

Trial by Fire: GIFTS for Stress-Testing Student Project Management Tools

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GIFTS: Trial by Fire - Stress-Testing Student Teamworking Tools

Context and Objectives

This GIFTS was administered in the second semester of a two-semester General Engineering course sequence. The course is project-based learning course structured around engineering design. Students work in teams of 4-6 on open-ended problems where they must scope the problem, ideate solutions, and build and test a prototype solution. The Trial by Fire assignment is administered after students have been placed into teams and have formally identified their selected project management tools, including communication (e.g. slack, group text), file repository (e.g. Google Drive, SharePoint), and task allocation (e.g. Trello, MS Planner)

Assignment Structure and Implementation

The objective of the assignment is to support one of the course learning outcomes, to actively and equitably contribute to the solution of an engineering project in a team setting. For the assignment, student teams must prepare and present a slide deck during a 75-minute class period. The information required to complete the assignment is divided into 6 separate components and distributed to students such that no student on a team has all the materials necessary to complete the assignment. Students are then informed that they are not allowed to talk to each other, email each other, or work on the same computer. Team members must work together to share and collocate information, to assign tasks, and to complete the assignment using only the tools identified in their Team Charter assignment. The assignment culminates in each team presenting their slides to the class, commenting on the assignment, and submitting a peer review of two other teams' presentations.

Survey and Feedback

Student perceptions of the assignment were gauged using a Canvas quiz with both a Likert and open-ended questions. 66% of students found the assignment very effective, and 34% found it somewhat effective. While students indicated that the assignment was stressful and provided insights into team dynamics and project management toolsets, most indicated that they would not change the project management tools they selected prior to the assignment.

Conclusions

The Trial by Fire assignment provided students with a high-pressure, low-stakes mechanism to assess their project management skills prior to engaging in their semester-long design project. Students are able to uncover limitations in their toolsets or in the use of these tools in a controlled, structured environment. Although the assignment did not induce significant change in tool selection, most students rated the activity as very effective, noting the improved perception of the importance of direct communication in team-based projects.