Ergonomics and Creativity in time of the economic crisis
Towards IEA2018

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1. Creativity in practice: how to traduce innovative solutions in real life practice

The combination of Ergonomics and Creativity refers to the challenge of transforming the results of field research and evaluation processes into the daily practices of the working organizations. It is a big challenge to create solutions that are diffused in the real world. In healthcare for example there are many studies confirming that the process of implementing best solutions for clinical processes is very slow (Gawande, 2013). It can take 17 years for research evidence to reach clinical practice (Pedersen B, HEPS, 2011). Thus, creativity can never be a worthwhile objective without the consideration of actual contexts.

In many respects it must be the highest exercise of reflective thinking, the enactment of situated plans of action. Creativity is intended as something really concrete that is translated into practice thanks to the application of the ergonomic approach and methods.

Creativity in practice must be related both to the constraints and to the potentialities that define environments and activities, human beings and technology, identities and cultures.

The concept of creativity, related to ergonomics, needs to be intended in a broad way and includes, besides the design, also sectors as the craftsmanship which represents a key process in the new tendencies of globalization. Creativity in practice is an inherently evolving topic in which prospected solutions are necessarily adaptive to continuously changing contexts. This topic gives the opportunity to strengthen the idea of importance of Ergonomics which is the discipline that supports, with its approach, methodology and techniques, the challenge to build solutions that can be at the same time innovative and competitive from the economic point of view in the different sectors such as healthcare, design, occupational health, communication.

The symposium proposed for IEA2015 is focused on the concept of creativity in the actual international context, where the socio-economic situation is really unstable, creativity is a strategic concept to develop new resources to face critical scenarios nowadays and in the future.

The symposium anticipates the topic of IEA2018, with the aim of opening the debate among professionals around this theme and introduce some of the main issues to be developed over next years and during next congress.

The main objectives of the symposium are:

- sharing of creative and innovative solutions developed in specific fields through the use of ergonomic methods;
- identification of specific issues to be addressed by the research activities, in the ergonomic field, in order to develop the topic of creativity in practice;
- start a debate among professionals of different fields about the more effective way to develop creativity in practice, through the use of ergonomics in order to reduce costs and improve quality and safety of life.

Employee creativity is a vital resource for an organization’s innovation, and employees at any level in the organization can contribute to this goal (Dul, J., Ceylan, C. 2010). Creativity is the production of novel and potentially useful ideas for solving problems, and for developing new products, services, processes, systems, work methods, etc. Creativity and design are the dual objective of ergonomics, as formulated in a common description of the discipline (IEA Council, 2000): “[the goal of ergonomics is] to optimize human
wellbeing and overall system performance”. In modern business, creativity and innovation are important indicators of an organization’s performance (Shalley et al. 2000 in Dul, J., Ceylan, C. 2010). Many times products are not designed to accommodate the characteristics of the target customer (Norman, 2002), attention to ergonomics can contribute to many different strategies and business outcomes.

1.1 Creativity and ergonomics in different scientific areas

The symposium will include contributions from different scientific areas by following an interdisciplinary approach, with the challenge of maintain, among all the presentations, the mainstream of creativity and ergonomics as key concepts for developing innovative solutions in real world of daily working practices. The first area that will be presented is the one of communication and training in high reliability organizations such as the one of healthcare. The focus will be on the possibility to improve training on communication thanks to the adoption of new creative techniques centered on human factors and ergonomics. The main experiences that will be shared are about training in high critical context where complexity and uncertainty are the main characteristics of the performed activities. The related interventions are:

Creativity for innovating communication and training
Presentor: Stavros Prineas, London, Greater London, United Kingdom, CEO ErroMed Pty Ltd, Australia

