and business mindsets. On the other side, the youth join organizations with fresh blood and new ways of doing business, beside their energy and strive to compete and achieve. Pejorava and Klimek (2014) believe that employees above the age of 50 are the knowledge source of the organization. They (older employees) are the organization's main reason it stays competitive and hence, all KM efforts should be guided to them. The researchers' survey reveals that younger employees appreciate the elder's knowledge; however, they believe that older employees are not interested in their newly developed ways of doing business and they are reluctant to change their mind-set. Stam (ND) believes that KM is suffering due to "the underutilization of older employees" and "loss of knowledge" as a result (p. 1). It is believed that KM needs planning and putting strategies; in addition to constructing communication channels between generations to try to narrow the gap. Accordingly, the following hypotheses were developed:

$H1_0$: Age has no effect on KM.

$H1_1$: Age affects KM so that older employees will have more knowledge of KM than younger ones.

Hasnain (2013) studied the effect of age and gender on KM transfer in NGOs operating in Bangladesh. His results reveal that concerning gender, females are more successful in indulging and transferring knowledge than males. In addition, the interaction of age and gender shows that females of the younger generation (20-35 years old) are more successful. Darvish, Ahmadnia and Qryshyan (2013) found no statistical differences between males and females with respect to their level of knowledge management. It is believed that females are more successful as they show more commitment to KM. Nevertheless, the effects of gender and age have not yet received wide recognition in the research field. Accordingly, the following hypotheses were developed:

$H2_0$: Gender has no effect on KM.

H2₁: Gender affects KM so that females exhibit more knowledge of KM than males.

1.4 Education in Egypt

Higher education institutions are challenged with the problem of the curriculum's quality. The majority of university graduates are unemployed or are seeking job opportunities unrelated to their fields of study. This is due to the unfitting between the university output and labor market requirements (Belal & Springuel, 2006). In addition, the quality of education provided by Egyptian universities was dramatically affected following reforms introduced in 1952, making higher education accessible to a huge number of students. The move increased the numbers of students and did not provide for the necessary resources to maintain the quality of education. Therefore, after Egyptian universities enjoyed high rankings worldwide, by 2005 none were among the top 500 (Belal & Springuel, 2006).

Currently, there are 19 new private universities running joint programs with foreign universities. The outdated Arabic education systems have been gradually replaced with the American semester and credit hour systems. English now has become more noticeable medium for education. Most of the current universities in Egypt are linked with some university programs overseas. Therefore, universities need to differentiate themselves by offering high quality service and ensuring that their students are satisfied with the services provided. In order to do this, universities will need to implement quality assurance methods to show that the services provided are meeting the international standards on all accepted benchmarks (Heshmat, 2008).

In a paper discussing the relationship between KM and innovation, the author, Numair (2012), compared KM methods in the American University in Cairo (AUC) and Al Mansoura University (Daqahlia governorate). Numair (2012), who similarly found difficulty finding previous literature on KM in Egypt, found that AUC enjoys a far better KM system than Al Mansoura University. He attributed the problem to the public higher education system in Egypt at large. He described it as lacking the structure to promote knowledge sharing and having a centralized system in which the concerned Ministry is the only body responsible for the process. He added that this constitutes an obstacle hindering Egyptian universities' ability to cooperate and collaborate with other universities or business organizations to improve their knowledge bases (Numair, 2012). Knowledge sharing is considered the most important process for academics in higher education institutions. Research shows that effective KM systems are not only beneficial for practitioners, but also help students develop their creativity and understanding (Wang, Lin, Li & Lin, 2014).

Researchers El Badawy, Kamel and Wagdy (2014) analyzed the KM processes applied in HEIs. They conceptualized KM as constituting of the following processes: creating, capturing, organizing, storing and disseminating knowledge. Their results showed the ranking of KM processes. The highest was knowledge dissemination (M = 63.1, SD =17.3). Capturing Knowledge recorded the lowest mean score (M = 44.3, SD = 18.7).

