

Rationalities at work: Insights from complexity theory for engineering actions

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THE WORK IN CONTEXT

Developing engineering actions that favour the work and the worker requires acknowledging the existence of different rationalities in the universe of production. Distinguishing types of rationalities is an operation that researchers and practitioners can benefit from, while disjoining risks leading to blindness by not capturing the complexity of work. Based on this idea, we use concepts of activity-centred ergonomics and psychodynamics of work to distinguish between four types of rationalities involved in work. Then, we briefly explore some insights from the concept of rationality of complexity, as opposed to a disjointed view, and conclude with some implications of a complex view of rationalities for developing engineering actions.

KEYWORDS

Rationality, complexity, engineering, activity-centred ergonomics, psychodynamics of work.

The need of a complex view of rationalities for engineering actions

Engineering actions directly affect work and the worker, which requires a commitment to the development of systems that, in addition to achieving the objectives of the organisation, maximise human development, including the psychic sphere. This poses the challenge of questioning the classical engineering paradigm, based on the principle of simplification and instrumental rationality, towards a complex view that recognises the existence of different rationalities. Thus, two research questions motivate this work:

- 1) What are the types of rationality involved in work?
- 2) How can engineering actions benefit from a complex view of rationalities?

We propose a discussion of these issues based on data collected from the literature review of rationalities, complexity and engineering, as well as surveying engineering courses that use concepts related to complexity theory.

The different rationalities in the universe of production and work

Work is not just an activity guided by a unique rationality, it is also a social relationship in which workers are required to reconcile different – and often conflicting – rationalities. Based on studies of activity-centred ergonomics and psychodynamics of work, it is possible to identify at least four rationalities that structure the ways of acting in the world of work: instrumental, communicative, axiological, and pathic.

Instrumental rationality is linked to the effectiveness of the action in relation to the ends. It is pragmatically orientated towards achieving objectives and maximising utilitarian value (Sznclwar,

2015; Bolis et al., 2017): people are resources to be managed, rather than to be understood (Bolis et al., 2014), in other words it is based in the understanding of the other as an instrument to reach a certain end.

Communicative rationality is based on dialogicity and reciprocity in relationships, in the search for truth in the relationship with the other (Vizeu, 2002; Daniellou, 2004; Zarifian, 2005). It means that the actors of society seek to reach a common understanding and to coordinate their actions based on reasoned arguments, consensus and cooperation. This type of rationality is manifested in the consensus resulting from intersubjective communication mediated by personal values, interests, concepts and language (Habermas, 1984).

Axiological rationality is associated with the criterion of justice of action in relation to values within the social world. It provides the understanding of the other as a bearer of values and moral judgments (Dameron, 2005). In this view, a sustainable work, imbued with meaning and built upon relationships of trust and cooperation, would be impossible in the absence of an axiological perspective that goes beyond economic value (Bolis et al., 2014).

Pathic rationality, by its turn, refers to the development of work in the subjective world, in which the processes of identity construction occur based on lived experiences and intersubjective relations (Dejours, 1997, 2012; Hubault and Sznclwar, 2012). Working is not only a question of cognition, postures and movement, but it is also related to the psychic, subjective mobilisation that occurs through interrelations established in and with work (Dejours, 2012; Molinier, 2013).

Towards a rationality of complexity: Implications for theory and practice

Acknowledging the existence of different rationalities is fundamental to understand and transform work, but is not sufficient to understand how to integrate them into engineering actions. The concept of rationality of complexity, as developed by Morin (2006, 2010, 2015, 2016), provides insights on this matter.

First, the author argues the need to deny any absolute, closed, self-sufficient rationality. It is necessary to stop reifying rationality, and instead considering it as an evolutionary phenomenon; it should no longer be mechanistic to become alive and thus biodegradable. Second, a rationality of complexity can and should recognise the irrational (chance, disorder, randomness, logical breaches): it is not rejection, but dialogue with the irrational. Third, a complex view of rationalities is about safeguarding rationality as a critical attitude and a desire for logical control, but adding to it self-criticism and the recognition of the limits of logic. Lastly, rationality is no longer just a way of being rational and becomes an aptitude for devising systems of ideas, but systems that are not taken for granted and can be reshaped.

The reality of work is not only the objective real world, it is also the reality of the social world (Dejours, 2012, p. 36). The real always exceeds the rational – but rationality can develop and become complex (Morin, 2010, p. 169). In conclusion, the concept of rationality of complexity implies that it is needed not only in developing engineering actions/systems that allow workers to reconcile different types of rationalities, but also to recognise the irrational and the possibility of overcoming established paradigms of rationality.

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