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Knowledge Management in Education in Indonesia: An Overview

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Abstract- Our era hic and nunc was known as “knowledge era”, “knowledge community” or “knowledge society”. The reason is that knowledge has become the central of this era. The main problem is on how to manage this knowledge in order to become an asset as problem – solving tool, especially in the area of education. That is why, in early of 1990s experts tried to explore the notion of “knowledge management”. As a consequence, knowledge management has been recognized as an effective instrument for improving the performance and productivity of an organization in this knowledge era including in education areas. Today, knowledge management has become “the heart of education and research in terms of development and improvement” worldwide. In this context, knowledge management is a process, process of acquisition, validation, utilization, sharing, storage and diffusion of knowledge. However, in Indonesia many educational institutions have not been implementing knowledge management as a strategic vision, a mission nor as goals comprehensively. One of the reasons is the limitation of a medium in accessing knowledge management information and in getting into the sources of knowledge. This paper is an overview of knowledge management in an educational context. The general ideas on knowledge management in education are explored in this paper. Such as, experts have emphasized that educational institutions are the centre of knowledge acquisition. Therefore, educational institutions should manage knowledge as the heart of education in a sustainable way. In addition, this paper analyzes knowledge management concept from the perspective of education and explores strategies in sustaining knowledge management in education, which in turn, can solve educational problems. This paper also provides a framework of knowledge management process in education for future practice in Indonesia.

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I. INTRODUCTION

Knowledge has been acknowledged as an asset, as capital, as a resource and as power in improving organizational performance for competitive advantage; knowledge management has become a standard practice in an organization worldwide (Evers & Gerke, 2005). Meanwhile,

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knowledge management is viewed as an entity through which people or the organization establishes new decision-making processes and re-conceptualizes the organizational structures. However, many organizations have not implemented knowledge management as a strategic vision, a mission or as goals effectively. The issue of not embracing the sustainability of knowledge management in the organization is also faced by education institutions in Indonesia.

The key issue in the literature surrounding employees and especially leaders and leadership's commitment and participation in managing knowledge is the difficulty of articulating and implementing the conceptual framework into a sustainable approach in organizational practices. The main challenge many organizations face in taking leading roles in implementing knowledge management in their organizations, including education, is on how to learn and struggle in sustaining this practice (Wick, 2000). Essentially, these problems were epistemologically and ontologically based. This means the problems are generated from the nature and philosophy of knowledge and knowledge management. They are also engendered from the real practice of knowledge creation and effective knowledge management in educational institutions.

Education institutions have carried out programs in relation to knowledge acquisition such as training, surveys, study tours, workshops, seminars, conferences, teaching and learning processes, research, networking, organizational self-assessment, strategic planning, and conflict resolution. The problem is on how to document and codify the results of these activities as knowledge assets and managing these knowledge assets in the organization continually, which will become a lesson-learned for others and for the next generation (Salo, 2009). Ultimately, the problem of articulation and the implementation of a knowledge management strategy in a sustainable way in educational organization are not straightforward and the potential solutions and resolutions evidently need a wide range of strategies and a strong and visionary leadership on how to re-structure and institutionalize this practice in an education organization.

31

Volume XI Issue I Version I

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II. THE CONCEPTUAL FRAMEWORK OF KNOWLEDGE MANAGEMENT

1) *The Conception of Knowledge Management*

The terminology of knowledge management was introduced in the 1990s. It roots in many principles. For example, it comes from a philosophical view to understand the role and nature of knowledge. It emerged from concrete concerns for organizations to understand "the very nature of knowledge, how it is generated and created, how it is represented and structured, and how it is accessed and utilized" (Todd & Southon, 2000, p.142).

Alavi and Leidner (1999) defined knowledge management as "a systematic and organizationally specified process for acquiring, organizing, and communicating both tacit and explicit knowledge of employees so that other employees may make use of it to be more effective and productive in their work" (p. 1). Implicitly, this definition illustrates the strategic goals of knowledge management, where knowledge management is a strategic direction for the organization and its members to achieve their strategic objectives. However, the authors did not include other elements in the organization, excluding employees, such as management, leadership and other stakeholders in the organization involved in the process of knowledge management. Although it is true that the author elaborated knowledge management as a systematic process, predictably it demonstrated the active perspective of knowledge management; rather than knowledge management only as a passive activity.

Knowledge management in the context of education includes tacit and explicit knowledge. Knowledge management is a form of expertise management which draws out tacit knowledge making it accessible for specific purposes to improve the performance of the organization. The tacit knowledge is embedded and embodied in every individual of the organization (Nonaka & Takeuchi, 1995). The explicit knowledge is represented in the forms of program activities, documents, libraries, organizational plans, research results reports, books, and computer-based data (Rusanow, 2007). Therefore, in order to remain competitive, educational organization has to embrace knowledge management simultaneously and continuously.

Knowledge management is also a process; a systematic process of knowledge acquisition, utilization, storage and diffusion. Skyrme (2003) emphasized knowledge management as the explicit and systematic management of vital knowledge and its associated processes of creating, gathering, organizing, diffusing, use, and exploitation. Knowledge management is a process of communicating both tacit and explicit

knowledge between employees so that, in turn; they have the common perceptions and share that knowledge. This paper suggests that knowledge management is a process of creating a common language in the organization (education) and the educational community so that all of the educational community and other stakeholders in the organization can understand and construct new knowledge. At this point, the role of the leaders and leadership in educational organization is essential, especially in managing knowledge in a sustainable way.

