

GUEST EDITORIAL PREFACE

Special Issue on Managing the Knowledge Society Construction

Francisco J. García-Peñalvo, Computer Science Department, University of Salamanca, Salamanca, Spain

ABSTRACT

Our current society is characterized by the strategic importance of the knowledge. Managing the knowledge within an institution is a strategic activity for company survival, independently of the kind of business or activity area in which it may be involved. This special issue presents four different proposals of knowledge management with clear strategic foundations. One it is oriented to analyze the impact of demographic change in Information Technology departments in order to help improving the company knowledge strategy. Other is more oriented to manage the produced knowledge in the educational innovation processes. The third proposal is linked to the management of the knowledge that is created informally in the communities of practice. Finally the last proposal fits into a learning area with two different orientations an organizational learning strategy and a personal knowledge management of both teacher and student roles.

Keywords: Knowledge, Knowledge Management, Knowledge Society, Technology and Education

INTRODUCTION

We are living in the 21st century that all of us want to define as the century of knowledge, although we may be currently in a transition moment from an Information Society (Cabero Almenara, 2007) towards a Knowledge Society (UNESCO, 2005).

The concept of Knowledge Society encompasses much broader social, ethical, economic, technological and political dimensions. These issues mean more complex challenges that characterize the current society we are living in (climate change, waste disposal, educational underperformance, persistent poverty, biodiversity loss, etc.). The term *wicked problems* has been used to define these major challenges, which 1) do not present a clear set of alterna-

tive solutions because different solutions can create or exacerbate other problems; 2) tend to be characteristic of deeper problems; 3) have redistributive implications for entrenched interests; 4) involve contradictory certitudes, that means, different people or groups know what the answer is, but these answers are irreconcilable with one another; and 5) tend to be persistent and insoluble (Bolstad et al., 2012). These wicked problems are highly complex, uncertain, and value-laden (Frame & Brown, 2008). According to this, companies, higher education institutions and governments have to manage the knowledge and the human capital to actively develop the capabilities Knowledge Society needs to productively engage in these wicked problems solving.

The premise to define the Knowledge Society is to understand the shifts in the way to think about knowledge (Gilbert, 2005) that may be summarized in the shift from the traditional way of conceiving the knowledge as something developed and known by experts, something that could be passed on from teacher to student, or manager to worker, to the new point of view in which the knowledge is rapidly created every day, because the knowledge is the process of creating new knowledge, as a product of networks and flows (Castells, 2000) coming into being through interactions and intersections on a just-in-time basis to solve specific problems as they emerge.

Therefore, the Knowledge Society construction needs strategic approaches from the institutions (and also from the individuals) to manage the knowledge they created with a very special attention the way the persons (both students and employees) learn and manage their learning processes. On the basis of traditional knowledge management models such as (Nonaka & Takeuchi, 1995), we need more complex approaches that express the relationships from the top of the institutional pyramid and the persons that belong to it, establishing two directional flows (Rubio Royo, 2011), one in the bottom-up direction, or personal strategy, in which the significant knowledge arises from the person's experience and the route of the knowledge goes in a unique direction from the implicit knowledge to the explicit one. In this bottom-up flow it is necessary to introduce an externalization process that may be managed throughout a basic social system with auto-organization capabilities. On the other hand, a top-down direction is required that emerge from the explicit knowledge to implicit knowledge transfer to the persons of the institution. This means a process that is contrary to the previously described, in which one the persons received the knowledge from the organizational network.

SPECIAL ISSUE CONTENTS

This special issue gathers four strategic perspectives about knowledge management from different contexts.

First, from an Information Technology (IT) department perspective that should face new challenges faster and more goal oriented, adapt to new circumstances while maintaining a high level of productivity. An evolving IT requires a mandatory specialization of the personnel that presents a considerable amount of challenges for personnel (Colomo-Palacios, Casado-Lumbreras, Soto-Acosta, García-Peñalvo, & Tovar-Caro, 2013, 2014). According to this approach Radant et al. paper "Analysis of reasons, implications and consequences of demographic change for IT departments in times of scarcity of talent- a systematic review" presents a systematic literature review on the impact of demographic change in IT departments. Given that IT function is highly intensive in human capital, the need for a continuous improvement in the competence of the labor force leads, among other recommendations, to a better knowledge management strategy and deployment to this specific practitioners, that are increasingly important for the sustainability of business in all the world.

