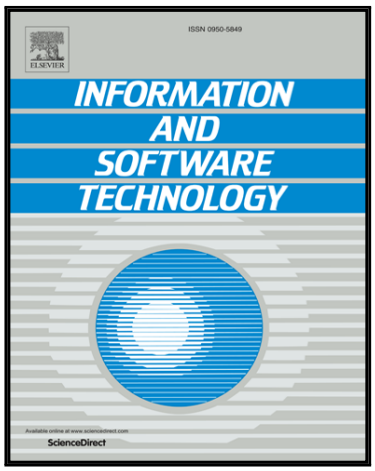

Exploring the Links between Software Development Task Type, Team Attitudes and Task Completion Performance: Insights from the Jazz Repository

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Exploring the Links between Software Development Task Type, Team Attitudes and Task Completion Performance: Insights from the Jazz Repository

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Abstract

Context: In seeking to better understand the impact of various human factors involved in software development, and how teams' attitudes relate to their performance, increasing attention is being given to the study of team-related artefacts. In particular, researchers have conducted numerous studies on a range of team communication channels to explore links between developers' language use and the incidence of software bugs in the products they delivered. Comparatively limited attention has been paid, however, to the full range of software tasks that are commonly performed during the development and delivery of software systems, in spite of compelling evidence pointing to the need to understand teams' attitudes more widely. **Objective**: We were therefore motivated to study the relationships between task type and team attitudes, and how attitudes expressed in teams' communications might be related to their task completion performance when undertaking a range of activities. **Method**: Our investigation involved artefacts from 474 IBM Jazz practitioners assembled in 149 teams working on around 30,000 software development tasks over a three-year period. We applied linguistic analysis, standard statistical techniques and directed content analysis to address our research objective. **Results**: Our evidence revealed that teams expressed different attitudes when working on various forms of software tasks, and they were particularly emotional when working to remedy defects. That said, teams' expression of attitudes was not found to be a strong predictor of their task completion performance. **Conclusion**: Efforts aimed at reducing bug incidence may positively limit teams' emotional disposition when resolving bugs, thereby reducing the otherwise high demand for emotionally stable members. In addition, in environments where teams work closely together to develop software such as in Agile contexts, attitudes are likely to have a bearing on how they function as a group.

Keywords: Task type, Team attitudes, Task completion performance, Software project management, Empirical software engineering, Repository mining, Jazz repository

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