2) *Knowledge Management as a Process*

Knowledge management as a process recognizes and comprehends a landscape of activities, programs, capabilities and initiatives. The process of knowledge management is active, dynamic, productive and innovative (Zack, 2002). The dynamic aspects entail a strategic perspective of knowledge management. Furthermore, knowledge management is a precondition of learning in the organization. Knowledge management includes "processes that allow learning to occur and knowing to be internalized", (McInerney, 2002). Consequently, knowledge management is not just an abstract concept, but it is also a practical instrument for teaching and learning process. If knowledge management is a process, it can transform tacit knowledge to explicit knowledge, allowing others in educational organization to use it for decision-making process and policy design (Nonaka & Takeuchi, 1995). From an educational perspective, knowledge management can become an instrument for reforming an educational system. As a process "knowledge management effectively engages and utilizes human competencies, experiences, expertise, skills, talents, thoughts, ideas, intuitions, commitments, innovations, practices, and imaginations and integrates them into the information resources an organization uses to achieve its goals", (Todd & Southon, 2000, p.148). Therefore, knowledge management contains a wide range of interaction processes dealing with knowledge, especially in education.

3) *The key features of Knowledge Management*

In order to understand and sustain knowledge management in an educational organization, it is important to consider its key principles. This paper looks at three principles of knowledge management in education: contextual, holistic and problem-solving. These principles are reflected and examined as *sine qua non* (an advantageous environment) for an effective knowledge management in education context. These principles are as follows:

dimensions and every organization is unique. As a result, knowledge management practices should be put in context, in a sense that knowledge management practices need to be articulated according to the context of educational organization. Reasonably, "knowledge is created in context, knowledge is context sensitive [and] the user must be able to know the context under which the [knowledge] artifact was created", (Desouza & Awawu, 2005, p.767). This implies disseminating and contextualizing knowledge management practices in the organization, such as education. Wick (2000, p. 515) emphasizes that knowledge management becomes;

"less confusing when we understand that the multiple definitions are relative to the context, in which they are used, most notably the disciplinary influences of the people implementing knowledge management and the organizations in which it is implemented."

The second principle is *holistic*. Holistic means managing knowledge comprehensively in an educational organization. Holistic knowledge management includes tacit and explicit knowledge (Nonaka & Takeuchi, 1995), codification and personalization (Hansen *et al.*, 1999). This also means integration between people and technology, knowledge acquisition, assessment, utilization and diffusion, analytical/theoretical and practical knowledge management (Rusanow, 2007). Holistic knowledge management is to integrate it with familiar aspects of the organization: strategy, process, culture, behavior (Davenport & Prusak, 1998). What is needed in this knowledge era is a much more holistic approach to knowledge management. Bell (2003, p.99) suggested, "The emphasis will be on holistic policies that focus on integration rather than fragmentation, recognize that the sum is greater than the parts". Knowledge management, therefore, should be long-term and holistic, in order to remain competitive in this knowledge era.

The third principle is *problem-solving*. The most fundamental purpose of knowledge management is for educational problem-solving. Successful knowledge management strategy and initiative in the organization emerges with specific organizational problems, which the organization is trying to solve (Gordon, 2005). For example, an educational perspective, knowledge management initiatives are emerging based on the problems of knowledge diffusion and distribution, lack of codifying and knowledge sharing. That is why Bickerstaff, as quoted by Gordon, highlights that knowledge management has to be perceived as an organization problem solver, not

as an abstract concept. For that reason, it is important to maximize the significance of knowledge management as a problem-solving mechanism in the organization and in the community, then, in turn, it can impact on a just and balanced policy and decision making design process in education institutions.

III. KNOWLEDGE MANAGEMENT IN EDUCATION

From a reflexive perspective, the complexity and problematic of national educational quality in Indonesia is due to the problem of not embracing knowledge management in education areas. For example, in 1970s, education quality in Indonesia was really good. It became lesson-learned for other nations, such as Singapore and Malaysia. However, this best – practices (knowledge) were not maintained by Indonesia. This was an evident of not sustaining knowledge management in education sector in Indonesia.

Experts highlight that the main business of education sector is in acquiring knowledge. In addition, in order to achieve a better quality education, educational departments have to apply knowledge management in a sustainable way. Such as Gürbüz (n.d) points out that:

"The management of knowledge has always been at the heart of education and research in terms of development and improvement. This reality together with the complex interplay of social, economic, and technological forces (is) strengthening the importance of knowledge and its management".

Consequently, educational institutions should seriously articulate knowledge management in the teaching and learning process. The reason is that, the philosophy of teaching and learning is not about how knowledge is transferred from teachers to students, but on how the learners can design and create new knowledge from the present knowledge. There are lots of means for creating new knowledge, that is, through research, surveys, and field studies.

In relation to the implementation of School-Based Management (SBM) in Indonesia, it is hoped that the education community not only manage personnel/human resources, financial, facilities and curriculum, but knowledge as well. Managing knowledge should become the central focus in education institutions. Therefore, this paper outlines a model of knowledge management in education in Indonesia for future practices.



