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## I. Summary

My research goal for my Ph.D. program is to investigate the following question:

*Within the context of product design, how do we bridge the gap between the classroom and real-world experiences?*

After students graduate, they will likely face open-ended and complex problems in the various jobs they hold. While their experiences in the classroom often were well-defined, “real-world” tasks and challenges are full of uncertainty and ambiguity. If, as educators, we can give them experiences in their curriculum that can train them to be able to handle these “wicked problems”, students will be able to thrive and succeed in their workplace. This question has been addressed in two distinct, but similar contexts in the past two years of my Master’s research. The goal of my continued studies will be to dive deeper into these two areas along with any emergent observations that are made along the way:

- a. providing unfamiliar situations to design towards for undergraduates and specifically novices who have not had much design experience
- b. helping guide Master’s students in the System Design and Management program figure out why, when, and how to engage with users and customers in the product design and development process

## II. Two Research Testbeds

- a. *Novice designers* - 2.97 Design-a-palooza - short term class targeting novices and exposing them to the early stages of the design process; already taught: IAP 2008, 2009; proposed - Freshman Pre-Orientation Program (FPOP) 2009, IAP 2010

### Characteristics

- introduction to ideation, concept selection and generation, and prototyping
- strange, unfamiliar and fun design scenarios to foster creativity
- safe place for failure
- peer and mentor feedback
- expressing and communicating ideas

### Goals

- developing effective methods for teaching design
- long term study on qualitative effects of instruction throughout undergrad career

- b. *Novice and somewhat experienced designers* - ESD.40 Product Design and Development - semester course for students in the System Design and Management program as part of the Engineering Systems Division. Students have varied lengths and type of industry experience. Offered every spring.

### Characteristics

- simulation of the product development process
- teams create working prototype of a product that fulfills compelling, unmet need
- shows the variety of context and scenarios in which products are created
- students come from diverse backgrounds

### Goals

- developing a framework to help students answer *why, when and how* to engage with users and customers throughout the process
- assess efficacy of teaching of user-needs analysis
- examine effects of team cohesion and shared understanding on final outcome

### **III. Future Goals**

Obtaining the Ph.D. can open many opportunities for my career. Teaching product and engineering design at a university is one viable option. Additionally, the breadth and depth of my education in graduate school will allow me to be useful in many fields, such as consulting at product design companies. Even though interdisciplinary research occurs at MIT, more needs to be done especially in the area of design. Each of the different fields can gain insight from each other as we all strive to provide relevant education to those who pass through the Institute. My additional studies will allow me to continue to build bridges and forge relationships which I have already begun creating across the Institute.