

IERG 3830 Product design project - Owner-designer game

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Year Starting: 2010

Role-play: To understand what can't be understood in lectures

As a general comment to many engineering courses, it has been difficult for students to realize the link between technical knowledge in lectures and the practice of technical knowledge in reality. As a matter of fact, the job of an engineer requires more than just the skill to develop a product. Indeed, good engineers are also expert at a range of soft skills. In reality, engineers have to identify needs of their customers and recommend alternative approaches in cases of unviable designs. The process of such encompasses multiple social and communication skills that cannot be taught in lectures. An apparent fissure is therefore, left to be fused between theories and practice. And role-play has come in place to fill the gaps.

Role-plays make student pretend to be someone. By “living the life” of the person that a student is pretending, they will understand not only the knowledge, but also other attributes that fulfill the requirement of a particular role. In other words, the benefits of role-play lie in experience, which in turn, expose student to contexts that simulate that in reality. Subsequently, they will be educated with skills to tackle problems in practice via translation of attributes that they have gained in role-plays.

The owner-designer game

IERG 3830 focuses on the education of hands-on skills that assists students in designing viable information devices or services. The course is divided into sub parts that simulate the process of how a product is developed. Therefore, students had to undergo various learning activities as means to learn about the process that turns clients' requirements into practical designs.

As a mean to simulate the process of product development, an Owner-Designer Game was introduced to facilitate the learning of soft skills (valued by employers) among students. The Owner-Designer Games was in 2 parts. Students were divided into groups of 2-3. Each group would take up the role as an owner of one product and a designer of another product simultaneously. Owners were responsible for specifying the function of a product whereas designers were responsible for making these specifications work in an actual design, although the final piece had not been required to be produced at the end of the course. Yet the aim of the learning activity was to equip students with the ability to propose, specify and document a product design up to a stage that prototyping is possible in a practical situation.

Students in this role-play had to construct designs on the basis of requirements suggested by their clients. In fact, majority of engineering products that we see nowadays are built upon the want of users. Nevertheless, customers might demand things that can't be put into practice by engineers. A clash of opinions will eventually lead to conflicts, which may result in complex scenarios.

Therefore, role-play serves as a platform for owners and designs of this game to interact and resolve problems which require incorporation of interests between multiple parties.

On the other hand, teachers become facilitators who assist students in developing frameworks for working out viable solutions. It is not necessary to intervene by challenging directly on students' opinions about a design, rather, teachers should help students in realizing what they could have done or should be done if they were people in the field.

Advantages of role play

Role-play has a number of attributes that signify its importance. It,

- Maximizes participation of students as each one of them represents an expert of a particular field during the course of a design
- Simulates problems that students might come across with in reality
- Serves as a platform for students to practice their social skills
- Nurtures skills that are in relation to practices in reality
- Exposure to complex tasks
- Develop critical thinking in evaluating if designs are viable

Feedback from teachers and students

Teachers observed a significant improvement in skills of documenting and presenting product specifications. Moreover, the introduction of this role-play exercise prompted students in developing products of better quality. However, teachers had to contribute more, in terms of effort and resources in devising frameworks that facilitated the progress of role-play.

Students agreed unanimously with the fact that role-plays helped in perfecting their designs. Besides, they perceived role-plays to be effective exercise in building various types of social and problem solving skills that can be translated into practices in workplace. Yet students were in distress occasionally at times of conflicts and uncertainties with regard to product specifications.