



UTILIZATION OF KNOWLEDGE MIND MAPPING TO ESTABLISH STRONG DEPARTMENTS IN UNIVERSITIES

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Abstract:

The problem of managing knowledge is receiving considerable attention with the increased generation of new knowledge derived from meaningful information globally and daily. Knowledge management should thus not be seen as a means to an end but an end in itself. According to Mike (1996), knowledge management is important only to the extent that it enhances an organization's ability and capacity to deal with and develop in four dimensions namely: mission, competition, performance and change. The value of knowledge management therefore relates directly to the effectiveness with which the managed knowledge enables the members of the institution/organization to deal with today's situations and effectively envision and create their future. This paper examines how knowledge mapping can be utilized to portray a perspective of the players, sources, flows, constraints, and sinks of knowledge within an organization. A knowledge map (k-map) is a navigation aid to both explicit information and tacit knowledge, showing the importance and the relationships between knowledge stores and the dynamics. The authors focus is on how knowledge mapping could help discover the constraints, assumptions, location, ownership, value and use of knowledge assets, artifacts, people and their expertise, uncover blocks to knowledge creation and find opportunities to leverage existing knowledge. This is done with specific reference to universities as institutions of higher learning in Kenya. We shall use data collected from archives, interviews, newspapers and published reports. This paper challenges the current set up of knowledge management in Kenyan universities.

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Introduction

Knowledge management has emerged as the hottest subject of debate today. In this article, the term knowledge is used to refer to that meaningful information that is derived from raw data. This article attempts to address pertinent issues pertaining to knowledge and its management. Key among them include: meaning, properties, sources, types, production, distribution, uses and benefits of knowledge; challenges or problems related to knowledge management; mapping and conclusion. Before commencing to address the Question of knowledge management using K-maps, it is probably appropriate to develop some framework regarding knowledge itself as described in the text that follows.

The Origin and Growth of Human Knowledge

Review of Literature suggests that knowledge originate from three sources namely: providence, instruction and selection. According to Plato, a Greek Philosopher who lived in Athens during the fourth and fifth centuries BC, knowledge goes beyond what we can learn about the world through our senses. Scholars refer to this source as knowledge by recollection. This perspective leads us to two kinds of knowledge, that is; factual knowledge and conceptual knowledge. Plato's thought represents a view that is known in philosophy as the doctrine of recollection or to use the Greek word, *anamnesis* which means that all knowledge is in essence remembered or recollected. Plato, therefore, proposed a view that the origin of knowledge is a providential one, believing that knowledge is provided by a benevolent God. According to Simmons (2003), this view was supported by Rene' Descartes, who lived from 1596 to 1650.

However, three British Philosophers who lived during the 17th and 18th centuries developed epistemological theories contrary to the providential perspective held by Plato and Descartes. The first was John Locke (1632 – 1704), who completely rejected and suggested that all knowledge has its origin in sensory experience provided by sight, hearing, touch and smell that then become our knowledge of the world. Not assuring that senses provide accurate knowledge concerning all aspects of the external world, Locke made a distinction between what he called the Primary and Secondary Qualities of things (Bennet, 1971). Locke's idea of secondary Qualities was a significant recognition that not all our perceptions of the external world necessarily indicate to us the actual state of the world.

That admission opened the way for other Philosophers to re-look at the theory of knowledge instructed by our senses. One such philosopher was George Berkeley, an Irish born Anglican Bishop who lived from 1685 to 1753. According to Berkeley, what we experience by way of our senses is due to the direct action of God; it consequently follows that through the senses, God communicates with us and informs us (Bennet, 1971). We therefore see that Berkeley's epistemology is both providential, that is all knowledge is provided by God, and instructionist, in that all knowledge is transmitted through our senses. David Hume (1711 – 1776), a Scottish Philosopher was the last of the three British empiricists and probably the most interesting and influential. He was very much fascinated by Newton's success in discovering laws of Physics and thus attempted to apply Newton's experimental method to deepen and broaden understanding of the content and abilities of the human mind and to create a method of generating or producing knowledge (discovering truth).

