

Review of Knowledge Management in Higher Education Institutions

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Abstract

Higher education institutions are highly involved in business of knowledge; however they are taking responsibility of knowledge creation, sharing, transferring, storing, dissemination, reuse and learning.

The purpose of this paper aims to analyze how knowledge is managed and useful in Higher education institutions. In the present study two of the highly discussed models have been studied i.e Strategic knowledge (SK) and Innovations knowledge (IK) in details. Strategic knowledge states that the basic source of knowledge is tacit and explicit, while at the other hand Innovations knowledge (IK) describes that basic source of knowledge is strategic knowledge. These Two conceptual models are designed keeping in view the available literature and currently practicing models. And finally the conceptual model of strategic knowledge (SK) and Innovations knowledge (IK) are compared. This comparison will be made by keeping in view the usefulness of Knowledge management in Higher education institutions. This paper emphasizes on how knowledge management add value to the Higher education institutions.

Keywords: Knowledge management, Strategic Knowledge, Innovations Knowledge, Knowledge growth, Knowledge understanding and Higher Education Institutions.

Introduction

Knowledge management is not a new terminology anymore. It is old and has been studied by academicians, philosophers and practiced for decades, however knowledge management concept has come into the picture in the starting of nineteen century. In the 21st century knowledge is important for all the business fields. Why, because knowledge is like a light, weightless and intangible, it travels very easily in any part of the world, at the time of traveling it enlightens the lives of the people every where and empower the knowledge to human.

These days the world has become very intellectual in all fields of business, especially higher education has become very competitive. To meet this competition, higher education process require best quality education. Thus the higher education universities should be like center point of science, arts, technology and research, continuous learning and life long learning is taking places. The nation's productivity and prosperity can be measured through the quality of higher education. As a whole the environment of nation such as social, political, technology and economics modernization and reforms are possible only through quality of higher education.

Knowledge based new innovations at all levels of learning process is a new philosophy of higher education. Knowledge management facilitates innovations to survive in the present information world.

Knowledge management is a well defined system to provide learning process, innovation process and sharing of knowledge to achieve strategic goals of an organization. In addition to that knowledge management core aim is to transform individual knowledge into organizational knowledge through acquiring, sharing, storage, disseminating, exploitation and innovation of knowledge. It ensures that the organization shows best performance and stand in good competitive position with their competitors. Most of the companies have accepted knowledge management and identified it as a resource. In the theoretical point of view knowledge management process involves the following ways of knowledge identification, knowledge collection, knowledge organizing, knowledge sharing, knowledge applying, knowledge evaluating, knowledge utilization and knowledge creation. Knowledge management is mainly concerned with knowledge gathering, storing, sharing, reuse and creating of the knowledge for the development of the knowledge assets in the organization, for achievement of the organizations mission, goals and objectives. Few studies states that business organizations, universities and other higher education institutions are highly involved in knowledge capturing, knowledge storing, knowledge sharing, knowledge diffusion and learning.

Review of Literature

Literature review has been classified into three categories i.e Knowledge management definition, Higher education role in knowledge economy and Knowledge management in higher education institutions.

Knowledge management definition

Pathirage, et. al., (2008) stated that knowledge has become very valuable organizational assets within the business society. If an organization need to development they should have knowledge management. Yeh, (2005) explained that knowledge management consists of the various elements of the organization i.e select the knowledge, collection of the knowledge, store, organizes, share and communicate. The knowledge consists of tacit and explicit. In the matter of explicit it express about documented knowledge and tacit convey subjective knowledge Harris, (2008), Plessis, (2007). Management entails all of those processes associated with the

identification, sharing and creation of knowledge. This requires systems for the creation and maintenance of knowledge repositories and to cultivate and facilitate the sharing of knowledge and organizational learning. Organizations that succeed in knowledge management are likely to view knowledge as an asset and to develop organizational norms and values which support the creation, and sharing of knowledge Plessis, (2007) Chong, (2008). Considering the level or the classification of knowledge, there is individual knowledge and organizational knowledge that predominantly differentiate each other, on the contribution of competitive advantage. In these types of knowledge, individual knowledge wholly resides in the individual employee mind, whereas organizational knowledge generally exists in two forms in any organizations i.e explicit and tacit knowledge. To learn and acquire new knowledge, individuals should interact and share implicit (tacit) and explicit knowledge with each other Kamasak and Bulutlar (2010), Plessis, (2007) Aujirapongpan, et. al., (2010). Explicit knowledge is documentable and sharable through information technologies, whereas tacit knowledge resides in employees' mind, attitude, behavior, and perception.

