Knowledge management capability level assessment of the higher education institutions: Case study from Mongolia

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Abstract

Main purpose of this study is to conduct an assessment of knowledge management (KM) capability and to determine the current position of the knowledge management maturity of one of the higher education institutions of Mongolia. This study utilizes the Kulkarni and Freeze’s (2004) organizational knowledge capability areas and Knowledge Management Capability Assessment (KMCA) model for the assessment. The findings and context of this study indicates that, as a whole, the university’s current knowledge management capability maturity falls on the Level 1 of the KM Maturity. The study shows that both organizational knowledge capability areas and KMCA model suggested by Kulkarni and Freeze (2004) are applicable to the higher education context.

Keywords: Organizational knowledge areas; Knowledge Management; Knowledge Management Maturity; Knowledge Management Capability Assessment model; Higher education institutions.

1. Introduction

As nowadays knowledge is considered as one of the key resource of production, a source of sustainable competitive advantage, value and wealth creation for organizations, scholars believe that it should be efficiently managed. Enkhbaigali (2004) defines knowledge management as “deliberate activities taken to handle organization’s resources more efficiently in order to improve its performance.” Knowledge management helps companies to stimulate innovation, improve customer services, and achieve business excellence through the accumulation, improvement of availability and accessibility, and effective use of knowledge. Knowledge management is especially

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important to higher educational institutions in these hard times, when pressures and expectations of stakeholders such as government, foreign or local employers, and students are increasing.

If “higher education institutions are in the knowledge business since they are involved in knowledge creation, dissemination and learning” as stated Rowley (2000), they must be full of successful examples and best practices of advancing their learning and teaching, research and consultancy services by knowledge creation and application. However, in reality, there is a different picture, and higher education institutions are drawn fire for their poor education outcomes and quality from society. We believe that it is indicating that higher educational institutions are working more diligently on knowledge at the individual level, but not so diligently when it comes to the organizational level.

As organizational knowledge management is just emerging discipline, some educational researchers argue that applying it in education is a new concept and practice rather than routine discipline. Therefore, there are limited studies and discussions about how to use knowledge management strategically in education institutions and universities to improve organizational practice, curriculum implementation and the teaching and learning process (Fullan, 2001). The situation is just the same in Mongolian educational sector.

Higher education institutions always have to do their business with limited resources of financial and knowledgeable, experienced teachers. Researcher believes that in such internal and external constraints one of the best ways to provide “clients” or students with the lowest cost, but the best quality educational services and continuously improve training and research methods is improving of organizational knowledge management.

In order to improve knowledge management, the first of all, universities must understand what constitutes knowledge in other word what they should manage. Then they should evaluate the current situation of knowledge management and should be considered it a starting point. As Kulkarni & St. Louis (2003) hightlighted “Assessment is the first step towards improvement; one can’t improve what one can’t measure – formally or informally”.

In this study, the researcher aim to assess the current knowledge sharing culture and knowledge management maturity level in various knowledge areas in higher education institutions for the first time and provide school administrators, teachers, and staff who are planning to improve or officially introduce knowledge management with the proper understanding and perception of where and what level expected to start up. In addition, to determine whether the assessment tool for this study selected by researcher is suitable for higher education institutions.

In this case study one of the top Mongolian universities has been selected. The university offers a choice of over 20 programs in business administration, business economics, finance, accounting and management information systems leading to a bachelor, master and PhD in. At the PhD program the course of innovation and knowledge management course is taught. The university and its bachelor and master programs are accredited by domestic and international education accreditation organizations. Teaching staff currently consists of 91 experienced full-time lecturers.

At the moment, although any knowledge management programs did not implemented yet officially at this university, some management and teaching staff recognize the importance of improvement or implementation of knowledge management.

2. Theoretical foundation

Knowledge management theory has evolved on practical interest in managing the knowledge to the organization’s benefit rather than on universal understanding of knowledge (Alavi & Leidner, 2000) However, as Cook and Brown (1999) noted much “work on organizational knowledge, intellectual capital, knowledge-creating organizations, and knowledge work were based on a single, traditional understanding of the nature of knowledge” usually defined at the level of individual. Many researchers, including Cook and Brown (1999), highlighted that those traditional and common approaches to knowledge have created many challenges to management in their understanding, accepting and undertaking of organizational knowledge management.
Therefore, in order to manage knowledge purposely, improve knowledge management capability, the first of all, it is important to understand and recognize what is organizational knowledge. According to Bhatt (2002) “individual knowledge and organizational knowledge are distinct yet interdependent”. Bhatt’s this clarification enables managers to understand the need to manage this different knowledge using different set of management strategies.