Hume reasoned and recognized that we can never know the external world directly since all that we know of the world is a product of our own sensory perceptions of it and the ideas that these perceptions generate. His conclusion is that we cannot establish an empirical basis for knowledge by use of induction (Hampton 1995). Induction refers to the process by which we can derive general knowledge based on observation of a limited number of cases or instances such as samples in research. It is rightly so because perceptions of the same object can vary from person to person, and even within the same person. His ultimate conclusion was that all human knowledge is fallible and therefore no kind of amount of experience, logic or reasoning could be trusted to eliminate the possibility of error. Use of instruments in gathering raw data which is converted to meaningful information to yield knowledge probably serves to help minimize the errors.

In pursuit of a naturalistic, non-miraculous account of the knowledge that appears to be prior to our sensory experience, Konrad Lorenz made a significant contribution to epistemology. In a paper published in 1941, Lorenz argued that prior knowledge does not result from a limited experience of an individual but rather a product of a long process of evolution of the human species.

According to Lorenz (2007), biological evolution endowed us with the central nervous system (CNS) that reflects past knowledge acquired through the natural selection of our past generations. Fortunately some post-modern philosophers such as sir Karl Popper and Donald Campbell have extended Darwinian cumulative variation and selection to knowledge processes occurring among humankind and thus advanced the selectionist view of knowledge and thought.

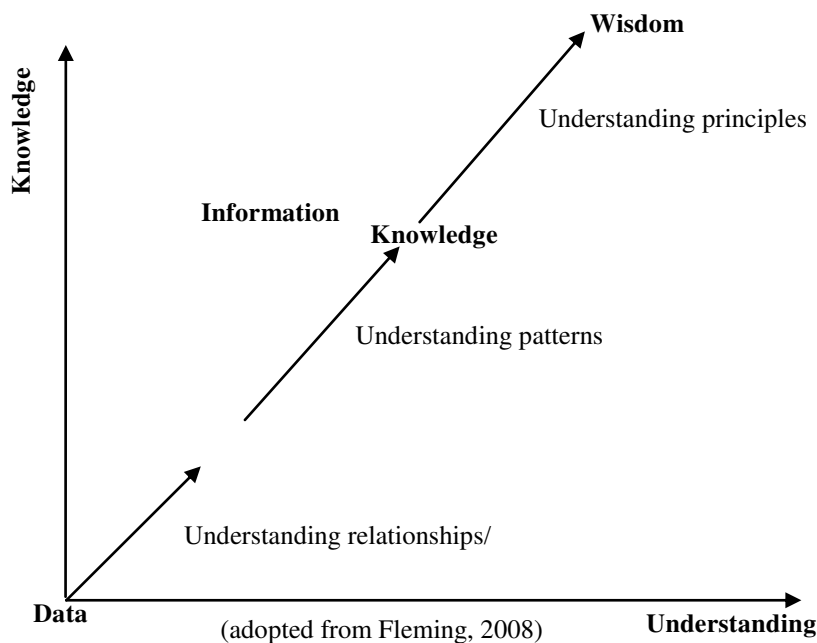
In conclusion, to this sub-section, it should be noted that according to the sociology of knowledge, human knowledge is distributed within and among humans, the level of education notwithstanding, thus need to manage it well. The implication is

that each human being or person has some form of knowledge, either tacit or explicit. The process of generating knowledge is discussed in the text that follows.

Generation of Human Knowledge

Did you know that there is an established relationship between data, information, knowledge, wisdom and truth? The following diagram attempts to explain the basis for thought relating to the aforementioned concepts.

