

Application of the Critical Decision Method for Monitoring and Improving Safety in the Construction Industry

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Abstract : No one is in the slightest doubt about the high levels of risk involved in work in the construction industry. They are even higher in structural construction work. The Critical Decision Method (CDM) is a semi-structured interview technique that uses cognitive tests to identify the different disturbances that workers have to deal with in their work activity. At present, the vision of safety focused on daily performance and things that go well for safety and health management is facing the new paradigm known as Resilience Engineering. The aim of this study has been to describe the variability in formwork labour on concrete structures in the construction industry and, from there, to find out the resilient attitude of workers to unexpected events that they have experienced during their working lives. For this purpose, a series of semi-structured interviews were carried out with construction employees with extensive experience in formwork labour in Spain by applying the Critical Decision Method. This work has been the first application of the Critical Decision Method in the field of construction and, more specifically, in the execution of structures. The results obtained show that situations categorised as unthought-of are identified to a greater extent than potentially unexpected situations. The identification during these interviews of both expected and unexpected events provides insight into the critical decisions made and actions taken to improve resilience in daily practice in this construction work. From this study, it is clear that it is essential to gain more knowledge about the nature of the human cognitive process in work situations within complex socio-technical systems such as construction sites. This could lead to a more effective design of workplaces in the search for improved human performance.

Keywords : resilience engineering, construction industry, unthought-of situations, critical decision method

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