The University and its role in the Knowledge Society

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RESUMEN

El artículo es el resultado de las ideas desarrolladas en el programa del alto nivel en la gerencia de la ciencia, la tecnología y la innovación en quien el autor participó representando su universidad (Universidad Pedagógica y Tecnológica de Colombia - UPTC); este programa fue patrocinado por COLCIENCIAS y LASPAU ofrecido por la Universidad del Rosario y con la participación de la Universidad de Sao Paulo y la Universidad de California en San Diego. El documento explica el concepto de la sociedad del conocimiento y el papel de la universidad. Algunas referencias al caso particular de universidades colombianas se hacen en el extremo del documento y se propone comenzar una discusión alrededor del papel de nuestras universidades en el panorama actual. El concepto de la gerencia del conocimiento se presenta como una alternativa para que la universidad conteste a las demandas de la comunidad. Finalmente, se dan algunas ideas de abrir la discusión la universidad para ser competitiva y social responsable

Palabras clave: conocimiento, sociedad del conocimiento, gerencia del conocimiento.

ABSTRACT

The article is the result of the ideas developed at the High Level Program in Science, Technology and Innovation Management in which the author participated representing his university (Universidad Pedagógica y Tecnológica de Colombia –UPTC); that program was sponsored by COLCIENCIAS and LASPAU*. It was offered by Universidad del Rosario with the participation of Universidade de Sao Paulo and University of California in San Diego. The present paper explains the concept of *knowledge society* and the role of the university in it. Some references to the particular case of Colombian universities are done at the end of the document and it intends to start a debate around the role of our universities in current scenario. The concept of knowledge management is presented as an alternative for the university to answer the community's demands. Finally, some ideas are given to open the discussion about what the university is supposed to do to be competitive and socially responsible.

Key words: knowledge, knowledge society, knowledge management.

* COLCIENCIAS: Instituto Colombiano para el desarrollo de la Ciencia y la Tecnología "Francisco José de Caldas". It is the National Organism for Science and Technology promoting. And, LASPAU: Academic and Professional Programs for the Americas. It is a non-profit organization affiliated with Harvard University and governed by an independent, inter-American board of trustees.

1. The Knowledge Society

By this time, "Knowledge Society"[1] is not just a name, label or fashion; it is a latent reality. The knowledge Society has been defined as a society capable to generate, to acquire and to use the knowledge work out its developing necessities and then, to build its own future, making the creation and transfer of knowledge as a wealth tool. According to Arboníez (2006), the knowledge society is not a final concept; it is perceptible but not closed. It is not possible to do measurements but may be comparisons [123]. [*Translation mine's*]

The reader would ask *why knowledge society?* In this sense, along the human history, all societies have probably been, each in its own way, knowledge societies. But, it is in this times when the role of knowledge plays a vital role because of new challenges of the global world we are living in, also due to the new information and communication technologies (ICT) boom which let us access information anywhere and anytime. The wide range of options in ICT has increased the interest of the people in knowledge.

The development of the ICT, for example Internet, has improved our capacity to access to information and has

[1] A knowledge society is defined by UNESCO as a society that is nurtured by its diversity and its capacities. Therefore, it is necessary to work towards connecting the forms of knowledge that societies already possess and the new forms of development, acquisition and spread of knowledge valued by the knowledge economy model. For further information, see: "Towards knowledge societies", UNESCO Publishing. Paris: 2005. ISBN 92-3-204000-X

revolutionized the role of the knowledge in our society. In just year 2005 the number of users of internet was more than 1 billion[2]. It should create wealth to the society through development. Internet has been called "*the angular stone of the knowledge society*" (Arboníez, *Op. Cit.* p. 40) [*Translation mine's*]. However, today, only 11 per cent of the world's population has access to the internet. Ninety per cent of people connected come from the industrialized countries – North America (30 per cent), Europe (30 per cent) and Asia–Pacific (30 per cent).

But, it does not mean the information is the key in the knowledge society. Information is not important by itself; there is a bulk of data in the net which do not have any use. In despite of this, the use of ICT has promoted what is known as *the third revolution*, or the information and knowledge revolution. The difference between information and knowledge is the way the first is organized and exploited.