In this knowledge era, large number of organizations are becoming knowledge driven in order to achieve and maintain or succeed the high competitive advantage. According to Elias M Awad et.al., (2008) knowledge management is a systematic process of gathering, disseminating, applying, renewing and updating the knowledge for achieving companies objectives. Petrides et . al., (2003) stated that the knowledge management has following basic elements i.e new creation of knowledge, diffusion of knowledge, application of knowledge, culture of the organization, technological tools. Human beings are using these tools to deliver high standard education.

Gregory Wenig (1998) identified that knowledge management for any type of organization mainly aimed on the knowledge gathering from their own experience and others from failures and successes. Tom Devenport (1998) defined knowledge management as process for capturing, spreading and effectively of knowledge for organization development. As per Ellen Knapp (1998) knowledge management is an art of science of converting information and intellectual capital into enduring values of their stakeholders. According to Joseph (2001) knowledge management is a process in any organization which formulate and recognize knowledge and assists within the organization. Jillinda.J.et,al, stated that knowledge management process concentrate on the right knowledge available to the right human at right time in the right format for the right cost. Daniel et.al.(2002) concluded that the organization which would enhance research capacity would increase and develop knowledge in their organization. This would lead to the result of knowledge transfer among individuals within the organization and to their networks. Sireteanu and Grigoruta (2007) suggested that universities can accomplish their mission as a learning organization and provide curriculum that supports models and solutions exploited through knowledge management, aiming to acquire knowledge to use organizational performance, with an accent on improving efficiency, effectiveness and innovation. Ababneh (2008) made study on the impact of knowledge management and organizational learning in connection to organizational innovations.

The range of knowledge management refers to the strategies, practices, diffusion, techniques, systematic, perfect methodological, formal and informal processes. Subramaniam &Youndt, (2005); Boh (2007); Pillania (2008), Bozbura (2007), Deng and Poole (2008), and Ooi, (2009) defined that organization identify, create, transfer, process, analyse, store and distribute knowledge across the organization. According to Zollo and Iandoli (2007) and Evangelista et.al (2010) knowledge management expertise and intellectual capital will be retained in the organization even after employees have left the organization. Bennet and Bennet, (2008). Ramadhani et. al (2012) identify that knowledge management process connected to knowledge creation, knowledge retention, knowledge sharing, utilization and find the correct knowledge sharing tools to encourage academicians to be interconnected with each other.

Recent studies have identified that the knowledge management enhances the capability, structure, culture and technology of the organizations. According to Chang & Chuang (2011) information technology, human resources management, leadership, organizational learning, organizational culture, organizational structure and organizational strategy can be developed through knowledge management. Culture, leadership, process, explicit, tacit, hub, market, measure, skill and infrastructure can be enhanced through knowledge management as per Yusoff et.al, (2012). Kerry E. Howell and Fenio Annansingh (2013) examined that critical junctures and transformation of culture is possible with knowledge generation dissemination and sharing. Most of the reviews has been explained with this theme i.e i) gather the knowledge through tacit and explicit, ii) knowledge transfer iii) knowledge sharing iv) knowledge storing v) knowledge utilization and reuse.

Higher education in knowledge economy

Birgenean (2005) stated that in this rapidly changing global environment higher education institutions have been testing many challenges. As we are in 21st century, Birgene (2005) concluded that higher education institutions are more closely integrated with the world, these institutions can acquire the best of knowledge, creativity and innovation which are the essential elements of booming societies.

According to Bloch (in Duderstadt), (2005:81) world at new age of knowledge in which the key strategic resource necessary for prosperity has become knowledge itself, to educated people for innovations". Higher

education institutions now and in the coming time, will experience different and escalated external pressure influenced by globalization, and the past few decades have witnessed the pressure on Higher education institutions to respond to this global integration Bloom, (2005), Scott (2005) highlights two main attributes of what he terms the 21st century globalization 1) the trends associated with 'knowledge society' accelerated. Some of these trends include the rise of information and communication technologies, which has been accompanied by a cultural revolution. 2) Uncertainty can be seen due to the acceleration process and innovation about the identification of an individual into social affinities, gender roles, jobs and careers.

