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Ergonomics and creativity : an opportunity for the activity ergonomics ?

**FEES / CREE Amersfoort Workshop
Ergonomics and creativity**

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Introduction : creativity and ergonomics : (1)

- A conjunction of converging initiatives in Europe and in France
 - Several meetings have been held in France on the issue linked with the preparation of the IEA 2018 congress :
 1. A symposium on the issue ergonomics and creativity in the SELF Congress in September 2015
 2. A workshop on 'creativity, innovation and ergonomics' in October 2015
 3. A conference on 'work and creativity' in November 2015
- In these meetings, ergonomists, psychologists, sociologists, management scientists and various practitioners expressed their views on the issue.

Introduction: ergonomics and creativity (2)

- In this presentation, a sum up of the debates on this issue, with my own interpretation.
- A conjunction of converging initiatives : why ?
- Which opportunities are there with this notion of creativity for ergonomics?
- A new «*prospective ergonomics*» ?
- The questions addressed by the designers or the innovation leaders to ergonomics must be taken into consideration
- Plan of the presentation :
 - 1 Some reflections on the issue of creativity**
 - 2 In which measure the ergonomists face new forms of work where the creativity is present ?**
 - 3 How far the creativity issue concerns the ergonomics methods?**

Creativity : what is about ? (1)

To distinguish different kinds of creativity:

- **the creative imagination:** in the field of the ideas and inspiration - the creativity producing literature or art creation
- **the collective creativity in an organization :** to create new techniques or new work situations with the project conducting
- **the innovation :** the creation of original products and services that meet a market

Between the different kinds of creativity, one may identify growing constraints.

Creativity : what is about ? (2)

- The creativity concept in the work and ergonomics fields is polysemic
- The concept has to be understood in a broad sense.
- It is linked to other concepts such as : invention, serendipity, metis, resilience, catachresis, vicariance
- The ergonomists encounter the creativity in all their activity fields: workspaces, organization, design, cognition, resilience...
- The creativity must also be referred to the main constraints and potentialities of the work

New forms of work where the creativity is present (1)

- The ancient forms of industrial organization characterized by the tayloristic organization are maintained :
 - the workers feel proletarianized
 - an organization which does not take into account the real work
- But in many companies, the management states that :
 - It is no more possible to lean only on prescriptions
 - A need of confidence in the operators competencies and creativity
- The digital revolution based on the creativity
- The digital platforms and the development of unpaid work
- The development of the 'make': two major issues at stake:
 - One is related to the concrete ways of organizing the productive activities
 - Another is the probation of production technologies which feed a new industrial paradigm

New forms of work where the creativity is present (2)

The collaborative robots in the manufacturing industry

Various questions are asked by the collaborative robots:

- the impact on the employment rate
- the quality of the jobs
- the co-operations with the operators
- the consequences for operators and by-standers health
- New and creative approaches :
 - to analyze the existing work situations
 - to determine which improvement solution fits at best
 - to face cognitics and cobotics as an opportunity

Creativity and the ergonomic methods (1)

The ergonomic methods are crossed by the issue of creativity :

- In the ergonomic intervention, the creativity is present at all stages
- Creativity may be the one of the ergonomists themselves
- Creativity may be understood as the implementation in the frame of the ergonomic approach of innovating methodologies
- The creativity could also contribute to explain how the workers regulate and elaborate operating modes

Creativity and the ergonomic methods (2)

The ergonomic principles are on the basis of the operator participation and creativity :

- Operators have much to say about their work
- Activity must be subject to an elaboration effort
- Operator feedback towards the design contributes to their empowerment
- To take into account the 'subjectiving activity'
- Relation between the interest for the work and the intuition
- Balance between the two faces of the safety at work: the 'regulated safety' and the 'managed safety'

Creativity and the ergonomic methods (3)

Certain requirements must be fulfilled :

- Users experience > to be built with diversified approaches
- Importance for the operators of the existing 'capacitating environments' and 'matricial organizations'
- To constitute workgroups as soon as possible
- Operators have to be assured that actual local transformations are possible
- Importance to associate the management to the process > to show their potentiality to produce feedback
- The intervention has a pedagogical dimension
- To take into account the various dimensions of the work : technical, social, cognitive, psychological,...

CONCLUSION

- Ergonomics has shown for long that the creativity appears in the dealing of the gap between the prescription and the real work.
- Creativity displays in a combination of competition and co-operation, of evaluative feedback and intrinsic motivation
- Distinction between labour and work
- The social conditions of the creativity must be maintained or re-placed

- **Thank you for your attention !**