Table 1. Multiple comparisons of KM processes

	Capturing knowledge	Organizing Knowledge	Storing Knowledge	Disseminating knowledge	Applying Knowledge
Creating knowledge	0.038927 **P < 0.05**	0.081423 **P> 0.05**	0.558732 **P> 0.05**	0.000776 **P < 0.001**	0.018759 **P < 0.05**
Capturing knowledge		0.626646 **P> 0.05**	0.006389 **P < 0.01**	0.000000 **P < 0.001**	0.834544 **P> 0.05**
Organizing Knowledge			0.024755 **P < 0.05**	0.000000 **P < 0.001**	0.475775 **P> 0.05**
Storing Knowledge				0.004575 **P < 0.01**	0.002714 **P < 0.01**
Disseminating knowledge					0.000000 **P < 0.001**

In addition, multiple comparisons of the KM processes where every two processes were intersected to explore which pair is significantly different were conducted. There was high statistical significant difference for comparisons between storing knowledge and capturing knowledge, disseminating knowledge with all four processes, and applying knowledge with both storing knowledge and disseminating knowledge (P < .01). Also, there was statistical significant difference in the comparisons between capturing and creating knowledge, storing and organizing knowledge, and applying and creating knowledge (P < .05).

Finally, correlation analysis of knowledge components using Spearman's rho was conducted. All correlation coefficients show positive direct relations between Knowledge processes. All of the relations were of intermediate strength (Coefficients about 0.50) and statistically highly significant (P < 0.01).

There were two questions measuring the respondents' knowledge of KM and whether they are aware that their institution has a formal KM program in place or not. The results for knowledge of academicians about KM in their institutions show that 42.5 % do not have any knowledge of the KM in their institutions which is nearly half of the respondents, 27.4% possess some knowledge, 19.2 % responded having average knowledge, only 5.5 % had more than average knowledge which also happened to be the same percentage as those who were very knowledgeable about the KM 5.5%.

When it came to whether their institution had formal KM program, 2.7 % of the respondents were sure that they had a formal KM program in their institution. On the other hand, 21.9% were sure that they had no formal KM program. Finally, 75.3% were not even sure if they had a formal KM program implemented in their institution.

This paper continues to analyze the same data collected but with a niche focus on the demographics of age and gender.

2. Method

2.1 Sample and Procedures

123 self-reported questionnaires were distributed in two private educational institutions: the German University in Cairo (GUC) and Misr International University (MIU) of which only 73 applicants responded with a 59.3% response rate. Academicians were surveyed and were chosen according to their responsibility in how they generate knowledge through research and dissemination of knowledge by the means of teaching. Academicians are the ones who are usually faced with pressure to provide good results requiring practitioner-based research initiatives.

The participants were asked whether they had any formal KM program in place in their colleges as a pre-requisite to be selected to participate in this survey. Hence, the sample chosen was considered purposive. The questionnaires were sent to all the academicians in both universities so as to ensure a maximum return rate of the questionnaires. Moreover, the nature of the study was explained in a cover letter accompanying the questionnaires. This step took approximately about 3 to 5 weeks. Questionnaires were brought back and analyzed using the IBM SPSS program.

2.2 Questionnaire

A self-reporting questionnaire was used in data collection. Questions were adapted from the Knowledge Management Assessment Instrument (KMAI) developed by Lawson (2003). The questionnaire is divided into two sections: Identifying the level of practices of KM processes and analyzing the respondents' knowledge of KM in private HEIs.

Section One contains 24 statements measuring the KM processes. The questions were adapted from the KM assessment instrument (KMAI) developed by Lawson (2003), utilizing a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. The KMAI is considered in view of its comprehensiveness in addressing all the dimensions of the KM processes (Ramachandran, Chong & Ismail, 2009). Section Two contains two questions measuring the respondents' knowledge of KM and whether they are aware that their institution has a formal KM program in place.

Table 2. Cronbach's Alpha

Dimensions	Alpha
Creating knowledge	0.766
Capturing knowledge	0.736
Organizing Knowledge	0.803
Storing Knowledge	0.704
Disseminating knowledge	0.614
Applying Knowledge	0.670
Total Knowledge	0.902

Reliability test, using Cronbach's Alpha, was conducted in which Total Knowledge showed excellent reliability while other Knowledge factors showed good reliability as shown in the table.

3. Results

The aim of this paper is to analyze the effect of age and gender on KM processes in Egyptian HEIs. For the hypotheses, the researchers believe that there are no adequate studies addressing the humane aspect of KM and its implications on strategic Human Resource Management inside any institution. Moreover, the effects of age and gender on KM are rarely discussed. However, mostly studies focus on the technical implementations of KM processes.

The two sample T-test and the Wilcoxon Mann-Whitney test were used to test the first hypothesis.

H1$_0$: Age has no effect on KM.