To be competitive the higher education institution must ensure that the quality of their products and good academic experience is achieved by their students which can be achieved if academic knowledge, capital, infrastructure and innovations can be easily created across the higher learning institutions. Therefore globalization and marketization are forcing the higher Education Institutions to think about the way in which they teach, conduct research and manage the institution and its various stakeholders.

The economists from four decades have been expressing that developing countries should target national investment at the basic education level since these offers the highest social returns. Even World Bank study shows that (2003) new investment in higher education emphasizes the participation of Knowledge Economy. It requires the ability to renew economic and social systems constantly; to extend knowledge and specialist skills; to engage effectively in knowledge production and a higher education system; to be socially responsive; to be in close contact with industry; and to produce top quality graduates Asmal (2000).

Human capital, tacit knowledge and intellectual property is the source of development of academic research capacities for future economics and social development. Channelling knowledge that flows into new sources of technological innovation has become an academic task, assisting in changing the structure and functions of the universities. Realization of the benefits of this potential resource occurs through organizational innovations such as technology transfer offices, incubator facilities and research centers with industrial participation.

The universities in positioning with the productive sector have shifted its focus from exclusive concentration on the production and diffusion of knowledge to technology transfer and the formation of firms. Etzkowitz and Leydesdorff (1997:1).

The primary function of universities is reflected in the cultural function of teaching and research whereas training personnels' which is human capital function plays a secondary role. In the late twentieth century, universities received attention for their inputs to economic and social development. This is not an entirely new phenomenon academic institutions contributed to agricultural innovation during the experiment station movement of the mid-nineteenth century in the USA and was contributory in the foundation of the chemical industry, in Germany during the same period. Nevertheless, the advancement of knowledge was formerly the primarily concern of the university, whereas capitalization of knowledge was the secondary concern of the industry.

Government policies encouraged the faculty members and universities to develop wisdom capital through from knowledge management it reduce the gap between the academic institutions and industry. Any type of organization which shows interest in knowledge is closely tied to economic utility Etzkowitz (1997:141). Knowledge management is often seen as an alternative or complementing other organizational initiatives such as the Total Quality Management (TQM) and Business Process Reengineering (BPR) programmes of the 1980s. Newman (1996). The view that knowledge management is vital to achieving business success is a general theme in literature on the subject. Sveiby (2001) defines knowledge management as "the art of creating value from an organization's intangible assets". Prusak (1996:6) attempts that an organization can have competitive edge through implementing what it knows, how it uses knowledge management and how quickly it can adapts new mechanism with in the organization, in other words, how it applies knowledge management.

Knowledge management draws a wide range of cross disciplinary domain based knowledge via cognitive science, expert system, computer based work, library and information sciences, organizational science, simulations, rational and object database, semantic networks, decision support systems and technical writing and communication.

Knowledge management in Higher education

Knowledge management in higher education institutes are better able to increase student retention and better graduate rates, works to analyze the cost effective use of technology, to meet more enrolment, transform existing transaction based system to provide information and compete in an environment where institutions cross state and national borders to meet student needs continuously anytime/anywhere.

The present complex knowledge society requires the institutes to be constantly evolving, innovating, investigating, analyzing, predicting and responding to opportunities and threats. All organizations store, access, and deliver knowledge in a unique manner; the differing factor is the way that value is added to the products and services they deliver by the effective use of the knowledge capital. Universities have to avoid unrelated activities of knowledge and their staff have to recognize and respond to their changing role in a knowledge based society. Universities need to be consciously and explicitly managing the processes associated with the creation of their

knowledge assets, and to recognize the value of their intellectual capital to their continuing role in society, and in a wider global marketplace for higher education (Kok, A).

Higher Education Institutions have many challenges in the knowledge economy, renew economic and social systems, extend knowledge and specialist skills, engage effectively in knowledge production, be interconnected with industry, research centers and other institutions, and produce top quality graduates (Kok, A), (Abdullah, R., Selamat, M. et al). Universities are the main instruments of society for the constant pursuit of knowledge. Knowledge management in educational institutions should provide a set of matters for linking people (students, teachers, researchers, business and industry external entities) to processes of technologies. It also focuses on how organizations can promote strategies and practices that help the different actors to share, manage and apply their knowledge (Yeh, Y). We can distinguish two perspectives of knowledge management in higher education institutions (Yeh, Y), (Kok, A), i) academic knowledge, resulting from learning and teaching activities, the primary purpose of universities; ii) organizational knowledge, which refers to knowledge of the overall business of an institution: its strengths, weaknesses, strategies, critical factor of success, relationships with research centers, etc.