Figure 1.1



Based on the diagram shown, the main idea is that information, knowledge and wisdom are seldom mere collections but represent much more the sum of its components. Data refers to any occurrence of something, either an object or event. Accordingly, data represents a phenomenon out of context, that is, without a meaningful relation to anything else. The first step in generation of knowledge is usually an attempt to devise a way to attribute meaning to it, thus creating a context. The second and probably the most crucial step is to convert data into information. This can be achieved simply by understanding the relationships between pieces of data and other information.

The third step is to create knowledge by understanding the pattern that exists between data and information. The pattern so established embodies consistency, completeness, repeatability and predictability. Then finally and fourth step, wisdom arises when the interpreter understands the foundational principle responsible for the

established patterns representing knowledge. These foundational principles are external truths that are universal and extremely context independent. To sum it up, the following associations can be acceptably made:

- Data is an occurrence out of context;
- Information relates to definition, description or perspective (what, who, where, when);
- Knowledge comprise approach / strategy, method or practice (how);
- Wisdom embodies insight, moral or principle (why).

Note should be taken that though data is a discrete entity, its conversion to information, then to knowledge, and ultimately to wisdom does not usually progress in discrete stages of development. A continuum emerges as understanding develops by deepening and broadening awareness and familiarity. The implication is that one can have partial understanding of the relations that constitute information, partial understanding of the patterns that comprise knowledge as well as the principles which are the foundation of wisdom. Since most of us in our work environments, usually find ourselves operating at the partial understanding stage, there is needed to extend the concept. This can be done by connecting new information to pattern that we already understand or have. Csikszentuihalyi (1994) designed a model to help simplify the otherwise complex knowledge, hence need for knowledge management. This is discussed in the text that follows.

Knowledge Management

The brief discussion on knowledge as a concept has undoubtedly laid a foundation for discourse on its management. Knowledge management is crucial only to the extent that it enhances an institution's ability to develop in her mission and deal with competition, performance and manage change.

According to Mike (1996), knowledge management relates to finding answers to the following questions:

- (i) What is the institution trying to accomplish? (Mission);
- (ii) How does the institution gain a competitive edge? (competition);
- (iii) How does the institution deliver the results? (Performance);
- (iv) How does the institution cope with change? (Change).

One last Question and probably the most troubling of all: What is the real value of information and knowledge if it is not utilized and what does it mean to manage knowledge? A strong argument is made that without associations we seldom understand anything (Bateson, 1988). It is therefore true to say that our understanding of things is based on the associations that we are able to discern in that particular context. However, the trap that many managers and administrators fall into is that of

not utilizing the knowledge available in an appropriate manner. Many of them make crucial decisions based on data but without understanding that data alone does not predict trends of data is the activity that is responsible for the data.

For example, if someone asks what the University enrolment is apt to be in the next academic year for the privately sponsored students programmes (PSSP) the admissions office would have to say "*it depends.*" It is rightly so because although the officer has data and information, she/he does not have the knowledge. In order for him/her to estimate the enrolment for the next academic year, she/he would need information concerning the catchment area, competition, available vacancies, student satisfaction, with regard to content/curriculum delivery, current backlog and absorption in job market among other things. The administrator will have to obtain sufficient amount of data and information in order to form a complete pattern that she/he understands and that will be his/her knowledge. This will then enable him/her to comfortably make estimation of enrolment in the next year of study.

From the example given, it can be noted that what needs to be managed to create value is the data and information that defines past results, associated with the institution, its catchment, its potential clients, and its competitors, and the patterns that relate all these items to ensure a reliable degree of predictability of the future. According to Kebao and Junxun (2008), knowledge management would simply refer to the capture, retention, and utilization of the foundation for creating an understanding of how all these pieces fit together and how to convey them meaningfully to someone else.

In conclusion, to this sub-section, the authors state that the real value of knowledge management relates directly to the effectiveness with which the managed knowledge enables the members of the institution to deal with the current situation and effectively envision and create their future. When access to managed knowledge is made possible in an institution, every situation, pleasant or painful is addressed with the sum total of everything anybody in the institution has ever learned concerning the situation of a similar nature. This strengthens the need for knowledge mapping using k-map as a tool for effective knowledge management. The text that follows will discuss knowledge mapping and K-map tools in detail.