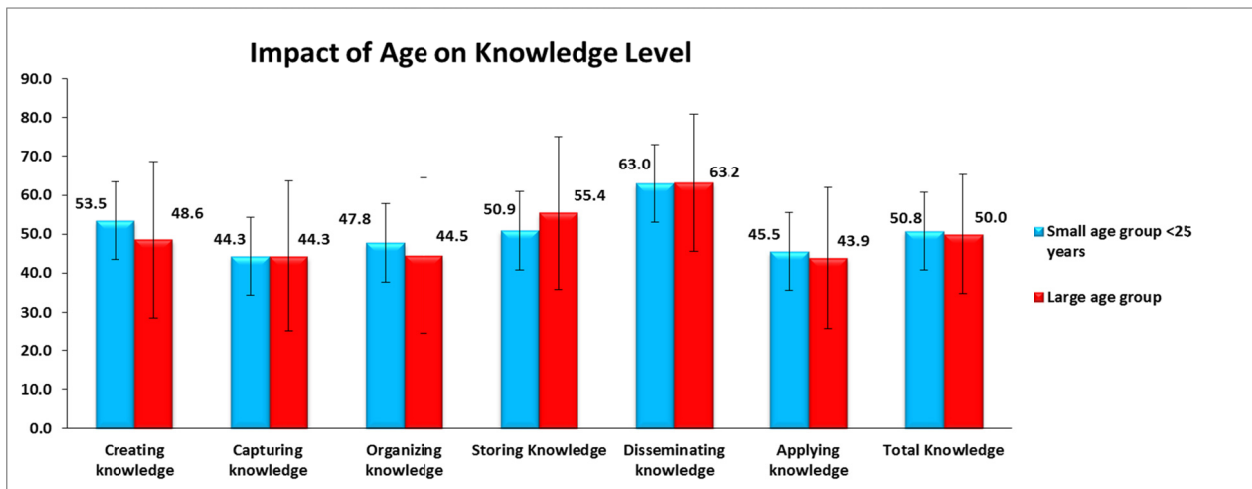**H1$_1$**: Age affects KM so that older employees will have more knowledge of KM than younger ones.

Figure 1. Impact of age on KM

The diagram shows the reported means of knowledge levels of KM processes according to age.

Both t-test and Mann-Whitney showed no statistically significant difference between age and the different KM processes as well as the total KM level. Therefore, we fail to reject the null hypothesis; age has no effect on KM processes in our sample.
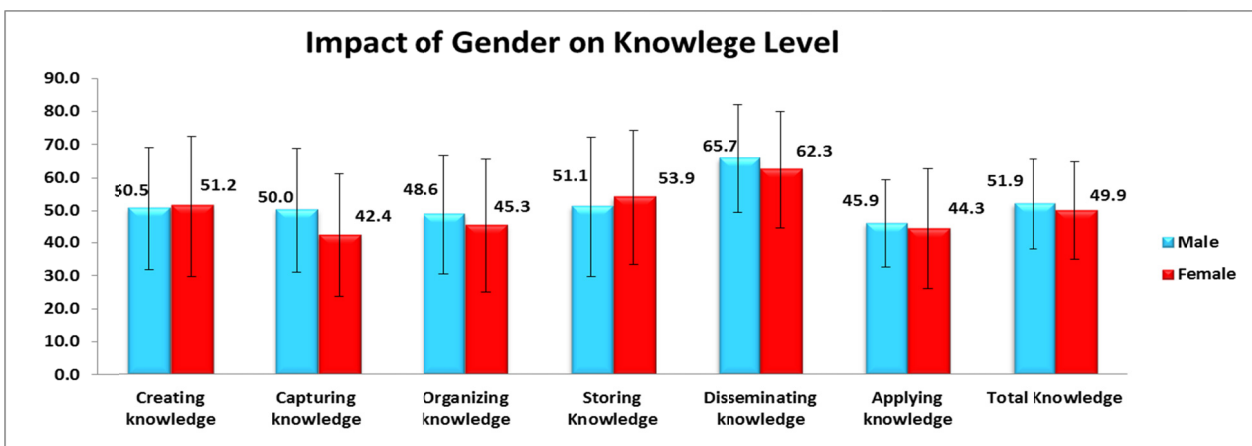

Figure 2. Impact of gender on KM

For the second hypothesis, the diagram shows the reported mean levels of knowledge by males and females.

H2$_0$: Gender has no effect on KM.

H2$_1$: Gender affects KM so that females exhibit more knowledge of KM than males.

Both t-test and the Mann-Whitney tests showed no statistical significant difference between males and females when it comes to their level of knowledge of the KM processes as well as the total KM knowledge. Therefore, we fail to reject the null hypothesis; gender did not affect KM in our sample.