Knowledge management activities, such as discovery or acquisition (research), dissemination or share (teaching), application knowledge and their preservation (libraries, repositories). On the other hand, these issues miss their importance, if the institution does not have a strategy and a culture of creating, sharing and collaboration between the various actors across the organization, (Suciu, M., Piciorus, L. and Imbrisca, C), (Fritzche, A., Germany,C). Knowledge management method in higher education can be classified into five main categories, such as the benefits on the i) research processes, ii) the curriculum development processes, iii) student and alumni services, iv) administrative services, and v) strategic planning (Kidwell, J.J., Vander Linde, M.K., Johnson, L.S.). Knowledge management practices can also benefit management education institutions in other ways such as faculty development, research process, curriculum development, student teaching and learning process, overall control of the institutional processes like library, computer lab, recruitment, etc strategic planning like institute marketing, placements/corporate interface etc. To meet the growing requirement of curriculum design and curriculum delivery to meet the twin objective of relevance and quality of human resource development and to ensure that teaching learning processes create an environment conducive for creativity and innovations, it becomes necessary to adopt knowledge management techniques in curriculum development (Agarwal S., Sharma P.B.and Kumar M).

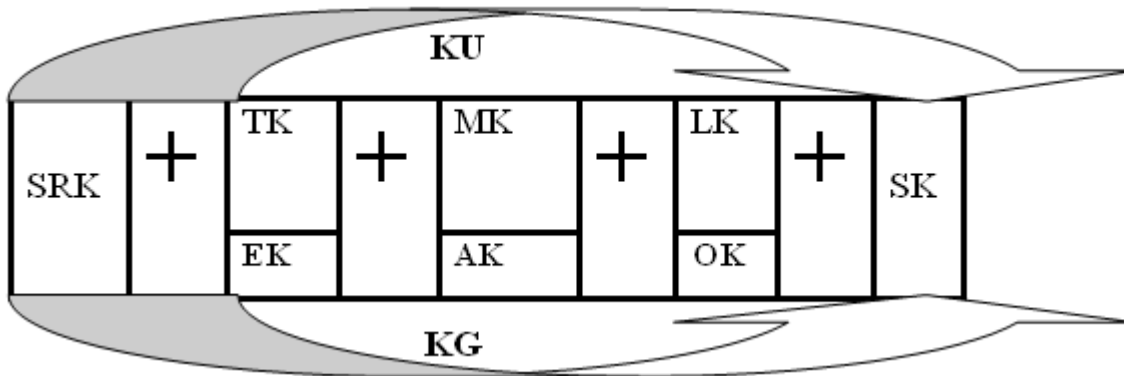
Research, which is one of the primary assignments of an institution, is the media for knowledge creation and knowledge diffusion. The Higher Education Institutions provide knowledge to the students, manage and archive the existing knowledge for future reference. Motivating and encouraging the academic community including faculty members, staff, students and parents etc. To share and contribute in the higher learning institutions are the key enablers for a successful knowledge management in the Higher learning institutions. The outlook, enthusiasm, and actions are the facilitators for effective application of knowledge management strategy, along with organizational strategy. Technology also plays an important role in knowledge transfer; it facilitates effective distribution of the tacit and explicit knowledge.

According to Thorn (2001) knowledge management implications are very broad area to be understood by the educational institutions. Therefore National Knowledge Commission has realized the importance of knowledge management; therefore the Indian Government has established National Knowledge Commission. National Knowledge Commission has to take care of the following aspect of the policies for higher education, funding, regulatory frameworks, curriculum, private sector participation, academic standards and research to resolve the current and future problems of the society. However it is a great deal for the business world to use information technology and knowledge management acquiring the market. Educational administrators and teachers have started the implementation of the knowledge management to create effective learning atmosphere. It enhances the knowledge to support their mission.

