

# **Impact of the Dynamicity of Workgroup Changes on Social Influence of Construction Workers' Safety Behaviors**

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## **ABSTRACT**

Recently, researchers have paid increased attention to the social and cognitive aspects of workers' safety behaviors. In the same vein, researchers have begun modeling the socio-cognitive process of workers' safety behaviors. However, an inquiry into the impact of workgroup changes on social influence remains limited. Workgroups in a construction project dynamically change because workers enter and leave according to the project schedule. Considering that changes in workgroups affect the social network of the project, and the transmission of the social norms occurs through the social network, workgroup changes should be considered. In this paper, an agent-based model is developed to investigate how the dynamicity of workgroup changes affects the socio-cognitive process of workers' safety behavior. Three experiments examining the effect of the dynamicity of workgroup changes (i.e., static (no turnover), mildly dynamic (modest turnover), and highly dynamic (high turnover) change) in three site risk conditions (i.e., low, modest, and high site risk conditions) were conducted. The results indicate that while the incident rates for the static and mildly dynamic changes are significantly higher than the highly dynamic changes in the modest and high-risk condition, the differences in the incident rates for the three dynamicity changes are not significant in the low-risk condition. The findings provide construction practitioners with insight into the development of safety management interventions by exploring the interaction between the workgroup changes and site risk conditions. Also, this study contributes to the body of knowledge of construction safety by testing the importance of the workgroup changes in the socio-cognitive process of workers' safety behaviors.