A Generalized Linear Model was drawn where different KM processes (dependent variables) were considered as functions of age, gender and age*gender interaction (independent variables). The GLM was used as it allows for creating interactions between variables. In this case, the aim was to understand whether changes between younger and older age groups are the same as changes for males and females. The following table summarized the results:

Table 3. GLM for the interaction

| KM Process	Significance of Interaction	Trends
Creating knowledge	Not significant	For males: almost no difference between both age groups. For females: the level of creating knowledge decreased by age.
Capturing knowledge	Not significant	For males: the level of capturing knowledge increased by age. For females: there was a reverse effect; capturing knowledge decreased by age.
Organizing knowledge	Not significant	There was a decline for both males and females as they aged; however, males showed an acute decline.
Storing knowledge	Not significant	There was an increase for both males and females as they aged; however, males showed a higher increase.
Disseminating knowledge	Significant effect of age*gender interaction [$F_{(1)} = 3.77$, $p=0.056$].	Males witnessed a high increase as they age while women showed the reverse; there was a steady decrease as they age.
Applying knowledge	Not significant	For males: the level of applying knowledge increased as they age. For females: the reverse happened, applying knowledge levels decreased as they age.
Total knowledge	Not significant	The overall levels of KM processes showed that males increased their KM knowledge as they age while females showed the opposite.
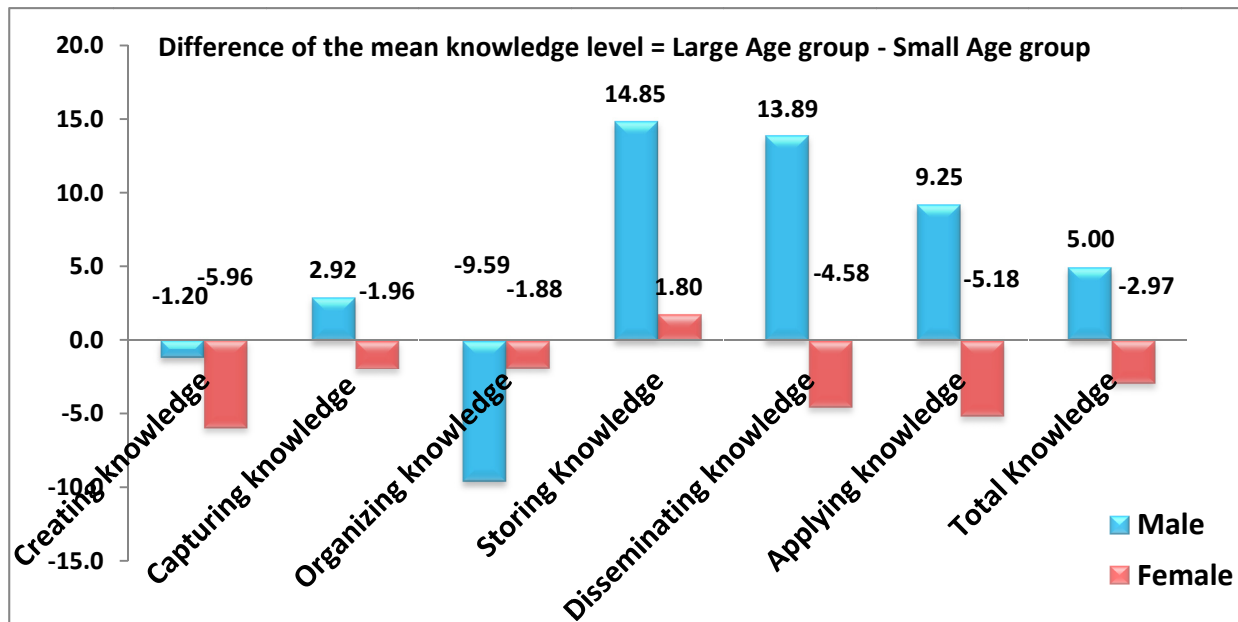
Figure 3. Differences in means

The diagram shows a simpler visualization of the change due to age between males and females as depicted by the difference in mean values.

The following remarks are derived from the diagram:

- For females, the mean levels of KM knowledge were lower for the older age than the younger one except for the process of Knowledge Storage.

- For males, the mean levels of KM knowledge were higher for the older group in all KM processes except for Creating and Organizing KM.

- Focusing on total KM knowledge, the total knowledge for older males was higher than younger ones. However, females showed the opposite, where younger females had a higher mean level than older ones.

- The greatest difference between means with respect to age was for males, in Knowledge Storing process.