In order to more effectively manage knowledge creation and application organizations need to determine categories of knowledge assets (Nonaka et al., 2000). Because the success or failure of the organization depends very much on knowing which of these types of knowledge organization need, which organization is accumulating now, and what organizations can or cannot do with them.

To obtain appropriate organizational knowledge management strategies, researchers are attempting to categorize organizational knowledge assets and develop their definitions (for example, Spender, 1996; Nonaka et al., 2000; Kulkarni & St. Louis, 2003; Kulkarni & Freeze, 2004; Bakker et al., 2006), and various evaluation models and tools for measuring knowledge management capabilities (such as Siemens AG (2000); APQC (2012); Kulkarni & Freeze, 2004; Kruger, 2008).

The most understandable and practical categories/themes and definitions for organizational knowledge, which is best encompass the nature and characteristics of organizational knowledge defined by above mentioned researches, and can represent knowledge in most organizations, have been defined by Kulkarni and St. Louis (2003); Kulkarni and Freeze (2004). They are 1) expertise, 2) lessons learned, 3) knowledge documents, and 4) data and the definitions of each are below:

- **Expertise**: “Knowledge that is available in people’s heads. This knowledge may be gained through experience or formal education. This knowledge is not easily expressed in words or pictures, but can be shared with another person through working together, observation, or mentoring.” (Kulkarni & St. Louis, 2003). As cited Kulkarni & Freeze (2004), "Alavi and Leidner (2001) identify corporate directories and systems to capture knowledge about experts (metaknowledge) as ways to facilitate knowledge sharing in this area.

- **Lessons Learned**: They are “successes and failures from similar past projects and are sometimes referred to as best-known-methods.” (Kulkarni & Freeze, 2004) “The value of a lesson learned comes when it is documented, shared, applied and reused. BKMs (Best Known Methods) are Lessons Learned that have been accepted as the best way to do something.” (Kulkarni & St. Louis, 2003).

- **Knowledge Documents**: They are “explicit knowledge codified for future use” (Kulkarni & Freeze, 2004), including “text based documents such as project reports, technical reports, policies and procedures, research reports, publications, pictures, drawings, diagrams, audio and video clips.” (Kulkarni & St. Louis, 2003).

- **Data**: “Facts or figures obtained from operations, experiments or surveys, stored in databases and data warehouses. Data is used as a basis for making decisions (performing calculations and drawing conclusions). Data can be queried and analyzed. Decision support tools for forecasting, planning, etc., also use data (Kulkarni & St. Louis, 2003).

Kulkarni and St. Louis (2003) named these knowledge categories/themes as knowledge capability areas (KCA). These KCAs are representative of the knowledge found in most organizations, including in higher education institutions. However, organizations have very limited practice in discovering, storing, using them in routine work and decision making. According to Kulkarni and Freeze (2004) every organization possesses different levels of capability or maturity in accumulation and use of the four KMA. This differentiation leads to different organizational performance and quality.
In addition KCAs, Kulkarni and Freeze (2004) have developed knowledge management capability/maturity assessment (KMCA) model which is empirically tested for validity. The model based on Capability Maturity Model (CMM) of software development industry. According to knowledge management maturity theory, organizations in higher level of maturity able to do activities related to knowledge management better than others. Researchers worked on knowledge management capability/maturity assessment models generally accept the perceptions that “when organizations are below level 3 on the maturity scale, their knowledge processes are primarily ad hoc and localized” (APQC, 2012).

Kulkarni and Freeze’s maturity assessment instrument, which consists of 102 questions grouped by knowledge-sharing culture, expertise, lessons learned, knowledge documents, and data, measures an organization’s five-level KM capabilities of 1) Possible (Not discouraged), 2) Encouraged, 3) Enabled / Practiced, 4) Managed, 5) Continuously Improved. Each question on the instrument is designed to measure the level of maturity associated with the specific practice of knowledge management.

3. Research methodology, data collection and analysis

To reveal the maturity level of KM in the higher education institution, a survey is conducted adopting Kulkarni and Freeze’s KMCA questionnaire. At first, questionnaire was translated into Mongolian because the original KMCA is in English. Then accuracy and clearness of translation was tested in focus group of 10 lecturers and heads of departments through interview questionnaire. Respondents were asked to evaluate the level of importance they placed on each question using a five-point Likert scale (5-Strongly Agree, 4-Agree, 3-Disagree 2-Strongly Disagree, 1-Do not know/No response) and to write their comment on relevant group of questions. In the distributed questionnaire, the maturity level was not disclosed to the respondent.