The knowledge is one of the main factors in this society. It has become a key of success for any organization, like any other resource, but critical as no other [124]. The relevance of knowledge is based in the way as the organizations manage the knowledge, including creation, codification, sharing, and using these activities to promote learning and generate value. In this sense Sveiby (1997) shows why organizations have to base its structure in the knowledge management and describes the knowledge organization as which is completely adapted to its clients [125].

Nonaka & Takeuchi (1995) have outlined a new organization which generate and apply knowledge as a spiral like shape [126] The main idea of these authors is that every organizations use the physical resources, but in the knowledge society, intangible assets are the key factors of productivity and competitiveness. In the book, it is explained, through examples, how Japanese enterprises have built a competitive advantage based on how they manage knowledge.

The same authors state that "An enterprise is not only a machine, but an alive as organism. It can have a collective identity sense and a fundamental purpose…" [127]. In this view the role of people is very important to make the organization an alive organism. One of the keys is the personal compromise and the identification between employees and company mission.

2. The Knowledge Management

The concept of knowledge management, appears initially in business as an

[2] WORLD FACT BOOK: Central intelligence agency, Washington: 2005.

answer to the necessity of identifying, valuing and capitalizing the *value drivers* and, in general, individual, social and organizational factors of development which are based in the knowledge [128]. The critical part of managing knowledge is generation and transferring of the information to turn it into knowledge and then to create value [129].

In turn, in the work done by Arboníez & Aldazabal (2005) [130], they quote to Carrillo (1999, 2002) [131] to define what is called "*three generations in knowledge management*". They suggest the first generation in which the key is the content and the ability to file and recover information. In the second generation, the main factor is the flow of information and the method used to disseminate experiences. The third generation serves as a sustainable strategy to identify, organize and create value from the knowledge. This last one includes the first and second generation.

Arboníez (*Op. Cit.* p. 153) has constructed four ideas about knowledge management which are the foundation of his model:

- Knowledge management as an organizational architecture. This is an evolving vision. The knowledge management is constructed over personal capacities and competences; and the key is the way those capacities and competences growth.

- Knowledge management as a trip. The knowledge management rise from culture and it demands experimentation from people to discover the essence of work.

- Knowledge based organizations. People as communities of practice[3] who become the heart of the knowledge creation.

- Un-build the classic management. The concepts of the classic management are concentrated in the explicit knowledge yet, the tacit knowledge or the knowledge that people posses is forgotten.

This is the way as he defines the way any organization can activate its potential of knowledge.

Knowledge management is becoming very important for many reasons. There are a lot of changes in the way that people work nowadays. Hundreds of workers of industry have migrated to services; those kinds of jobs require much qualification and its positions are strongly based in the use of knowledge. In Latin America is evident this change: the structure of labor market was 22% industry, 42% agriculture and 36%

[3] This term is used by Arboníez and Aldazábal to explain when the knowledge is created and managed between persons in a collaborative environment.

services for the 70's; by this time it is approximately 10% agriculture, 24% industry and 66% services[4].

Drucker (1959) defined the *knowledge worker* as an individual who adds more value to product and services applying their own knowledge. The author claimed that: … the more an institution is based in the knowledge the more individuals are responsible for its contributions [132].

The necessity to design mechanism to promote the incorporation of knowledge in the different levels of the organizations is evident. Knowledge management is not only to add functions to the actual structure of the organization but also designing a very well organized frame to activate knowledge [133].

Now, the organizations, not only the enterprises, but social and civil organizations, universities and public institutions do not have another choice: to find the path towards knowledge management. It could be implemented in any organization where knowledge is generated and applied [134].These activities can be executed gathering technology, personal, structure and strategy to increase the existing knowledge and produce a new one.

If the knowledge is the core of knowledge society, subsequently the university because of its nature could be a starring of the society development. Traditionally, the university has been the scenery in which the knowledge is acquired or discovered, organized and transferred to the society. This role is the core of the activities developed into university: research, teaching and social extension.

3. The role of the university in the knowledge society

In that case, it is pertinent to ask: how the structure of the university is in order to respond to the knowledge society request? Or, better than this, is the university prepared to manage the knowledge? Understanding 'knowledge management' in the strict sense explained above.

