ROBOT PROJECTS AND COMPETITIONS
AS EDUCATION DESIGN EXPERIMENTS

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ABSTRACT—This paper proposes the Education Design Experiment (EDE) as an instructional framework for robotics education and demonstrates how it is implemented in the Trinity College Fire-Fighting Home Robot Contest (TCFFHRC) projects. The overarching goal of the EDE is to examine how best to implement, evaluate, and conceptualize the robotics education process while designing, building and operating robot systems in the learning environment. We discuss experiential cycles in which evaluation of robot contest projects leads to upgrading contest assignments which inspire teams to develop innovative, new fire-fighting robots. The paper presents results of the 2004 and 2005 TCFFHRC surveys and theoretical Olympiad, the new challenging assignments offered by the 2005 contest rules and their implementation in the new robot systems developed by students at Trinity.