

## Résumé de la contribution 351

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### **Francophone perspectives on the articulation between learning at work and learning through work**

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Understanding the nature of work and the resources that are expressed in it is a delicate exercise. The recognized gap between the activity as prescribed or described in the formalized repositories, and the activity carried out in the work situations leads to a scientific interest in understanding the hidden dimensions of work. In the francophone context, various approaches are concerned with the analysis of activity in work situations (Filliettaz & Billett, 2015) for the design of professional development. These approaches, which share a primacy granted from the point of view of the actors on their own actions, address the analysis of their activity according to various epistemologies (disciplinary fields and different theoretical hypotheses): professional didactic (Pastré & al., 2006), course of action (Theureau, 2009), ergonomics (Falzon, 2005), and clinic of the activity (Clot, 2008).

The understanding of the adaptive processes of the actors in their workspaces thus leans towards a goal of designing professional training environment. This work of design is underpinned by the strong concern to increase the capacity of the trainees to act in a concrete work situation and to fit into communities of professional practice. Research then links comprehensive and transformative aims, seeking access to dimensions of professional activity whose analysis is promising for the training design. It is about understanding how individuals learn in interaction with others and with the materiality of work situations, to grasp the skills necessary to act in contemporary work situations, characterized in particular by an increase in the use of technologies. The challenge of this work for training is to make a comparison between the characteristics and requirements of work situations and those given to experience by learners in training situations. Thus, the use of simulation situations reveals a possible articulation between understanding the workplace learning and designing a potential learning situation based on the analysis of the activity deployed at work.

The aim of this symposium will be to consider the link between analysis of work activity of professionals and the design of learning and development situations for professional training. It will be a question of showing how this articulation can be conceived, based on empirical research rooted in various approaches and fields of professional intervention (teacher training,...). These approaches lead to design work and/or training situations as encouraged action spaces (Durand, 2008), enabling environments (Falzon, 2005) or crossed self-confrontation interview, sources of professional controversy (Clot, 2008).

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*Présentation du symposium*

### **Learning at work or developing work activity?**

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Francophone approaches to work-based learning have been particularly interested in developing the competence needed to carry out the work activity. In this context, they have mobilized the methods developed over the last 50 years in the tradition of French-speaking ergonomics (Daniellou, 2005). Thus, both the approaches in vocational didactics (Pastré, 2013) and those rooted in the theoretical and methodological framework of course of action (Theureau, 2004) have sought to design training on the basis of the real work and not on the basis of the prescribed work.

Beyond the objectification of learning in the workplace or the design of more effective vocational training, it seems to us that, more and more, the ergonomics of the activity is being questioned by developmental issues (Falzon, 2013). Therefore, it is necessary to understand the formative dimension of the ergonomic intervention. In this context, the ergonomic intervention is not simply the place of learning but is a potential context for the development of activity (Engeström, 1987), understood as a qualitative reorganization of the activity (Roth, 2016).

We will draw on a study conducted in the context of digital table design for physics education to objectify the development of teacher activity associated with design (Knibbe, 2016). The participatory design method involved 4 experienced teachers. All meetings were transcribed and filmed. An analysis of the arguments used by the teachers in their design choices was made using a TCPK coding. The analysis was intended to reflect not only the gradual appropriation of technological knowledges as part of the design process, but also the total reorganization of the whole knowledges.

The results show that more than learning the features of new technologies, the participation of teachers in the design process requires them to rethink all of their work activity. The discussion will focus on the links between learning and development of the activity and on methodological features about the ways how ergonomics intervention could open proximal zone of development of activity.

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### **The intervention as training of ESPE trainers**

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As part of the refoundation's law initial training of teachers and education personnel of July 2013, the ESPE of Aix-Marseille prescribed a new plan called "TD délocalisé" (delocalized directed work) to reconfigure the ESPE trainers' school work. This change will be accompanied by the injunction to wipe a clean sweep of previously devices, will cause a feeling of unease among trainers individually and collectively (Filippi & al, for publication).

It is in this context and at the request of ESPE trainers that an intervention-research is put in place in September 2016 with volunteers' trainers from different disciplines. This group will try to give themselves new rules to cope with this new injunction. One of them was to confront their singular interpretations within this new shared space. Collectively, and with artifacts, they gave themselves the means to reclaim this prescription.

We analyzed, in a work situation, the activity of these trainers. Especially, their activity of individual and collective interpretation and redefinition as they strive to reorganize their shared work environment with the help of the theoretical framework of the ergonomics of the activity of the professionals of education (Amigues & al, 2003) according to a clinical approach to the activity (Clot & Leplat, 2005).

