Construction of knowledge and development of collective work: training workers of an operational centre for coordination and control of forest fires in Chile

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1. Introduction
The concept of accelerators has been developed in entrepreneurial science to refer to training and support programs aimed at promoting innovation and innovative business generation capable of facing competitive environments (Metz, 2012). The present descriptive research is developed to identify the training accelerators that create and develop teamwork at the national Forest Fire Control and Coordination Centre in Chile. The aim is to set up the operational configuration of a temporary team that works only during the forest fire season, in order to give its members the knowledge to manage and deal with dynamic, complex and potentially risky situations. In this context, the training of novices and the updating of knowledge and know-how of experienced workers in a very short period of time is an important issue for both developing operator skills and operationalizing the collective. We have analysed the formal learning process at the beginning of the forest fire season and the informal learning strategies developed during the season in order to operationalize an heterogeneous team. We also have analysed the role of each team member and the assistance provided by each in order to help others learn and become a high performance team member.

2. Method
Using an ethnomethodology approach based on the theories of situated action (Suchman, 1997), distributed cognition (Decortis et Pavard, 1994) and distributed social cognition (Hutchins, 1995) the researcher observed work for an extended period (six months) and collected data during the initial training process and throughout the season, in the operational setting. Data collection was supported by audio and video recordings in order to analyse both the actions and the content of the trainer’s interventions and the spontaneous verbal exchanges among members of the centre (5 experienced operators, 3 novices). Systematic observations were supplemented with individual interviews with each member of the team.

3. Results
Several strategies are employed during the formal training process at the beginning of the forest-fire season as well as during the season. We observed an active participation of members of the team, self-organization, and mutual support not only in order to fulfil the task, but also in order to exploit opportunities for learning from experience. This behaviour was encouraged at the beginning of the season by the people in charge of the training process. During the working period, we found six different kinds of behaviour and verbal interaction aimed at learning while on the job: self-learning, evaluation and enhancement of
knowledge and skills; facilitating training situations; retrospective analysis of activity; directed assistance with a focus on learning, cooperative learning and assistance to assistance. Some strategies proved to be most used in calm periods of the work day, while others were used during the management of forest fires. By the end of the season, all strategies tended to be less frequent.

4. Discussion

It is possible to identify an organizational strategy aimed at creating environments that enhance the informal learning through the collaboration at proposing ideas, through mutual support, self-learning initiatives, interaction and reflective work by sharing work experiences. These conditions allow a community of practice to be created in action. This community strengthens team autonomy by constantly producing new ways of learning and by questioning work practices. The reflective analysis that dominates the strategies takes place both in calm moments of the day and during forest fire management as a part of a constructive learning by working apparatus, where learning is fundamental to reach the expected performance as a team. These organizational conditions are seen as organizational learning accelerators involved in the empowerment of members of the team. These accelerators allow them to deal with risky dynamic work environments, to establish a high-performance team and to set an enabling work environment. Such constructive ergonomics practices alleviate the constraints and risks of not-having permanent staff to rely on each year, when the forest fire season occurs.

Keywords: informal learning, reflexive practice, working learning strategies, empowerment, risky dynamic systems.

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References