Knowledge Mapping and K-Maps

Knowledge mapping is a strong instrument used in the analysis of knowledge. It helps team workers to fully grasp the context, situation and prevailing circumstances by getting a bird's eye view of it, that is, 360° meaning all round (Bellinger, 1997). Knowledge can now be defined as a set of data and information, to which is added expert opinion and experience, to result in a valuable asset which can be utilized or

applied to help in decision making and problem solving. Knowledge may be explicit and /or tacit, individual and/or collective.

Knowledge mapping on the other hand is all about keeping a record of information and knowledge so as to effectively operate, whether as an individual or in a group. Some issues involved include; where information and knowledge can be obtained from, who holds it, whose expertise is it and so on. This is now where K-maps becomes handy and give details of every bit of knowledge that exists within the institution including location, quality, and accessibility, and the knowledge required for the smooth running of the institution. It therefore helps one to find out the required knowledge easily and effectively. Knowledge mapping illustrates how knowledge flows throughout an organization thus making it available in a transparent manner (George, 2006). It helps an organization to appreciate how the loss of staff influences intellectual capital. It ensures best utilization of resources, independent of form on source. In summary, it describes who has what knowledge (tacit), where the knowledge resides (infrastructure), and how the knowledge is transferred or distributed (social).

Procedure for creating knowledge maps (K-maps)

K-maps are made by representing tacit and explicit knowledge into graphical formats that are easy to grasp and interpret by the users or interested parties such as directors, managers, heads of departments, system and programme developers among others.

Basic steps to follow in knowledge mapping

1. Identify the objects to be mapped. These include:
 - (a) Explicit or formal knowledge (documented /coded knowledge; specify;
 - Subject (discipline, area);
 - Purpose;
 - Location (people, intellectual assets, faculty,
 - Department, library.
 - Format (codified, personalized, internal, external)
 - Ownership (people, departments, documents)
 - Users (managers, program/system developers, implementers)
 - Access right (copyright, access fee)
 - (b) Tacit or informal knowledge (Implicit/undocumented/uncoded) specify;
 - Expertise;
 - Experience;
 - Skill;
 - Location – Islands of expertise;
 - Contact address;

- Accessibility;
 - Networks / relationships.
2. Determine where the knowledge resides or where it is found. That is, identify the sources or stores of knowledge within the organization.
- For example:
- Internal documents in files;
 - Library;
 - Correspondences;
 - Archives (Past proposals & report documents);
 - Experience (Past work records);
 - Minutes of meetings;
 - Best practices;
 - Corporate memory (processes, people, policies, relationships, documents, conversations, partners, links & contexts).
3. Establish / Determine the flows of knowledge from the various sources to the Respective sinks (where the knowledge is used = end user). For example, web designer (source) to Registrar admissions (sink or end user). Also, identify the channels to be used in order to access the knowledge and the paths of knowledge exchange.
4. Envision and determine the constraints to the free flow of knowledge along the established paths of exchange. For example; Pervasion of truths in the 'swamps' of bureaucracy; managerial blind spots in the work environment, Negligence, inefficiency, poor attitude, lack of support, poor coordination and loss of a member of staff.
5. Identify the knowledge gaps, that is, what we know we don't know and figure out the dynamics.
6. Determine the knowledge life-cycle. Ensure that knowledge is up-to-date and accurate.
7. Design a graphical format on representation to show linkage of all objects and that will be the ultimate K-map ready for use. A good K-map has the following salient features:
- The outcomes of all processes and their contribution to key organizational activities.
 - Logical sequence of all resources and activities required to achieve institutional goal.
 - Actual knowledge although deficiencies always occur
 - Human resource required to undertake each activity. Helps to reflect whether recruitment is needed.