Based on some results produced from extracts from our corpus, we will highlight the way in which this collective work tries to constitute a workspace in which the comparison of their redesign activity helps to constitute an instrument of exchange. This comparison is not a natural, spontaneous process, but the result of the development of their dialogical activity in different successive contexts ("TD délocalisé", self-confrontation interview – single and crossed-, group meetings, restitution phase,...) methodologically based on the methodological framework of self-confrontation interview (Bonnemain & al, 2015).

At the same time, or in the time of research which succeed the intervention's one, these materials, from the co-analysis in the service of transformative and formative aims within the group of professionals involved in the intervention, change their status. They become resources in the service of training addressed to other trainers of the ESPE as part of the schooling of trainers (Félix, 2014) thus illustrating the way in which we articulate research and training in the service of continuing education

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### **Designing online platforms for professional development : the case of PE teachers and gymnastics coaches**

#### **Lionel Roche, Cathy Rolland, Nathalie Gal-Petitfaux**

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Our communication present the design of training programme for supporting professional development of workers in the field of physical education (PE) and sport's training (PE teachers and gymnastics coaches). These programmes are based on online training platforms. Two platforms have been developed (Former à l'intervention en EPS ; Observation et Régulation en EPS) and one is being designed (in partnership with French Gymnastics Federation). In line with the principles of training design that organize the technological programme "course of action" (Theureau, 2006), professional activity's is considered as an object and a training resource. Training resources used for designing platforms, are thus centered on activity's in real situation of work. Platforms are envisaged as "spaces of action encouraged" (Durand, 2008), insofar as they are designed in the

expectation of provoking some learning experiences for the trainees. Indeed, our scientific work, inscribed in the theoretical framework of cognitive anthropology, and based on enaction's hypothesis (Varela, Rosch & Thompson, 1991).

Workers' activity (at work or during training) is considered to be based on asymmetric interactions with the environment and each workers give a specific signification for each situation. Platform design is thus based on a search for linking training experiences and experiences in work situations.

Platform design process took place in three steps. The first step is based on an understanding aim of the activity : understanding teacher and students interactions during a PE's lesson and between expert coaches and gymnast for learning gymnastic skills (Rolland, 2016). The activity deployed (concerns, tacit knowledge,...) is studied using descriptive data : a) data from video describing observable behaviors in ecologic context of work and b) data from self-confrontation interview with the researchers constitute data used in the second phase. The aim is to transform this data (audio, video, interview,...) in multimodal training resources (Kress, 2009).

Third step focuses on the analysis of the activity deployed by the trainees during the use of platform (with trainee in PE) in order to design a new version of the programme. Our results showed that the platform allow them the possibility to live "mimetic experiences" and help them to connect their own practice in the classroom and the practice viewed online. These experiences allow them discovering in depth some dimensions of teaching practice, and help them to engaged in transforming their own practice.

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### **Analyzing activities of pedagogical engineers in unusual situations of distance work to design trainings**

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More and more institutions of higher education, whether in France or in Quebec, have videoconferencing equipment and immersive telepresence rooms giving users the feeling of being together around the same table. However, these facilities are not specifically adapted to the needs of the teaching profession, and teachers, pedagogical engineers and researchers need to understand how to improve the quality of teaching in such contexts (Lameul & Loisy, 2014).

As part of a partnership between France and Québec, a study of the educational uses of these rooms for distance learning has begun. This design-based research project (Sanchez & Monod-Ansaldi, 2015, Wang & Hannafin, 2005) is called TOPIC (Telepresence as an Opportunity for Pedagogical Innovation and Conception). Based on a close collaboration between researchers and trainers, a first training has been designed and offered in 2017 (Meyer, Barré, Lefebvre & Gandon, 2018) and two others are being designed.

The first observations highlight the gap between the activity as envisioned and the activity carried out in distance learning situations. To better understand these unusual dimensions of trainers' work and to design training situations, we are engaged in the study of the two current courses. The adopted approach focuses on the point of view of the actors on their own actions: a protocol of analysis of the activity aiming to reach the observable and the unobservable (Flandin, 2017) was put in place (observation participant and filmed, simple or crossed self-confrontation interviews) and will be rolled out in the coming months.

Understanding the adaptive processes of actors in their workspaces aims at designing training environments for teachers. It is also a question of appreciating the effects of these new practices on the learners: to understand how people learn in the remote interaction; seize the skills and knowledge mobilized (Bachy, 2014) to act in these digital work.

This communication will provide concrete material in relation to the objective of this symposium that is to study the articulation between the analysis of work activity of professionals and the design of training situations.

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