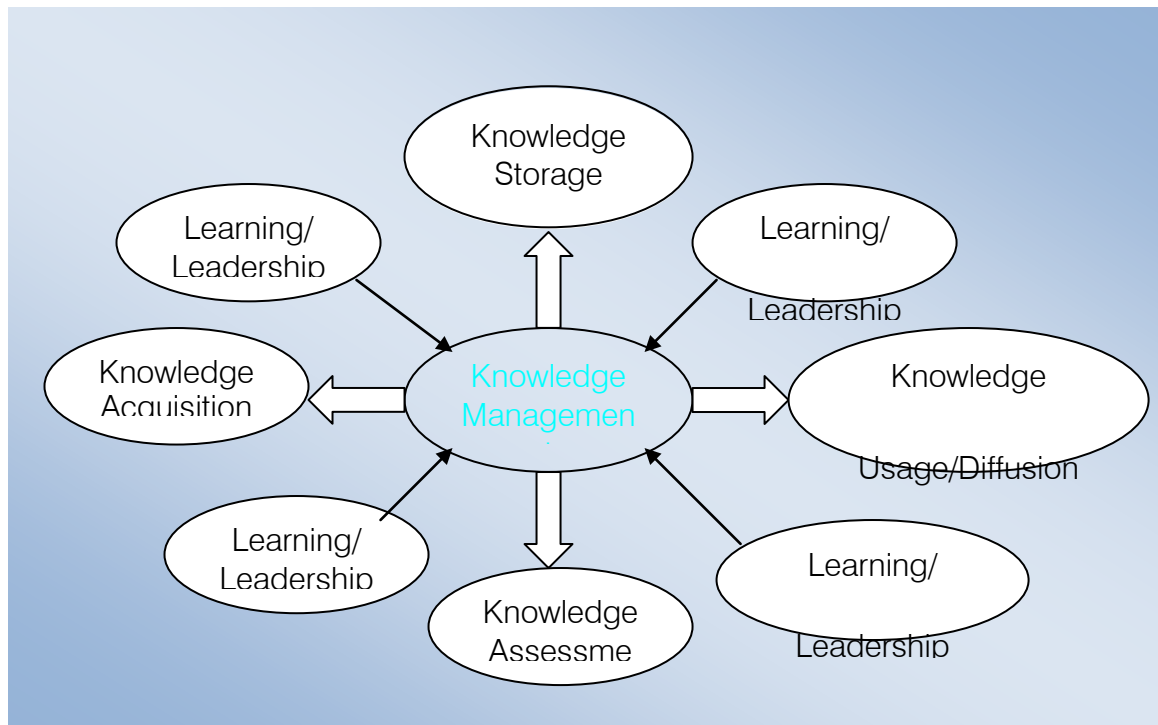


Figure 1: Knowledge Management Model in Education

There are several elements in this model, that is, knowledge management, knowledge acquisition, knowledge assessment, knowledge usage, knowledge diffusion, knowledge storage, learning and leadership. These components can be described as follows:

1) Knowledge Management

In the proposed model (Figure 1), knowledge management becomes the central feature of the organization. Knowledge management is the movement of knowledge acquisition, validation/assessment, diffusion, storage, utilization and learning processes (Patriotta, 2003). Knowledge management becomes a strategic solution and effectively engages and utilizes human competencies, experiences, expertise, skills, talents, thoughts, ideas, intuitions, commitment, innovations, practices, and imagination and integrates them into the information resources the organization uses to achieve its strategic goals (Todd & Southon, 2000). Therefore, an educational community should embrace knowledge management as a strategy in implementing the organizational philosophy and operations.

That is why expert emphasizes the priorities of knowledge management in an organization, including education institution:

Where strategic knowledge is strong, knowledge management can focus on enabling knowledge sharing and distribution, and ensuring that learning is focused on maintaining a strong competitive knowledge position. Where opportunities abound, knowledge management can focus on exploring the firm's (education) "knowledge platform" by deriving new products or services from or by locating new markets for its knowledge. Where weaknesses exist, knowledge management must focus on acquiring knowledge, for example, through training, recruiting, or alliances. Where threats loom, knowledge management must focus on providing sufficient learning opportunities and capabilities to strengthen the firm's (education institutions) knowledge position. In all cases, a firm's (education) strategic agenda and competitive context should drive the priorities for knowledge management (Zack, 2002, p. 275).

2) Knowledge Acquisition

The sources of knowledge or knowledge acquisition can be categorized into two – internal and external. Knowledge acquisition means the development or creation of skills, insights, relationships, whether internally or externally (Nevis *et al.*, 2000). Lave (1993) argued that the acquisition of knowledge is not a simple matter of taking in knowledge; rather, things assumed to be natural categories, such as 'bodies of knowledge', 'learners', and 'cultural transmission', require re-conceptualization as cultural, social products. Based on this theoretical basis, there are at least three major sources for knowledge acquisition in education.

a) Knowledge Organization

The notion of the knowledge organization is explicitly underpinned by the hypothesis that at the beginning of an organization, it has prior knowledge. The founders, boards, controlling sections, staff all have prior knowledge. Byham *et al.*, (2002, p.356) viewed the knowledge organization as "the degree of understanding that senior managers must have about how the organization operates. Included are areas such as functions, process, systems, and products and services". Liebowitz and Beckman (1998) defined knowledge organization as an entity that realizes the importance of its knowledge, internal and external to the organization, and applies techniques to maximize the use of this knowledge to its employees, stakeholders, and customers. Furthermore, Tsoukas and Vladimirou (2001, p.973) conceptualized knowledge organization as;

the capability members of an organization have developed to draw distinctions in the process of carrying out their work, in particular concrete contexts, by enacting sets of generalizations whose application depends on historically evolved collective understandings.