Benefits of K-Maps

According to Fleming (2008), the benefits of K-maps include the following:

- (i) Helps to find crucial information quickly;
- (ii) To single out Islands of expertise;
- (iii) To create an inventory and assessment of intangible and intellectual assets;
- (iv) To enhance decision-making and problem solving by highlighting applicable information;
- (v) To identify main sources of knowledge generation;
- (vi) To foster re-use of knowledge and prevent reinvention;
- (vii) To provide insights into corporate knowledge;
- (viii) To continually evolve institutional memory, capturing and integrating main and new knowledge of an institution;
- (ix) K-maps enrich employee's know-what and know-how base;
- (x) They enable employees learn through intuitive navigation and interrogation of the information thus create new network for efficient working.

Applications of K-Maps

a. Competency mapping. To create competency profile with skills, positions and even career path of an individual. It acts as an institution's yellow pages thus enabling employees to find much needed expertise among people within the institution (Senge, 1990).

b. Conceptual knowledge mapping in didactics and mathematics. Also referred to as taxonomy. This is a way of arranging and classifying content from the major concept to the subordinate or minor concepts. This kind of K-maps involves labeling pieces of knowledge and their hierarchical relationships between them. They can relate similar kind of knowledge housed by two different departments thus making them more integrated.

c. Process-based knowledge mapping. This type of K-maps shows knowledge and sources/ stores of knowledge for both internal and external organizational procedures & processes. They involve explicit knowledge (codified as found in documents) and tacit knowledge (knowledge in people such as experience and technical know-how.)

Department as basic functional unit of a University

Most universities recognize both in philosophy and in practice that a department is the basic functional unit of the university just like a cell is to a human body. However, in some cases, other entities such as schools, divisions and directorates may serve as a

functional unit equivalent to a department. Strong academic departments are thus desirable to enable the university archive her overall mission.

Consequently, the commitment of a department to academic excellence must be predicated upon full participation of all members of department as well as students. The recognition of this necessity rests upon the assumption that total involvement confers obligations upon those who assume positions in order to serve humanity. On this premise, the department is undoubtedly the primary focus of operation for all stake holders of the university community. The departments should thus embrace efficiency and effectiveness to customer satisfaction standards.

The authors of this paper perceive that members of department based on their qualification and experience have a rich reservoir of knowledge. Both explicit tacit knowledge can be rapped out for the benefit of all in need of it. Knowledge mapping therefore become an appropriate strategy for harnessing and utilizing the rich knowledge base housed in the department.

This calls for identification of all areas of departmental operation. The organizational structure will then provide for effective determination and mapping of knowledge that each member possesses. The knowledge could be helpful in governing curriculum, personal, facility maintenance, and administrative as well as whole relationships. The department as a whole can autonomously carry out its functions using the knowledge mapping approach. Knowledge maps will help in locating people and offices that have knowledge which others seek for decision-making and solving problems. An illustration of knowledge map for a typical academic department of a university is given in figure1.2

