Training issues for successful ICT innovation in companies

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The increase of competitiveness asks companies to individuate new methods and tools to improve efficiency, to decrease the operational costs, to rapidly answer the customers demand and put new products on the market. This situation is at the basis of the growing interest of companies (even small and medium), towards ICT, as a tool to improve internal organisation and relationships with the outside.

The introduction of innovation via ICT, however, is possible only via a deep analysis of the human and organisational factors related to the technological changes and the adoption of both efficient procedures for use and orientation/training tools apt to help the company to benefit of the technological change.

This special issue of the Educational Technology and Society Journal, that focuses on these problems, includes twelve papers covering aspects of training for successfully introducing ICT innovation in companies and is organised into four themes: the influence of the human factor on technology-driven changes; learning needs brought about by ICT innovation in companies; assessment of small companies attitude towards ICT based organisation; and the support of educational technology to the training about technological innovation.

In **The influence of the human factor on technology-driven changes** three papers are included.

The first paper (by Bonacin et al.) illustrates an experience, carried out in a manufacturing organisation that adopts the lean production paradigm, aimed to transform the design process of a CSCW system to be used in the work practice into a learning opportunity. To this aim, an approach that integrates Participatory Design (PD) and Organizational Semiotics (OS) in the design is proposed, and described via the presentation of a prototype.

The second paper (by Herrmann et al.) discusses the kinds of knowledge that positively influence computer supported knowledge management and organizational learning in a company, introducing the concept of meta-knowledge. On the basis of the results of a study, carried out in five German companies, aimed to individuate success-factors and obstacles to the introduction and use of knowledge management systems, they discuss different types of meta-knowledge. Relations between the various kinds of meta-knowledge and characteristics of knowledge management systems are derived.

The third paper (by Tatnall and Davey) proposes to apply an ecological model to the study of ICT-related innovations in small businesses. In ecology, “organisms behave in ways that optimise the balance between their energy expenditure and the satisfaction they obtain from this effort”. Referring to their previous work, the authors use the model to determine the factors that provoke the complexity of the processes underlying the adoption of technology, regarding ICT in training as a new entity attempting to grow in the environment of an organisation.

In **Learning needs brought about by ICT innovation in companies**, the paper by Bitter-Rijpkema et al. analyses the potential of Virtual Business Learning (an umbrella term which refers to a variety of approaches to workplace learning) for ICT innovation in companies, via two examples of implementation. The first example addresses learning of graduating students in the setting of an environmental consultancy firm, the second one concerns a VBL environment developed for a major ICT firm in the Netherlands and devoted to IT managers.

The paper by Dagdilelis et al. addresses a number of training issues related to the introduction of ICT into small business in Greece. Starting from an analysis of the characteristics of the target and of the context in which it operates, a number of needs for the Greek nationwide training system are identified. The corresponding solution supported by the Greek government to encourage ICT integration in Greek SMEs is outlined.

In the third paper, Hay shows the results of an analysis regarding skills gaps in ICT, among people employed in medium and small companies in a UK region (380 people of 38 SMEs are involved in the analysis). The paper reports differences between self-assessment of ability and the needs of existing job roles among individual
employees; moreover, it highlights the ambivalent attitudes of individuals and employers towards learning, despite the perceived need for training.

Mulder and others in their paper focus on technology-mediated collaboration, discussing the issue of identifying appropriate technology and help to ensure that this technology is then used effectively. The authors argue that prospective collaborators in virtual teams should first participate in face-to-face workshops with the aim of clarifying the intended collaborative processes and selecting the appropriate technology. The authors’ experience on collaborative design workshops is outlined.

In Assessment of small companies attitude towards ICT based organisation, two papers are included.

The first paper (by Fulantelli and Allegra) provides a description of two UE projects – the Supply Chain Partnership and SOLARE – and their relevance to Southern Italy in a broader international context. On the basis of the experience gained through the work carried out in the projects, the authors analyse the attitude of small companies towards ICT based solutions (with particular reference to Distance Communication, Training and Consultancy); and highlight social factors need to be considered to promote the use of ICT in SMEs.

The second paper (by Zaharias and Poulmenakou) describes the first steps in developing an e-learning service to be used in South-Eastern Europe, and aimed to bridge the gap existing between higher education and the market demand with respect to skills and competencies in ICT. In particular, the authors illustrate the training needs assessment carried out and look forward to ways in which these needs might be met using a virtual university paradigm.

In The support of educational technology to the training about technological innovation, the paper by Bagnasco et al. presents a model for in-company, individually customized e-learning platform which would serve as an “ideal” platform to combine working activities of the company and learning development of individual employees. The model is based on an analysis of the emerging needs of industries in terms of training and customer support.

Borges and Baranauskas address the issue of improving performance of facilitators in computer supported collaborative learning systems. Their approach is described via the presentation of CollabSS, a system intended to inform the facilitator about interaction and collaboration taking place during the learning activity, with particular reference to the learning of systems production concepts in industries.

In their paper, Crichton and La Bonte argue that educators providing e-learning need to experience on themselves the same kinds of learning opportunities they have to propose to their students. This idea is illustrated via an experimental study of the efficacy of professional development opportunities provided to classroom teachers by an e-learning company, Odyssey Learning Systems, in the context of online learning.

To summarise, this special issue provides the reader with a variety of views and practices that are exploring training problems related to the successful introduction of ICT technology in companies. We hope that the papers will be of benefit for the readers in their work.

We take the occasion to thank the authors of the papers for their contributions. We are all grateful to Dr. Kinshuk who suggested this special issues and to the reviewers for their time and valuable work.

Reviewers

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