However, this paper underlines knowledge organization as acquiring tacit and explicit knowledge through teaching and learning processes, interactions, and through the process of carrying out other program activities in education. Knowledge is a valuable asset and the source of competitive advantage of the organization. At this point, educational institution is as a body of knowledge, focusing on turning its ability to create, manage and diffuse knowledge as a determinant of competitive performance (Patriotta, 2003). However, the current debate on knowledge organizations has highlighted the difficulty of documenting empirically the process of creation, accumulation, and maintenance of knowledge in the organization.

b) Staff-Based Knowledge

All organizations, including educational institutions are potentially rich in staff-based knowledge or educational community based-knowledge. Wiig (2000, p.25) states that "people are the intelligent agents that create and act on new opportunities". Therefore, the organization needs to empower the staff with new skills, knowledge and encourage new attitudes. In addition, Bessant (2003, pp.6-7) states that:

Those organizations that invest in developing the specific knowledge and skills of their employees and the general capability to learn, those that provide opportunities and space for interaction and share learning, those that emphasize effective communication and sharing of information, those that recognize and reward learning behavior – these are likely to be the organizations that succeed in developing into the kind of learning organization that is much talked about but hard to achieve.

Knowledge is created or acquired through the interactions among individuals or between individuals and the environment. In this sense, educational staffs are really the organization's most valuable assets. Staffs actually represent the powerhouse for learning. Without actively committed and focused learning, any organization is likely to stagnate and will struggle to create the steady stream of change it needs to survive. Investments in assets like buildings, equipment or IT systems may help the organization, but without a core learning capability the long-term future will be uncertain (Bessant, 2003).

c) Program Activities-Based Knowledge

Knowledge can be acquired through program activities in educational process. These knowledge-based activities are networking, research, experiments, training, workshops, seminars and teaching and learning processes. Through these program activities, educational institutions can acquire new knowledge, skills and modify attitudes. Training, for example, is an investment that the organization designs. Jones (1994) conceptualized training as a planned process to modify attitudes, knowledge, skills, or behavior, through learning experience that achieve effective performance in an activity or range of activities. In the work situation, these activities develop the abilities of the individual and satisfy the current and future manpower needs of the organization.

3) *Knowledge Assessment*

In order to maximize the use of knowledge, the organization tries to audit or assess knowledge internally and externally. In the process of auditing, the organization is being selective - which knowledge should be removed and which knowledge could be used. In a world where access to information is fast and widespread, those organizations which can create and use their own knowledge are likely to be able to build and sustain a competitive advantage. Thus, the organization needs to become good at learning – and occasionally forgetting knowledge that they no longer need (Bessant, 2003).

Knowledge auditing is inevitable as part of a knowledge management strategy. It must be put in place at the first stage of knowledge management initiatives. However, on the practical level, it is often neglected. A knowledge audit is important to justify and validate whether the knowledge acquired is qualified or not, and in turn, whether it can be used, shared, or stored in the organization (Henrie & Hedgepeth, 2003). In spite of this, knowledge auditing is not just the first stage of the knowledge management initiatives, but it should continue throughout the process of knowledge management in educational organization. Therefore, a knowledge audit is an effective tool in order to assess knowledge and learning strategies in the organization.

4) *Knowledge Utilization*

The validated knowledge provided through an audit is imperative to use in the organization. Knowledge utilization means the integration of learning so it is broadly available and can be generalized to new situations. Knowledge utilization is the process of articulating and applying the acquired and validated knowledge in influencing decision-making, policy design, problem-solving or creating new solutions for human needs. It takes advantage of new opportunities and it creates new knowledge. Knowledge always undergoes construction, transformation and retention in use and action (O'Toole, 2004a).

5) *Knowledge Sharing*

Most studies of organizational learning have been concerned with the acquisition of knowledge and, to a lesser extent, with sharing or dissemination of the acquired knowledge or knowledge diffusion. Less is known about the assimilation process, the stage in opposed to being the property of select individuals or which knowledge becomes institutionally available, as groups (Nevis *et al.*, 2000). Therefore, the organization should efficiently share this knowledge throughout or in every level of the organization.

However, recent studies have rejected transfer models which isolate knowledge from practice and emphasized the social, situated nature of the learning experience. The main claim of situated learning theories is that knowledge is embodied and embedded in praxis – action and reflection (Freire, 1996). Patriotta (2003) emphasized, rather than being passive recipients, the communities of learners are constantly engaged in sense-making and interpretation activities whereby knowledge is appropriated out of a wide range of materials. So the focus is not how knowledge is transferred but mainly on how that knowledge is understood and internalized. And in turn, how it creates new knowledge and solves problems. Therefore, the organization needs a new culture that supports learning and knowledge sharing in the organization.