The second contribution is about the innovative practices for training in healthcare:
Innovative practices for training in healthcare: impact on patient safety and patients’ involvement
Presentors: Sara Albolino, Tommaso Bellandi, Elena Beleffi, Giulio Toccafondi, – Centre for Patient Safety, Tuscany Region, Italy (paper already submitted)
The product has been designed with an innovative approach, strongly based on ergonomic methodology: protagonists of the product are the real clinicians, the content but also the interface has been designed and tested with them, the real users. Also some cartoons have been produced, together with representatives of citizens, to project in the public areas of the healthcare organizations, in order to inform and share major risks with patients and their relatives/ people who take care of them. Creativity in practice has been the main stream of this experience in developing training solutions.
The second area that will be presented is the one of ergonomics and human factor for design. One presentation is focused on producing innovation by design in healthcare systems:
Human factors in Design driven innovation for healthcare
Presentor: Richard Goosens - Professor of Physical Ergonomics, Coordinator Healthcare Program at TU DELFT – University of Technology - Netherlands
The paper underlines the fact that design is the integration of human factors, technology and business. This design innovation can literally play a central role in the process of creating future environments for users, they can based on the study of key stakeholders including the innovating firm, customers and suppliers, available technology and users insight and wishes, the challenge for academic designers is to guide the field by means of the design future healthcare systems based the above input. This will lead to innovations in healthcare processes and optimize its quality.
The second contribution of this area is about how to apply ergonomics to design in order to produce creative solutions that can represent a competitive factor for manufacturing industry:
Innovation in design
Presentor: Francesca Tosi, Full Professor University of Florence
The third contribution is about a conceptual framework to describe competition and regulations, based on observation of work activity, spatial analysis and feedback from users of these collaborative spaces dedicated to improve creativity and innovation:
Collaborative spaces: innovation, regulation and competition
Sylvain BIQUAND - Federation of European Ergonomics Societies (FEES)
Under the banner of a new model of collaborative economy, a new type of workspaces have emerged in the recent years. These collaborative workspaces’ organization aim at boosting creativity and innovation, on the basis of shared competencies and knowledge.
The third area is the one of innovative ways of integrating different competencies and disciplines in order to improve quality and safety. The first contribution is about a project realized in the field of agriculture:
Developing Innovative Partnerships to Reduce Deaths from All-Terrain Vehicle use in Agricultural Operations
Presentors: David P. Gilkey, D.C., Ph.D., CPE, John Rosecrance, P.T., Ph.D., CPE, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, Fort Collins, Colorado, USA

The effective partnership between university researchers and agricultural partners has led to the realization of Agricultural Extension Agents earning ASI certification in safe ATV use on the farm and significantly increased capacity and access to high-quality ATV safety training for ranchers in rural Montana. Certified Agents must provide two training sessions per year to sustain their certification. Each session trains between six and eight producers resulting in a guarantee of 132 – 176 producers being trained each year in safe ATV operations throughout Montana. The success and sustainability of this project was only possible due to the strong collaboration and resources that that each partner contributed to the project.

The second contribution is about a study that is still in progress involving a survey of patient safety personnel from NSW public hospitals to provide a snapshot of whether patient and worker safety are integrated:

Patient and staff safety: integrating the silos
Presentor: Louise Whitby, Louise Whitby and Associates PL

Traditionally patient safety has been overseen by clinical (usually medical) and quality, whereas worker safety has been managed through human resources. Issues such as infection control, error, falls, design of facilities and equipment and patient handling affect both patients and workers, so is it viable to continue to host patient and worker safety in separate silos with little or no integration. Recent studies (The Joint Commission, 2012: Taylor, J A et al., 2012; Rieble, A, Braun, B, & Hafiz, H, 2013) suggest we may be missing an opportunity for better outcomes in both patient and worker safety.

The third contribution is about how to develop innovative solutions based on human factor and ergonomics, realized by the synergic work of professionals having different backgrounds, in order to improve patient safety and save money:

Ergonomics and economics for safety
Presentor: Riccardo Tartaglia, Sara Albolino, Giulio Toccafondi, Centre for Patient Safety, Tuscany Region, Italy

The symposium, besides brief presentations from each author of the papers, includes also a discussion session in groups or in plenary (according to the number of participants) where to discuss and identify main issues and topics related to Creativity Ergonomics and innovation to be further developed during the IEA2018 Congress.

References
Jan Dul and W. Patrick Neumann (2008), Contributions to Company Strategies, Ergonomics.
The Joint Commission. (2012, November). Improving Patient and Worker Safety: Opportunities for Synergy,