Tunnermann & de Souza (*Op. Cit.* p. 16) set up the following main challenges of university in the knowledge society:

- A quantitative challenge, referred to the amount of students entering the schools, which is rapidly growing.
- The relevance of the studies carried out in order to solve problems of the society. It means the higher education could be pertinent for its context.
- The equilibrium between its main functions: research, teaching and social service, in order to prepare

[4] PINO, Ernesto & ROSSO, John. La UPTC y la construcción del futuro ¿Porqué pensar el mañana si aún no llega? UPTC: 2004.

integral persons and promote the knowledge diffusion.

- The quality as inherent characteristic of the process which can be measured using the present evaluation process or other indicators or models.
- The improvement in the higher education administration, by incorporating the best practices from organizational management.
- The knowledge generation promoting the scientific activities as well as research and scientific publications. It is necessary to encourage the relationships among the Government, the Private Sector and the Universities.
- Internationalization of higher education as requirement of the knowledge internationalization.

In despite of this, most universities in our country are not prepared to face the future. The universities are seemed to be some of the slowest institutions of the society (Toffler, 2006) [135]. On the country, universities had been to consider knowledge not as a transversal element but as an isolated matter.

Particularly, in Colombia the evidence indicates that results obtained until now are not the best in order to improve for the future. Some indicators of the National Department of Planning are shown ahead in order to contextualize the university situation:

- The amount rate of higher education was just 24 per cent in 2002, against 83 per cent in the US.
- There is a weakness in technical and technological education because it was just 20 per cent of higher education in 2004. The relevance of people prepared for more specialized jobs has been mentioned before.
- Less than 8 per cent of the population has access to Internet.
- The expenditure in Science & Technology as a percentage of GDP[5] was 0.31 per cent, from which just 0.17 per cent was devoted to Research and Development by the year 2003.
- The number of researchers per thousand labor force was just 0.52 in 2003. The percentage of researchers with doctorate level from the total is 15 per cent.
- In 2004 the number of granted patents was 626 and just 22 of that amount were granted to residents.
- The amount of publications over the world total was 0.032 per cent in 2003.

In this context, it is evident that universities have a great responsibility in the diagnosis of the current situation, but much more in the future for a

[5] GDP means Gross Domestic Product.

country's development. The structure of the higher education system in Colombia does not guarantee conditions to improve this situation.

The evaluation of quality for higher education is oriented to indicators. The institutions have done the self-evaluation and accreditation as goals rather than means.

In the case of public universities, regulation and control institutions cause rigidity. The capacity of response is very precarious. Most of the time is used to solve problems about function but the strategic issues are left behind. In fact, the legal staff offices spend a great amount of time and energy going over contracts and fees while intellectual property is a remarkable weakness.

The structure of the university is function oriented and most of them have a structure based in the department's model. This organization prevents the interaction between persons making them concentrate in their own disciplines.

Presently, there has been an attempt to promote interaction between researches through research groups and the research projects inter disciplinarians. Also ICT and internationalization policy have got mobility of people, e.g. researchers and students, between universities. However, the second language domain continues being an obstacle to improve that practice.

Conclusion

The Colombian university has improved in research as is demonstrated by the official indicators showed by COLCIENCIAS, the amount of recognized and ranked research groups, the number of scientific publications indexed and the number of researchers and their level of education.

Also, in the field of connectivity the evidence of the operational nets which offer alternatives as bibliography exchange, formal and informal programs and research, as some examples, let seem real advances.

Some transformations in the structure of the university proposed from inside them are important. There are some examples like the technology transfer offices that some universities have created.

Opposite as it can be though these initiatives are not enough. In fact, they are useless because are isolated. They could be a part of a deliberate process oriented to make a real knowledge organization.

The knowledge management it is not a joint of initiatives and gathering in a random form. It is an integrated strategy where every decision makes a vector adding. It is urgent to learn about the way the university manage its knowledge.

There are techniques to do it. One example is the Organizational Intelligence Matrix© developed by the research group at MIK and explained by Arboníez & Aldazábal (*Op. Cit.*) in their work. The matrix allow measure some dimensions to know the capacity to respond to the client's requests effectively and efficiently.

When the university defines how its situation towards the knowledge management is, it should define a deliberate strategy to manage it in the best way, in order to face the challenges in the future.

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