The main issues for educational institutions are knowledge loss and unsustainable knowledge management in the organization. Research in this area has proved knowledge loss and unsustainable knowledge management are the key concerns in many organizations (Newman, 2003). However, Nonaka and Takeuchi (1995) laid a strong foundation for knowledge management practices in the organization by figuring out the cyclical conversion of tacit and explicit knowledge. In the process of interactions between employees in the organization and through social processes, tacit knowledge becomes explicit, and in turn, accessible and available to all employees and other stakeholders in the organization.

The new understanding of knowledge management strategy in the organization emphasizes the need to adjust the present practices, as well as the creation and application of new knowledge within new practices in the organization. The co-modification of knowledge is suggesting a causal relationship between organizational knowledge and competitive performance, and an improvement of the way the organization manages knowledge (Patriotta, 2003). Therefore, a deep awareness and reflection on knowledge management sustainability in educational organization is really essential needed.

6) *Knowledge Storage*

The acquired and validated knowledge needs to be stored, in order to protect it from loss. There are strategies to store knowledge. For example, it can be stored through documents or technology. Technology provides means of storing and retrieving knowledge through computerization (Swan & Newell, 2000). This is important, so that other people or the next generation can access the same knowledge. However, the organization must do more than accrue and store knowledge in order to improve their profitability and effectiveness (Henrie & Hedgepeth, 2003).

7) Learning

Learning in this paper is seen as a channel where knowledge is acquired. Knowledge is acquired through learning, learning from the organization, experts, program activities, other staff and stakeholders. Learning is "the central process promoting openness, communication, trust and the shape of decision rules where it is inclusive, accessible and based on reliable knowledge" (Cooke, 2002, p.85). Learning is profoundly socially interactive and is a constructed understanding. Trust is a fundamental requirement and, if successful, an outcome of the learning process. The organization needs to provide the environment and culture in which individual learning can take place. In the end learning is essentially a human process involving individuals and groups in different configurations and the outcomes of learning are new knowledge and innovations (Bessant, 2003).

Gürbüz (n.d) describes the goal of knowledge management is to develop the potential for the learning of individuals and organizations, by developing, exchanging, and using knowledge; knowledge management can thus be seen as a prerequisite for innovation in organizations. This new understanding of education will move from being curriculum driven to being learning centered. Today's knowledge society emphasizes innovation and intellectual capital and makes knowledge management a strategic issue that holds one of the highest potentials for gaining efficiency, and creating value in organizations. Consequently, the asset base is shifting from traditional tangible assets to an intangible asset base such as innovation, effective utilization of knowledge and human capital resources. It is necessary to understand how to strengthen the management of knowledge for supporting activities, and planning quality standards. Furthermore, knowledge management initiatives are required to adapt to meet new challenges and retain the leading organizations in education and research.

8) Leadership

A new challenge of the organization-based knowledge today is the issue of sustainability. Problems of sustainability occur, in part, because of the limitations of the leadership skills and effectiveness (Stoll & Earl, 2001). The main reason is that, leadership cannot handle all aspects of management in the organization. However, the terminology of sustainability has different interpretations in organizations and society. Sustainability always relates to the social,

environmental and economic implications and values in the society (Gilding, 2000). Thus, it is important to articulate a leadership style that can keep "the organization focused on its long-term goal of becoming sustainable while encouraging employees to work together diligently toward that end", (Doppelt, 2003, p.38).

In this context, leadership has the important role of creating and providing the organizational climate, so that knowledge acquiring, audit, utilization and diffusion, and knowledge management can be carried out effectively. Strategic leadership is seen as a key element in effective strategic management (Joyce, 1999) of the organization. The reason is that "once an unambiguous vision of the future and clear principles have been set out, a sequenced set of strategies, priorities and tactics can be established to attain them", (Doppelt, 2003, p.131).

Nonaka and Konno (1998) argues that successful knowledge management occurs when leadership embrace and foster the dynamic of knowledge creation. In this framework, the roles of the leaders and leadership are providing and enabling spaces for knowledge creation. Leaders must support emerging processes with visionary schemes and a personal commitment of time and power. The real support of leaders and leadership towards knowledge creation are things such as responsibility, justification, financial backing and caring. Therefore, managing emergent knowledge in the organization requires a different sort of leadership. It is very important to have leadership roles in every level of the organization, leadership at the core as well as at the periphery (Schueber, 2003) of the organization in influencing knowledge management sustainability. There are various roles of leadership in education; such as vision and mission setting, creating culture and structure of knowledge, empowering staff, creating knowledge management systems, and being open to change.

a) Vision and Mission Setting

Vision is one of the leadership characteristics in the organization. The leaders and leadership challenge the process, share an inspired vision, and enable others to act and model the way forward. Vision and leadership become the key elements in the organization, where the vision provides the goals, whereas principles frame the path for the organization (Doppelt, 2003). The other directions relate to manufacturing new cultures and inspiring people through the visions of leaders so that the employees can share the knowledge and work toward achieving an inspiring vision.

Leaders work together with employees to achieve the organization's goals, and relationship-oriented leaders concern themselves with people and maintaining positive relationships (Ray, 1999). While value-based leadership is enthusiastic, positive, encouraging, morale modeling, motive arousing, confidence building, dynamic, convincing, visionary, inspirational, decisive, and performance-oriented, it also needs high integrity (Smith & Peterson, 2002).