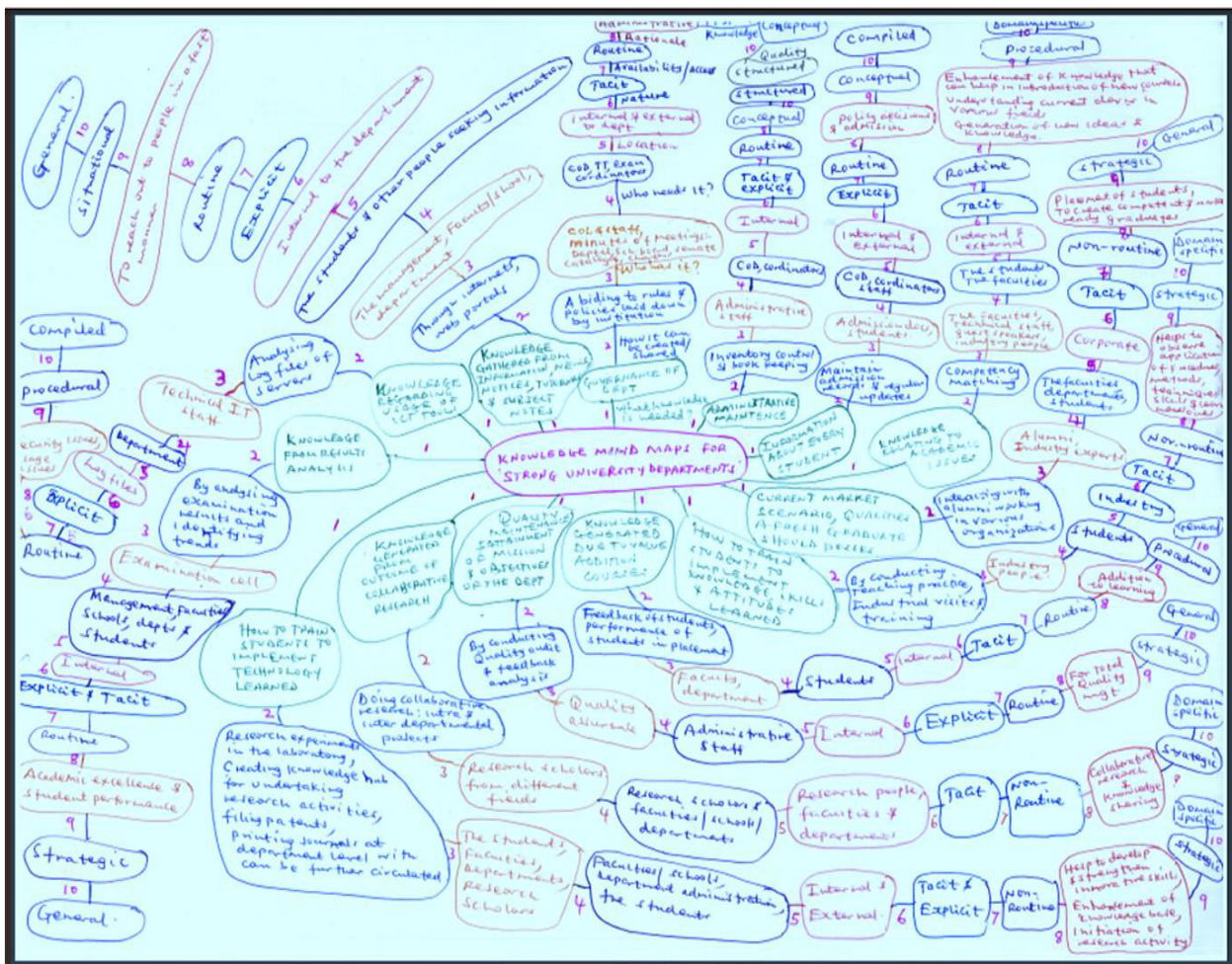


Figure 1.2

Conclusion

In many institutions of Higher learning such as Universities there is often lack of transparency in the organization of the vast range of knowledge at their disposal. Invaluable knowledge is seldom used because people do not know it exists and even when they know it exists, they still cannot figure out where it resides. These are pertinent issues which are well addressed by knowledge mapping. K-maps provide an assessment of existing and required knowledge and information in critical areas of operation of the institution. They help to answer Questions such as: what knowledge is required for work to be done? Who has it? Who needs what? Is the knowledge explicit or tacit? And so on. Universities should therefore make sure that K-Maps are used in the best interest of the institutions. The K-maps once prepared should be accessible to all who work in those institutions. They should also be easy to understand, update. Evolution of the Universities K-maps should be an ongoing process since knowledge landscapes are dynamic. Shoved knowledge can propel our universities to peak performance both locally and globally.

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