The survey sample consisted of 112 lectures and 4 deputy directors. In this case, a total 61 questionnaires (54%) were returned. However, 44 (38% from total) of them were usable for analysis. All usable data was prepared for tabular and graphical presentation, analysis and interpretation. The analysis consists of the descriptive statistics used for each question. Results presented in percentage of respondents that replied with an 5-Strongly Agree and 4-Agree to each question, and the percent of respondents that replied with a 3-Disagree and 2-Strongly Disagree, and 1-Do not know/No response to each question shown in tables. Due to space of this paper, in this paper the researcher summarized responses of all group questions and results for each level of maturity. Then from the data of positive responds “5-Strongly Agree and 4-Agree” of the maturity level, a radar chart was generated.

4. Findings

The survey instrument was able to provide an assessment of the current perceived state and context of the focus university with respect to the management of the following all KMAs.

**Knowledge Sharing Culture.** KMCA model (Kulkarni & Freeze, 2004) determines the level of knowledge sharing culture in organizations through 14 questions. Organizational members’ attitude on understanding and recognition of knowledge management, consequently, a starting point of knowledge management maturity depends on their consideration of knowledge as an asset. The statement of knowledge as an asset was affirmed positively by 45%, negatively by 39%, and “Do not know” by 19% of respondents respectively (Figure 1).
Table 1 shows the maturity level that is associated with the group of questions for the Organizational Knowledge Sharing Culture and the average scores received. The table shows the average percent of respondents that replied with a 5-strongly agree and 4-agree to each question, and the average percent of respondents that replied with a 3-disagree and 2-strongly disagree to each question, and finally, the average percent of respondents that replied with an 1-do not know/no response. In addition to this, a radar chart of the maturity levels generated from “Agree” (5 & 4) responses is shown in the Table. A similar process was followed for each of the KMA’s throughout the analysis (See Table 2-5).

Table 1. Results of organizational knowledge sharing culture assessment

| LEVEL OF ORGANIZATIONAL KNOWLEDGE SHARING CULTURE | % of (5&4) | % of (3&2) | % of (1) |
|--------------------------------------------------|------------|------------|----------|
| L1 Willingness of employees to share knowledge within own group/department/university | 33%        | 30%        | 37%      |
| L2 Leadership: Commitment to knowledge sharing (KS); Encouragement w.r.t. KS Communication about the value of KS, Recognition/rewarding of activities associated with KS | 40%        | 24%        | 36%      |
| L3 Leadership: Setting strategy and KS Goals, Practice of KS within own group/department/university | 20%        | 49%        | 30%      |
| L4 New technologies accompanied by Training; Availability of appropriate amount training | 24%        | 55%        | 22%      |

Table 2. Result of Lessons Learned Capability Assessment

| LEVEL | LESSONS LEARNED | % of (5&4) | % of (3&2) | % of (1) |
|-------|-----------------|------------|------------|----------|
| L1    | Acknowledgement of previously Lessons Learned | 36%        | 20%        | 43%      |
| L2    | Importance of looking for and referring to Lessons Learned (LL) | 39%        | 19%        | 42%      |
| L3    | Successful application of LL; Availability and Accessibility of LL repository(ies); Usefulness of LL repository content; Search and retrieval capabilities of Repository; Existence of taxonomy; Practice of capturing LL; Capture of LL as individual/group Responsibilities; | 16%        | 62%        | 22%      |
Application/use of LL; Embedding of looking for LL in normal work practices

Ease of searching the repository, Multiple search criteria for repository; Clarity, standardization and comprehensiveness of taxonomy; Consolidation and management of LL; Existence of a systematic processes for capturing LL; Ease of finding relevant LL.

