MODELLING THE DYNAMICS OF SAFETY ON CONSTRUCTION PROJECTS: A REWORK PERSPECTIVE

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ABSTRACT:

Globally, the construction industry has a poor safety record. This project is on understanding and modelling the dynamics of safety on construction projects with particular focus on Uganda. The scope of the developed safety model is restricted to the effects of undiscovered rework, schedule pressure and cost pressure on accident frequency. In this paper, the occurrence of accidents is hypothesised to depend on undiscovered rework (defined as the unnecessary effort of redoing a process or activity that is incorrectly implemented the first time). High levels of undiscovered rework lead to a high accident frequency on projects. As a point of departure, this paper builds on the classical project management model by Richardson and Pugh. The classical model consists of the subsystems on workforce, scheduled completion time, project progress and rework, and the contribution of this project is to include the subsystem on safety. From the results of this study, it is evident that the time to detect rework is a possible safety policy parameter. By strengthening quality inspection of a project, faults are detected and corrected early enough before they lead to accidents. It was also observed that the tendency to accelerate projects can breed accidents on projects. Accelerated projects tend to experience high levels of unsatisfactory work compared to projects implemented following their planned schedule. This paper recommends that the safety model should be extended to capture the relationships between safety and equipment, safety and materials, and safety and labour.

Key words: construction industry, occupational safety and health, rework, work accident.

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