Leavy and Wilson (1994) emphasize that a vision can be achieved by refocusing on the expressive perspective of leadership. Expressive perspectives are rooted in the interactions of leaders, with the context and organizational history, where the organization can begin to get a better understanding of the wellsprings of strategic vision and inspirational leadership. This understanding drives the organization in decision making processes. Therefore, leadership has great implications for vision designing and in influencing policy and decision making processes in the organization.

b) Creating Culture and Structure of Knowledge Management

Organizational culture is experienced in what it feels like to work in the organization. Researchers observed that 50 to 70 percent of the organizational culture can be traced to its leadership styles. As a result, to institutionalize sustainability in the organization, the leaders play a pivotal role in creating an advantageous culture and environment. To achieve this sustainability, the leaders must actively pursue the objective of changing the organization's culture to one that values sustainability at every level of the organization (Lussier & Achua, 2004). Thus, leadership is required in a time of crisis, and also has a capacity for all to be committed to a common purpose and to work together in a sustainable way.

The leaders create the culture of knowledge sharing in the organization and establishing structures and processes to bring the vision to realization, and monitor the outcomes of knowledge management in the organization (Nonaka & Konno, 1998). The successful leaders at each level of the organization will have a capacity to change the culture that is not underpinning knowledge sharing and management in the organization. At this point the cultural change toward sustainability requires leadership. Leaders provide a global product strategy, coordinating resource allocation and coordinating resource flows across cultures. Leaders develop "a strategy-supportive culture, create an effective organizational structure, prepare budgets, develop and utilize information systems and link employee compensation to organizational performance," (David, 2001, p.6).

c) Empowering

The organizational and human resource management development study characterizes leadership as playing an important role in empowering people. Ideally, the leaders and leadership engage employees and other stakeholders in the organization in designing a vision and mission (Joyce, 1999). However, most leaders embrace the traditional model of organizational vision and mission formulation. This is one of the critiques of this paper that the leaders have to be involved in all components of the organization to design the organizational vision and mission, so that they have the sense of ownership and responsibility in the organization.

One of the failures of program activities, including knowledge management and high turnover in the organization is the lack of a sense of ownership and responsibility of employees. For example, Stacey (2003, p.165) shows that "writers on knowledge management seem much concerned with people leaving an organization and taking their implicit knowledge with them". Therefore, the leaders and leadership must be concerned with the conversion of individual tacit knowledge into explicit form and the storing of that explicit knowledge in either centralized or distributed systems, so that employees and other stakeholders in the organization can access it.

In addition, the emphasis on value-based leadership clearly liberates individuals from excessive command and control management. This combination sustains employee focus on all the knowledge that is most critical to the success of the organization. Leadership grows from the capacity to hold creative tension when people articulate a vision and tell the truth about the reality (Senge *et al.*, 2000). This implies that every organization has many leaders because there are people at each level in the hierarchy who play critical roles in generating and sustaining creative activities. Lussier and Achua (2004, p.435) stated that "the challenge for organizational leaders is to recognize that each person can bring value and strengths to the workplace based on his or her own unique background". In relation to knowledge management initiatives, involve the organization developing a deep capacity of its entire staff to be at the forefront of knowledge and skill in supporting the teaching and learning process.

d) Creating Knowledge Management System

An organization is acknowledged as a knowledge system and learning agent. As a result, the

leaders and leadership should create an informed system in order to underpin knowledge management sustainability in the organization. Effective knowledge management can occur when knowledge is in a system. If knowledge is dispersed, it is difficult to manage (Alvesson & Kärreman, 2001). Knowledge management initiatives and activities should fit together as a system. Here, the roles of the leaders are to create the conditions that allow others to shift the place from which the system operates (Stacey, 2003).

Moreover, the organization today has a new understanding of management. For example, Stacey (2003, p.165) highlights that management is understood in systemic terms and the prescriptions related to design and operation of a system ensure the quality of the teaching and learning process. On this point, knowledge management emphasizes the need for devising systems and procedures in order to create, encode, diffuse, and retain the knowledge that the organization produces in program activities (Patriotta, 2003) and integrates it into a system. Integrating and synthesizing systems means providing a mechanism that supports self-organized conversion support and action-reflection units in order to capture the emergence of new meaning in changing contexts (Nonaka *et al.*, 2001).

e) Open to change

Building a new system of the organization requires transformational leaders who can raise the high level of group practices to its values and are able to create a common understanding and foster a willingness to change. Thus, transformational and inspirational leaders are socially daring and change seeking. Socially, skillful leaders possess high interpersonal skills, relate well with people, are good at building relationships, interact well at all levels in the organization, understand the needs of others, identify with their subordinates and are caring, flexible, and open to ideas (Khatri & Felker, 2004). Thus, leaders must be open-minded and responsive – open to change.

The organization needs new opportunities. These opportunities are to introduce change and propose the strategies to meet the strategic goals, vision and mission of the organization. Without continually expanding knowledge and understanding, it is difficult for organizations to learn how to overcome the many barriers. Leaders need the ability to analyze situations, mobilize commitment, and establish mechanisms, for change. Change becomes a learning process because it seeks to facilitate individual and organizational learning (Doppelt, 2003).