Evaluation/updating of accuracy/currency of LL; Periodic review of capture/reuse processes

| LEVEL | EXPERTISE                                                                 | % of (5&4) | % of (3&2) | % of (1) |
|-------|---------------------------------------------------------------------------|------------|------------|----------|
| L1    | Acknowledgment of existence of experts/expertise                          | 39%        | 30%        | 32%      |
| L2    | Importance of Experts and expertise; Encouragement for SIG participation  | 47%        | 28%        | 25%      |
| L3    | Practice of looking for available expertise; Accessing experts as part of normal work practices; Access to internal/external experts with collaboration tools; Participate in Special Interest Groups; Availability of relevant SIGs; Ease of searching repository; Multiple search criteria for repository; Clarity, standardization and comprehensiveness of taxonomy; Ease of use of registering and profiling, and updating of own profile; Consistency/management of profiles; Ease of locating relevant experts; Easy of use of collaboration tools; Multiple tool sets for collaboration; Financial support/work time for SIG participation; Extensibility of taxonomy; Collaboration tools are widely accepted/routinely used; Periodic review/improvement of profiling/search tools; Periodic review of expertise sharing processes | 14%        | 57%        | 28%      |
| L4    | Evaluation/updating of accuracy/currency of LL; Periodic review of capture/reuse processes | 10%        | 73%        | 16%      |
| L5    | Evaluation/updating of accuracy/currency of LL;                           | 13%        | 73%        | 15%      |

Table 3. Result of Expertise Capability Assessment

| LEVEL | KNOWLEDGE DOCUMENTS                     | % of (5&4) | % of (3&2) | % of (1) |
|-------|-----------------------------------------|------------|------------|----------|
| L2    | Importance of Knowledge Documents (KD); Important of referring to KD’s    | 59%        | 14%        | 27%      |
| L3    | Availability and Accessibility of repository(ies); Usefulness of repository content; Access to internal and external documents in the repository; Existence of a | 35%        | 26%        | 39%      |

Table 4. Result of Knowledge Documents Capability Assessment
categorization process; Practice of referring to and using KD’s.

Repository support for rich formats, Clarity of meta-data, Clarity, standardization and comprehensiveness of taxonomy; Ease to use of categorization process; Categorization process as part of normal work practice; Categorization process managed to ensure adherence; Ease of finding documents; Easy to use of tools for finding KD’s; Tools retrieving relevant KD’s; Tools to support multiple search criteria.

| LEVEL | DATA | % of (5&4) | % of (3&2) | % of (1) |
|-------|------|------------|------------|---------|
| L4    |      | 28%        | 24%        | 48%     |
| L5    |      | 16%        | 33%        | 51%     |

Table 5. Result of Data Capability Assessment

5. Discussion and Conclusion

In this study the researcher attempted measure levels of knowledge management capability maturity in higher education institution and reveal the current level for each KMA’s using Kulkarni and Freeze’s (2004) KMCA model. Results of survey allow make some subjective or qualitative statements about higher education institution’s knowledge management maturity level.

Answer to consideration of knowledge as an asset related questions, divided almost equally between agree and disagree affirmations, and plus, “Do not know” answers, demonstrates that consideration of knowledge as an asset is not shaped well among teaching staff and managers, they did not achieve to collective understanding about it yet. In terms of the rest of knowledge sharing culture related questions, almost no level had a percent higher than 50, it may be concluded that the overall level of maturity is at best a Level 1.

Results of evaluation of each KMA’s demonstrate that current level of organizational knowledge management capability maturity of the higher education institution surveyed in this study is Level-2. However, there is a considerable high percent of 3-Disagree and 2-Strongly Disagree (49%), and 1-Do not know/No response (30%) to each KMAs. If this result is taken into account, it may be concluded that the overall level of maturity of each KMA’s
is at best a Level 1 too, which defines the perception of behavior of employees and the availability of knowledge and the infrastructure to share it across the organization, described as “Knowledge sharing is not discouraged. There is a general willingness to share. Some people, who understand the value of knowledge sharing, do it” (Kulkarni & Freeze, 2004)

The survey provides managers and teaching staff of higher education institutions with following main benefits: 1) to help to better understand what is organizational knowledge, knowledge management, and knowledge management capability maturity; 2) to provide set of characteristics and results expected for each maturity level when knowledge management officially introduced in organization; 3) to provide suggestion on how it can advance to the next level; and 4) to reveal that the KM awareness needs significant improvement.

The researcher notes that there were three main constraints while conducting and analyzing this survey: 1) the concept of knowledge management may seem like common sense to teaching staff and managers, however, according to a survey, the concept is actually quite new insight to them; 2) due to the length of the survey many respondents simply did not respond or submitted incomplete forms; and 3) lack of benchmarking or historical data because this kind of survey related to knowledge management was conducted first time in education sector.

Finally, the research shows that both organizational knowledge capability areas and KMCA model suggested by Kulkarni and Freeze (2004) are applicable to the higher education environment.

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