Second, from a higher education perspective we claim a need of change and innovation in the educational systems and teaching and learning methodologies (Berlanga, García-Peñalvo, & Sloep, 2010; García-Peñalvo, 2008, 2011) to develop capabilities students need in order to face the above-mentioned Knowledge Society wicked problems. In this sense, manage the educational innovation (García-Peñalvo, 2014a, 2014b; Sein-Echaluze, Leris, Fidalgo Blanco, & García-Peñalvo, 2013) is a key element to achieve these required changes with a suitable plan. These ideas are presented in the "Knowledge Spirals in Higher Education Teaching Innovation" paper, by Fidalgo-Blanco et al. Authors introduces a knowledge management system that transforms different institutions experiences into organizational knowledge

applicable to the entire sector of the higher education.

Third, from the informal learning perspective. In current society it is fully important to recognize that people learn from more different sources than the formal ones (García-Peñalvo, Colomo-Palacios, & Lytras, 2012; García-Peñalvo, Johnson, Ribeiro Alves, Minovic, & Conde-González, 2014). Communities of practices (Wenger & Snyder, 2000) are one of the most common non-formal or informal places in which persons with similar interests or professional goals interact with each other and therefore a suitable learning space. Aaron Gonzalez et al. propose in their paper entitled “The Management and Construction of Knowledge as an Innovation Strategy for Collaborative Learning through the Use and Creation of Learning Communities and Networks” the importance of a pedagogical strategy for collaborative learning through the use and construction of networks and learning communities directly connected to knowledge management.

Fourth, from the learning contents perspective, understanding them as the seed for establishing an organizational learning strategy or a personal knowledge management of both teacher and student roles. A good educational content packages management strategy is needed to help individuals to access to the right knowledge pills. To achieve this challenge an institutional implication is mandatory throughout right open knowledge policies (García-Peñalvo, García de Figuerola, & Merlo, 2010a, 2010b) and suitable repository systems (García-Peñalvo, Merlo-Vega, et al., 2010; Morales, Gil, & García-Peñalvo, 2007), but also the personal implication of all the faculty and researchers is needed to upload and classify the content packages (Morales, Gómez-Aguilar, & García-Peñalvo, 2008). Morales et al. paper “Adaptation of Descriptive Metadata for Managing Educational Resources in the GREDOS Repository” is according to this idea and it presents a proposal for describing learning objects based on pedagogical information, digital competences and learning styles.

Francisco J. García-Peñalvo
Guest Editor
IJKM

ACKNOWLEDGMENT

Guest editor would like to take this opportunity to thank authors who have contributed to this special issue. We would also like to acknowledge the help provided by the reviewers.

REFERENCES

- Berlanga, A. J., García-Peñalvo, F. J., & Sloep, P. B. (2010). Towards eLearning 2.0 University. *Interactive Learning Environments*, 18(3), 199–201. doi:10.1080/10494820.2010.500498
- Bolstad, R., Gilbert, J., McDowall, S., Bull, A., Boyd, S., & Hipkins, R. (2012). *Supporting future-oriented learning & teaching — A New Zealand perspective. Report to the Ministry of Education*. New Zealand: Ministry of Education.
- Cabero Almenara, J. (2007). Las necesidades de las TIC en el ámbito educativo: Oportunidad, riesgo y necesidades. *Tecnología y Comunicación Educativas*, 21(45), 5–32.
- Castells, M. (2000). *The rise of the network society* (2nd ed.). Oxford: Blackwell.
- Colomo-Palacios, R., Casado-Lumbreras, C., Soto-Acosta, P., García-Peñalvo, F. J., & Tovar-Caro, E. (2013). Competence gaps in software personnel: A multi-organizational study. *Computers in Human Behavior*, 29(2), 456–461. doi:10.1016/j.chb.2012.04.021
- Colomo-Palacios, R., Casado-Lumbreras, C., Soto-Acosta, P., García-Peñalvo, F. J., & Tovar-Caro, E. (2014). Project managers in global software development teams: A study of the effects on productivity and performance. *Software Quality Journal*, 22(1), 3–19. doi:10.1007/s11219-012-9191-x
- Frame, B., & Brown, J. (2008). Developing post-normal technologies for sustainability. *Ecological Economics*, 65(2), 225–241. doi:10.1016/j.ecolecon.2007.11.010

