# **Designing Your Dissertation**

## **Tentative Topic**

Collaborative Design Decision-making as Social Process

## Background

Decision-making in engineering design tends to be conceptualized as originating in peoples' heads and merely expressed in talk. However, this predominant conception tends to ignore social processes inherent in collaborative design activity that give decisions a dynamic of their own.

## Purpose

This empirical study investigates the "machinery" that produces decision-making in collaborative undergraduate engineering design, which offers new possibilities for supporting decision-making skills so critical to engineering practice.

#### Method

This yearlong ethnographic study of teams of first-time engineering design students focused on naturalistic talk in design projects. A large corpus of data was collected in labs, project meeting rooms, and informal work venues as field observations, A/V recordings, semi-structured interviews, documents and survey questionnaires. Interaction analysis was employed to analyze the joint (i.e., social, situated) work teams did in naturalistic talk in 67 decision-making episodes.

## Results

Teams "do" decision-making in three invariant and overlapping phases: (i) Design options emerge, (ii) Teams orient to design options, and (iii) Design decision is made. Our analyses make visible the local rationality of the decision-making process as it is accomplished in these phases via different modalities.

#### Conclusions

There is value in making the "machinery" of collaborative decision-making an instructable matter for students through an explicit retrospective focus on team decision-making episodes as a part of the project deliverables. Rethinking social processes in design in a foundational rather than a trivial sense is essential, for how students reason in social arenas is critical for them to develop those higher psychological functions that they will take to the engineering profession.