Most of the Higher education institutions have their own knowledge portals. It will distribute and connect academic community and students across the global. All most all the Higher education institutions are using following technologies for storing and distribution of knowledge to their staff and students such as i) E Business, ii) Electronic enablers for pedagogy and time management, iii) utility technologies i.e PDAs, wireless devices and virtual communities/organizations, iv) Digital education and distance learning, v) Electronic performance support systems (EPSS), vi) Learning content management system (LCMS), and vii) Learning management systems (LMS).

Source of knowledge is by dividing it into two divisions, i.e tacit knowledge (TK) and explicit knowledge (EK). Tacit knowledge is skilled oriented acquired through (know-how) learning by doing. Tacit knowledge is based on the idea that "we know more than we can present". Tacit knowledge develops the creative intuition thinking and spontaneous insight can often tackle tough problems through understanding of knowledge (OK). Tacit knowledge growth (KG) motivates learners towards achieving their organizational vision.

Explicit knowledge is carefully arranged and systematically stored in database and is accessed with high configuration of the information systems. The advantage of this type of knowledge is that it is easily accessible for other people. Therefore it is reused for solving same problems. Explicit knowledge is documented information that can facilitate theoretical principles. It is easily codified, communicable and transferable to the learners (LK). It can be expressed in formal, shared language through different methods (MK) to translate the knowledge of applications (AK) i.e formulas, equations, rules, theories and best practices. Tacit knowledge and explicit knowledge produce outcomes of knowledge (OK) and it takes the human from raw knowledge to strategic knowledge (SK) by following different methods and application. It is depicted in *Figure 1*



Strategic Knowledge of Knowledge Management

Figure 1 Conceptual Model of Strategic Knowledge

SRK: Source of Knowledge TK : Tacit Knowledge
 EK: Explicit Knowledge MK: Method of Knowledge
 AK: Application of Knowledge LK: Learners Knowledge
 OK: Outcomes of Knowledge SK: Strategic Knowledge
 KU : Knowledge Understanding KG : Knowledge Growth

Innovations Knowledge of Knowledge Management

Strategic knowledge has diffused (KD) into advance strategic knowledge (ASK), this advanced strategic knowledge has been divide into two categories i.e i) procedural knowledge (PK) ii) Metacognitive knowledge (MCK). Procedural knowledge express how to do something, methods of enquire and formula for using skills, algorithms, techniques and methods. In addition subject based core skills and its algorithms, knowledge of subject based core techniques and methods and knowledge of formula for determining when to use appropriate procedures. Metacognitive knowledge consists of strategic knowledge, knowledge about cognitive tasks, including appropriate theoretical and conditional knowledge and self knowledge embedded to apply, analyze and evaluate. In Figure-2 it has been observed that the learners develops and grows their research knowledge through strategic knowledge.

Finally it converts into innovations of knowledge (IK). It is depicted in *Figure 2*

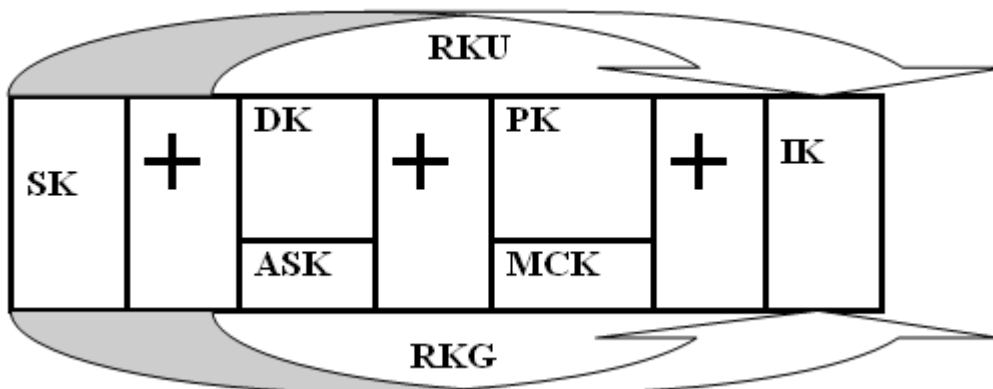


Figure 2 Conceptual Model of Innovation Knowledge

SK: Strategic Knowledge DK: Knowledge Diffusion

ASK: Advance Strategic Knowledge

PK: Procedural Knowledge

MCK: Metacognitive Knowledge

IK: Innovation Knowledge

RKU : Knowledge of Research Understanding

RKG : Knowledge of Research Growth

*** Strategic knowledge + Research knowledge = Innovative knowledge (Ideas of Knowledge)**

Comparative Analysis

Model 1 mainly concentrate on how the source of knowledge is converted into strategic knowledge, while in the processes of conversion of tacit knowledge and explicit knowledge convert into knowledge diffusion again it convert as application of knowledge. The learner develops his knowledge with understanding the core concepts of the subject and it convert into strategic knowledge.