IV. KNOWLEDGE MANAGEMENT PRACTICES IN EDUCATIONAL INSTITUTIONS

Realizing the social aspect, human beings need organizations or institutions that underpin the well-being of the members and to support them to achieve the common goals. Drawing on the theoretical basis, the organization or institution has several components in order to achieve these common strategic goals. These components are structures, leadership, management, power coalitions, common goals, and design (Mendonca & Kanungo, 2007). An organization or institution is an integrated knowledge system and the management of the organization or institution is concerned with the effective use of that knowledge (Todd & Southon, 2000).

Educational institutions, for example, have the capacity to design and construct the structure. Through this structure, the educational communities are allocated and designated a different task, role, and status levels in order to achieve efficiently and effectively a common purpose. Organizational structure implies that there are leaders (schools' principles) and followers (teachers, students). The leaders are expected to provide direction, exercise control, and generally execute such functions that are necessary to achieve the organizational objectives. The structures, mechanisms, norms and activity in the organization are to support the sustainability of the organization (Mendonca & Kanungo, 2007), including the sustainability of knowledge management in education.

This analysis is based on the conceptual basis of the organization or institution. Robbins and Barnwell (1994, p.4) conceptualized an organization as "a consciously co-ordinated social entity, with a relatively identifiable boundary, that functions on a relatively continuous basis to achieve a common goal or set of goals". This definition has a wide array of critical elements. Firstly, *consciously co-ordinated* is not only leading to management, but also to leadership and members of the organization. *Social entity* implies that there are effective and constructive interactions between members in the organization.

Another element is a *relatively identifiable boundary*. This means that organization has a clear procedure and mechanism for defining membership. The validation of this boundary is through job contract and job description. The next element is a *continuing bond*. Reflecting on the social aspect of the organization, it is important to build a close relationship and also keep in touch, even though the staff members may have left the organization. Finally, the organization has *common goals*. These goals are the strategic

direction for the organizational members and leaders, and the articulation of the organization's mission (Robbins & Barnwell, 1994).

However, the educational community needs to re-conceptualize the notion of organization in today's knowledge and knowledge management movements. The most innovative aspect of the knowledge-based approach is the re-conceptualization of the organization as knowledge architecture, knowledge-based organization (Patriotta, 2003). Prahalad and Hamel (1990) illustrated the organization as a large knowledge tree. This knowledge tree is articulated according to a series of end products, business units, core products, and core competencies. Each is reflecting in a more in-depth way the distinctive body of knowledge of an organization. Then, the ideal organization is a good place to work, a good place to share ideas, experience and knowledge (Infante, 1989) and is continually managing knowledge. Furthermore, Infante (1989, p.104) claimed that:

A good place to work is one which engages the whole person – his or her thoughts, feelings, and, yes, even aspirations. It is a place which values diversity, and sees people's uniqueness as the seed of new ideas and possibilities. A good place to work is where people feel at ease collaborating cross-functionally and feel empowered to make decisions that are right for the organization.

Based on the historical and philosophical grounds of knowledge management, some educational institutions have initiated knowledge management practices within the organization. There are two strategies of knowledge management in the organization. These are codification and personalization. Ideally, the codification strategy of knowledge management centers on the computers, where knowledge is carefully codified and stored in databases, where it can be accessed and used by anyone in the organization (Hansen *et al.*, 1999), in schools or universities.

In addition, codified knowledge is mostly in the form of documents, such as program reports (monthly and annually), brochures, bulletins, CD/Video programs, books and journals, organizational profile, procedures, regulations, mechanisms, and the structure and culture of the organization. In terms of the personalization strategy of knowledge management, some education institutions have applied direct person-to-person contacts (Hansen *et al.*, 1999), discussion, dialogues and meetings. The other medium of personalization of knowledge management is through communities of practice (Saint-Onge & Wallace, 2003).

V. SUSTAINING KNOWLEDGE MANAGEMENT IN EDUCATION

1) *Integrating Knowledge Management to Culture and Structure of the Educational Organization*

In order to remain sustainable, knowledge management in the organization needs to be integrated into the organizational cultures and structures. These cultures and structures are, for example, the culture of rewarding and incentive for the staff for practicing knowledge management in the organization. Another example is training and education development for the staff in relation to knowledge management practices in the organization (Davenport & Prusak, 1998). In addition, the leaders and the organization need to design an organizational structure that is flatter and more flexible. The purpose of a flatter structure of an education institution is for decentralizing decision making and control in project-based, network or web-like structures, such as self-managing teams (Stacey, 2003). The flatter organizational structures give space to all in the educational community to share knowledge and experience and it can create a conducive teaching - learning process in education. However, few experts deny that the flat organizational structure and "high level of decentralized management has an embedded problem of coordination and overview, which is easier in hierarchical organizations", (Monsted, 2003, p.9). This paper would argue, though, the flat organizational structure is effective for coordination, knowledge sharing and learning processes.

Knowledge and knowledge management can also be retained in the organization in the form of individuals, contexts, mechanisms, rules, procedures and practices. Knowledge and knowledge management can be embedded in documents, repositories, organizational routines, processes, and norms (Davenport & Prusak, 1998). As a consequence, knowledge retention and dissemination is indeed imperative in every organization, especially in educational organizations. It has a great impact on organization as a learning organization; schools or university as learning organizations.

2) *Knowledge Management Investment*

The new understanding of knowledge management sustainability in the organization is as an investment. If knowledge management is an investment, it becomes a long-term asset of the organization. Experts argued that one of the strategies of knowledge management sustainability is that the employees and other components in the organization invest their knowledge (Stewart, 1998).