- García-Peñalvo, F. J. (2008). Docencia. In J. Laviña Orueta & L. Mengual Pavón (Eds.), *Libro Blanco de la Universidad Digital 2010* (pp. 29-61). Barcelona, España: Ariel.
- García-Peñalvo, F. J. (2011). La Universidad de la próxima década: La Universidad Digital. In C. Suárez-Guerrero & F. J. García-Peñalvo (Eds.), *Universidad y Desarrollo Social de la Web* (pp. 181-197). Washington, DC, USA: Editandum.
- García-Peñalvo, F. J. (2014a). Educational Innovation Successful Cases – Part 2. *Journal of Cases on Information Technology*, 16(4), iv–vii.
- García-Peñalvo, F. J. (2014b). Educational Innovation Successful Cases – Part I. *Journal of Cases on Information Technology*, 16(3), 1–3. doi:10.4018/jcit.2014070101
- García-Peñalvo, F. J., Colomo-Palacios, R., & Lytras, M. D. (2012). Informal learning in work environments: Training with the Social Web in the workplace. *Behaviour & Information Technology*, 31(8), 753–755. doi:10.1080/0144929X.2012.661548
- García-Peñalvo, F. J., García de Figuerola, C., & Merlo, J. A. (2010a). Open knowledge management in higher education. *Online Information Review*, 34(4), 517–519.
- García-Peñalvo, F. J., García de Figuerola, C., & Merlo, J. A. (2010b). Open knowledge: Challenges and facts. *Online Information Review*, 34(4), 520–539. doi:10.1108/14684521011072963
- García-Peñalvo, F. J., Johnson, M., Ribeiro Alves, G., Minovic, M., & Conde-González, M. Á. (2014). Informal learning recognition through a cloud ecosystem. *Future Generation Computer Systems*, 32, 282–294. doi:10.1016/j.future.2013.08.004
- García-Peñalvo, F. J., Merlo-Vega, J. A., Ferreras-Fernández, T., Casaus-Peña, A., Albás-Aso, L., & Atienza-Díaz, M. L. (2010). Qualified Dublin Core Metadata Best Practices for GREDOS. *Journal of Library Metadata*, 10(1), 13–36. doi:10.1080/19386380903546976
- Gilbert, J. (2005). *Catching the knowledge wave? The knowledge society and the future of education*. Wellington: NZCER Press.
- Morales, E. M., Gil, A. B., & García-Peñalvo, F. J. (2007). Arquitectura para la Recuperación de Objetos de Aprendizaje de Calidad en Repositorios Distribuidos. In F. Gutiérrez Vela & P. Paderewski Rodriguez (Eds.), *Actas del 5º Taller en Sistemas Hipermedia Colaborativos y Adaptativos, SHCA 2007* (Vol. 1, pp. 31–38). Zaragoza: España.
- Morales, E. M., Gómez-Aguilar, D., & García-Peñalvo, F. J. (2008). HEODAR: Herramienta para la Evaluación de Objetos Didácticos de Aprendizaje Reutilizables. In J. Á. Velázquez-Iturbide, F. J. García-Peñalvo, & A. B. Gil (Eds.), *Actas del X Simposio Internacional de Informática Educativa - SIIE'08 Salamanca*, España: Ediciones Universidad de Salamanca.
- Nonaka, I., & Takeuchi, H. (1995). *The knowledge creating company*. New York, NY: Oxford University Press.
- Rubio Royo, E. (2011). La brecha de la “complejidad”: Perfil eAprendiz como propuesta de adecuación personal al nuevo entorno “vital”, expandido y complejo. *ARBOR Ciencia, Pensamiento y Cultura*, 187(Extra_3), 23-37. doi: 10.3989/arbor.2011.Extra-3n3126
- Sein-Echaluce, M. L., Leris, D., Fidalgo Blanco, Á., & García-Peñalvo, F. J. (2013). Knowledge management system for applying educational innovative experiences. In García-Peñalvo F. J. (Ed.), *Proceedings of the First International Conference on Technological Ecosystems for Enhancing Multiculturalitity (TEEM'13)* (pp. 405-410). New York, USA: ACM. doi:10.1145/2536536.2536598
- UNESCO. (2005). *Towards Knowledge Societies*. Paris, France: UNESCO Publishing.
- Wenger, E. C., & Snyder, W. M. (2000). Communities of Practice: The Organizational Frontier. *Harvard Business Review*, 78, 139–145. PMID:11184968

Francisco J. García-Peñalvo holds a PhD in Computer Science (2000, University of Salamanca). He works as a Professor in Computer Science Department of the USAL. He is the GRIAL Group head. He was Technology and Innovation pro-Chancellor of the USAL in charge of the definition, planning and development of the USAL technical management strategy based on Open Source solutions. He has leded MIH, TRAILER and VALS European projects. Now, he is the Editor-in-Chief of the International Journal of Information Technology Research and the Education in the Knowledge Society Journal. Besides he is the coordinator of the multidisciplinary PhD Programmed on Education in the Knowledge Society.