The Use of Simulated Games in an Undergraduate Course Manufacturing Processes.

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Abstract

Simulation games bring the real engineering situation into class room. They are ideally suited to situations where the size and cost of some systems cannot be replicated in educational institutions, e.g. large-scale production facilities and manufacturing processes. Students undertaking a course in Manufacturing Processes participated in a role-playing game within a simulated manufacturing environment for the production of LEGO widgets. The game has three discrete phases; each with a briefing session, a production "run" and a debriefing session. It encourages observation and discussion of possible improvements required to increase productivity, and also visualizes some of the manufacturing concepts. This paper describes the exceptional learning outcomes achieved, the explicit understanding of manufacturing strategies and an insight into the approaches taken by world class manufacturers to maximise production. Surveys of students, taken before and after the game, revealed that they gained a greater appreciation for the course content by being immersed in this simulated scenario. The game also illustrated the importance of good team interaction, the application of different problem-solving techniques, and proved the odd adage "work smarter not faster".

KEYWORDS: simulation games, manufacturing processes, LEGO, , Just-in-time production, lean manufacturing