Kelloway and Barling (2000) argued, like all investors, employees expect a return on their investment. The more attractive the return, the more likely individuals are to make the investment. Moreover, the attractiveness of a return on investment is predicated by two central features, that is risk and the rate of return. Investment risk is the trust of employees in the organization. Trust has two components; cognitive and affective. The cognitive component reflects the belief that management is sufficiently skilled to justify the confidence of employees in their actions. The affective component reflects the belief that management will not do anything deliberately to harm employees.

Additionally, Kelloway and Barling (2000) explored the "rate of return" on employees' investment of knowledge in the organization which is reflected in employees' sense of affective commitment to the organization. The affective commitment reflects employees' pride in their membership of the organization, their desire to be a part of the organization, and their willingness to retain membership of the organization. Affective commitment is based on a reciprocal and exchange-based relationship between the organization and the individual. However, the organization has to be aware that, on the one hand, it concentrates on managing knowledge in a sustainable way, on the other hand, the organization has also to be continuously learning and acquiring new knowledge in order to sustain competitive advantage.

Knowledge management implies a serious struggle to regain knowledge that is lost in the past and explores new opportunities to retain and sustain knowledge in the organization in the future. Knowledge management is the process by which the organization generates wealth from its intellectual or knowledge-based asset (Bukowitz & Williams, 1999). Therefore, knowledge and knowledge management have to be an investment in education institutions.

3) *Learning Organization*

The new challenge for education today is the challenge of educational institutions as learning organizations. Senge (1992, p.3) defined learning 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 how to learn together". Garvin (1993, p.80) described the learning organization as "an organization skilled at creating, acquiring, and transferring knowledge, and at modifying its behavior

to reflect new knowledge and insights". These definitions imply knowledge acquisition, sharing and diffusion in the organization and education as a struggle for meaning (Freire, 1985).

In the process of learning, the organization attains new knowledge and at the same time shares and disseminates that knowledge to the other employees and other stakeholders. This new knowledge comes through "tapping the tacit knowledge located in individual heads and this process of tapping is understood as translating the tacit knowledge in individual heads into explicit forms", (Stacey, 2003, p.163). At this point, knowledge and knowledge management provide the axiology, value added for the organization. Thus, the organization needs to create a systematic and holistic approach to sharing technical excellence and best practices to demonstrate added value and construct the uniqueness in the organization.

4) *Knowledge Visualization*

Knowledge visualization is one of the knowledge management strategies in the organization, because it stimulates the viewers to capture the meaning and create new knowledge. Practitioners have observed the effectiveness of knowledge visualization, which leads to availability, accessibility, and ease of management (Eppler & Burkhard, 2005).

The main purpose of knowledge visualization is to make use of visual representations in improving knowledge creation, diffusion and management in the organization. This supports an organization that mostly possesses knowledge which is complex, tacit, intuitive and rich (Davenport & Prusak, 1998). Knowledge visualization can be in the form of maps, cartographies, diagrams, metaphors, structures, pictures, model, spiral and storytelling (Prusak, 2005).

5) *Technological Solutions*

The growing process of information technology in the recent era inevitably penetrates every aspect of human life. One of these is that information technology facilitates the process of knowledge management in the organization. Information technology helps the process of connecting explicit knowledge from different sources into new systemized knowledge and allows a large number of people to participate in the process (Nonaka *et al.*, 2001). Therefore, in this context, information technology underpins the sustainability of knowledge management in the organization.

In the process of information technology operations, the tacit knowledge embodied in such tools and systems indicates the sustainability. However, if the implementation is based on tacit knowledge, the more difficult the system will be to transfer and the more uncertain and unsustainable the outcome will be (Nonaka *et al.*, 2001). At this stage, the

need will be especially felt by leaders attempting to champion an evolution beyond document-or technology-centered knowledge-management approaches, since doing so will require the entire the organization to re-conceptualize what knowledge management means', (Wick, 2000, p. 526).

A recent study of technology for knowledge management provided a theoretical basis for knowledge management solutions through information technology. For example, Alavi and Leidner (2001) emphasized that information technology systems are to develop support and enhance the organizational processes of knowledge creation, storage, retrieval, transfer and application. Linked to this, Stacey (2003, p.165) argued that the leaders and the organization have to develop "information technology so that knowledge held by individuals can be captured and so owned and controlled by organizations". Reasonably, the investments in information technology lead to increasing returns only if they are combined with human-centered competencies.

Knowledge management initiatives have a high percentage of activities driven by information technology. Consequently, it is important to recognize and treat information technology as an important tool for knowledge management in the organization. A constant development of new capacities in information technology makes it possible for the leaders and the organizations to integrate and process large amounts of data. People exchange data, text, images, sharing their experiences quickly and inexpensively (Reinhardt *et al.*, 2001). Apart from weaknesses, these strategies are effective in sustaining knowledge management in the organization, especially in education.

VI. CONCLUSIONS

This paper tries to introduce and explore knowledge management conceptual framework and practices, and strategies for sustaining knowledge management in the educational context. The implications are that knowledge management has the main role as a driving force for leaders and management in designing a vision and mission in education, improving good governance, creating a conducive environment for knowledge management initiatives, empowering, open to change, decision – making process and problem - solving.

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