In Model 2 strategic knowledge is the source of knowledge of the learners, while learning knowledge the learner's diffuse the knowledge and select advance strategic knowledge. It enhances the learners procedural knowledge, it produce the subject core skills and its algorithms, subject core techniques and its methods and knowledge of formula for determining when and how to use appropriate procedures to solve the issues. Accordingly Meta cognitive knowledge enhances the strategic thinking, cognitive tasks, theoretical and conditional knowledge, self awareness and self knowledge. While in this process the learner understand the research concepts and move towards the growth in research. The learners apply his knowledge of analysis into the problem and do evaluation of the problem and finally come up with new ideas/innovation.

Knowledge management in universities and research

The knowledge based institutions facilitate excellent characteristic of knowledge workers, they demonstrate strategic, managerial and operational traits. Knowledge workers do knowledge gaining practices such as collect the knowledge from various sources; share the knowledge, distribution of the knowledge, knowledge storing, reuse the knowledge and knowledge innovations. Therefore higher education institutions have to cultivate and encourage research oriented curriculum to the students. If higher education institutions incorporate this mechanism in their curriculum, the higher education institutions can produce knowledge workers. The knowledge workers construct the following characteristic to the higher education institutions.

1. Knowledge workers demonstrate good thinking, managerial skills and analytical power skills which it converts into innovative and creativity skills.
2. Knowledge workers do continuous learning it create awareness about the demand of future changing environment and they implement those strategies which organization stand and sustain.
3. Knowledge workers built trust among the workers and believe in team spirit, collaborations, cooperation and coordination.
4. Knowledge workers calculate the risks and are ready to face risks as well as they are emotional intelligent people.
5. Knowledge workers share their knowledge, skills and ideas with others and at the same time they learn from others.
6. Knowledge workers highly motive and produce best performance for the organizational development through productivity (knowledge oriented students), quality (in terms of education), innovations and intellectual property.
7. Knowledge workers keep the organization as source of value creation, strategic facilitator and competitor.
8. Knowledge workers facilitate the good services to the students, alumni, staff and faculty members.
9. Knowledge workers deliver best & foremost quality of research.

Benefits from Knowledge Management

Knowledge management facilitates following benefits to the higher education institutions.

1. It improves services to the students, staff, faculty members, alumni and internal and external constituents.
2. It minimize turnaround time for the research activities
3. It encourages the institute into interdisciplinary research activities
4. It enhances competitiveness and responsiveness for research proposals, funds, collaborations and new business opportunities.
5. It concentrates on quality of research at institutional level which will cultivate future scientists.
6. It enhance the competitiveness and responsiveness for research scholar
7. It minimize time spent for research and reduces administrative cost
8. It facilitates interdisciplinary research
9. It enhance the quality in updating and revising the curriculum
10. Knowledge management develops the capabilities of human capital, customer capital (students), organizational capital, innovation capital & intellectual property and financial capital.

Scope for further Direction

Many knowledge learners are poorly organized to the various curriculums of their studies and the relationship between the various knowledge data to which learners may have access is not clearly defined. However, the greater challenge lies with the other two elements of knowledge management i.e creation of a knowledge

environment and recognition of knowledge as innovation of management, through there is still scope for considerable progress.

Limitations

The models designed in this paper are a conceptual work and has not yet been formally tested.

Conclusion

The management of research by institutions of higher learning is becoming more strategically importance day by day. Higher education institutions must focus on creating and developing knowledge workers that can succeed and excel in a competitive global environment. Therefore Higher education institutions must identify the knowledge dimensions needed to provide quality research based programs that develop students into knowledge workers. Additionally Higher education institutions need students and faculty members committed to lifelong learning in order to sustain and improve their knowledge capital. Higher education institutions have to concentrate on the strategic knowledge, procedural and enhancement of metacognitive knowledge, the process of understanding, applying, evaluating, and creating of ideas in order to develop knowledge workers. Those who have these qualities in them, they are demand forever.

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