4. Discussion

As "most of the sources dealing with intellectual capital point to the fact that intellectual capital can have significant contributions and serve as a basis for competitive advantage… especially in the so-called knowledge era of the 21st century" (Harazin & Padar, 2013, p. 38), understanding the underlying assumptions of effective KM integration is crucial. Strategic Human Resource Management should be considered a value-adding partner in the transition process to ensure proper implementation of KM processes and high economic returns for the organization or institution.

The aim of this paper was to analyze the interaction of age and gender with KM processes in Egyptian HEIs. The first author of this paper already did a study on KM processes in HEIs and had several important results. It was discovered that 42.5 per cent have no knowledge of KM and only 5.5 per cent have more than average knowledge or very knowledgeable. In addition, capturing and applying knowledge processes have scored the least means; however, it is supposed to be high as HEIs are considered to be knowledge-intensive institutions (2014).

Both hypotheses were rejected reflecting that differences in age and gender do not significantly affect the levels of implementing the different KM processes in Egyptian HEIs. Concerning age, the differences between both age groups were minimal. However, there was an increase in storing knowledge with the higher age group. It is argued that as employees age, they focus more on accumulating expertise and knowledge in certain areas and storing them for continuous use in the present and the future. Moreover, there was a higher decrease in creating knowledge for the higher age. This could be justified that the younger ages are more competitive and eager to learn and discover new ways of doing their work; hence, they focus more on creating knowledge. Such results provide support to Pejorava and Klimek (2014) and Stam (ND) who believe that older employees are knowledge catalysts who should be utilized to create successful KM systems.

Concerning gender, differences on KM processes were almost the same except for capturing knowledge. Such results, however, are inconsistent with the status quo of the society. As the Egyptian society is high on masculinity, females tend to work harder to prove themselves and scan for ways to accumulate knowledge. However, the inconsistency may be related to the nature of the organization. In HEIs, the percentage of female academics to males is higher. Hence, males are focusing more on accumulating knowledge for their careers. Such results provide support to Darvish, Ahmadnia and Qryshyan (2013) who found no statistical differences between males and females with respect to their levels of knowledge management. However, the results contradict Hasnain's (2013) findings, in NGO's, which reflected that females are more successful in disseminating knowledge.

The Generalized Linear Model reflects no significant effect of the interaction between age and gender in all KM processes except for the dissemination of knowledge. Males showed a high increase as they aged while females showed the reverse. Such results support Hasnain's (2013) finding that there is a difference between males and females on KM dissemination; however, the results of Hasnain's were the opposite. He found that the interaction of age and gender shows that females of the younger generation (20-35 years old) are more successful in transferring knowledge. The GLM model also highlights several trends. First, the mean levels of KM processes for females were higher in the younger age than the older one. Second, for males, the mean levels of KM processes were higher for the older group and its total KM level was also higher. Third, with respect to age, males showed the highest difference in storing knowledge.

5. Conclusion and Recommendations

It is believed that this area of research is still a gap with a lot of underlying assumptions unexplored. First, the organizational culture is considered an important aspect that affects KM integration and its influence on employees of different age and gender. Second, perceptions of organizational commitment to KM can have an effect on its success. Third, employees' perceptions of intrinsic and extrinsic motivation are important to implementing KM

systems. Specifically motivation has a significant effect that differs between males and females. Minbaeva, Makela and Rabbiosi (2012) believe that females care more for intrinsic motivation and social interactions whilst males look for extrinsic motivation. The same authors recommend studying the interaction between HRM and KM processes to understand and correctly utilize the individual employee. Finally, this study provided results that yet need further exploration and explanation.

This study has several limitations. First, the sample size is considered small relative to the whole population. Future studies should focus on enlarging the sample to further validate the results and allow for generalization. Second, the focus was on private institutions; more care should be provided for public ones. Third, the survey was distributed to institutions in the Greater Cairo area; exploration of other governorates is considered important. Forth, it is believed that culture plays an important role in KM integration; hence, conducting comparative studies with other countries will reflect how differences in cultures affect KM. Fifth, the authors believe that different instruments, other than a quiestionnaire, should be used to provide additional clarifications.

It is recommended for decision makers inside HEIs to focus on KM processes as HEIs's main function is to manufacture and nurture knowledge. Second, efforts must be made to integrate an effective KM system inside the institution. Third, all staff must be provided with complete information on the system and its processes in order to utilize it and add their knowledge to it. Forth, the culture of the institution must explicitly support KM. Finally, incentives must be provided for staff as a result of their usage of the KM system.

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