

# Work-in-Progress - What Can Students Learn in an Extended Role-Play Simulation on Technology and Society?

Michael C. Loui

University of Illinois at Urbana-Champaign, [loui@uiuc.edu](mailto:loui@uiuc.edu)

**Abstract** - In a small course on technology and society, students participated in an extended role-play simulation for two weeks. Each student played a different adult character in a fictional community, which faces technological decisions in three scenarios set in the near future. The three scenarios involved stem cell research, nanotechnology, and privacy. At the beginning, students were apprehensive, excited, and uncertain. During the first and second sessions, they experienced some frustration, but by the end, they were generally satisfied with the outcomes. Over the two weeks, students changed their definitions of success: initially they tried to convince others to agree with their positions; at the end, they felt that a consensus represented success. In their final reflective essays, students reported that the role-play experience helped them learn to understand the perspectives of others.

*Index Terms* – role-play, simulation, technology and society.

## INTRODUCTION

In a role-play exercise, also called a simulation, students assume the roles of characters in a scenario. Because role-play requires the active engagement of students, a role-play experience should be effective in helping students achieve instructional objectives. A role-play can be structured to achieve a variety of instructional objectives, such as mastering content or developing skills [1].

In engineering, role-play has been used to teach courses and course modules on engineering ethics [2]–[4]. For instance, Herkert [5] organized a role-play of a fictional arbitration hearing of a product liability case; students assumed the roles of arbitrators, plaintiffs, defendants, and experts. Although a typical role-play runs for only one class session, a role-play can extend for one week or more [6].

In this paper, I describe an extended role-play simulation in a course on technology and society. Unlike Krain and Lantis [7], I used qualitative methods to characterize what students learned from the simulation.

## THE ROLE-PLAY SIMULATION

In Spring 2007, I offered an interdisciplinary seminar, *Technology, Communication, and Contemporary Society*, under the rubric CHP 396A for students in the Campus

Honors Program (CHP). This new, writing-intensive course combined a course on technology and society with a course on science writing for general audiences. Most of the eleven students were juniors. Six were majoring in various engineering disciplines (including computer science), two in biology, two in political science, and one in classics.

In the extended role-play simulation, a fictional community faces technological controversies in three scenarios set in the year 2011. First, the medical school at the local university proposes to begin stem cell research with human embryos. Second, a manufacturer proposes to make nanotechnology-enhanced steel in a new plant to be constructed near wetlands that host an endangered species of birds. Third, a nursing home proposes to implant radio-frequency identification capsules (RFIDs) into residents who have Alzheimer's disease. In previous weeks, students had read articles about stem cell research, nanotechnology, and privacy.

Each student played a different middle-aged character in two of the three scenarios. In one scenario, the character publicly favors the proposed technology, and in the other scenario, the character publicly opposes the technology.

In each of the three scenarios, the characters conducted a meeting over several days. In the first scenario, the proposal is reviewed by the university's Institutional Review Board for research on human subjects. In the second scenario, the zoning commission reviews the manufacturer's proposal. In the third scenario, an oversight board for the nursing home reviews the RFID proposal.

The simulation was scheduled to run for four eighty-minute class sessions over two weeks. In each class session, the students had thirty minutes for one-on-one meetings between characters. Then fifteen minutes were allocated for the meeting in each of the three scenarios. The fourth simulation day concluded with a debriefing in which students discussed what they had learned.

Before each of the four simulation days, and after the last simulation day, each student wrote an entry in a private electronic journal. During each simulation day, when a student was not a character in a scenario meeting, the student served as an observer. Observers posted public suggestions shortly after each class session. At the end of the semester, students wrote individual final reflection essays in which they summarized what they had learned from the course, and in particular, from the role-play simulation.

PRELIMINARY RESULTS

Students' journal entries took similar trajectories. Before the first simulation day, students expressed uncertainty, apprehension, and excitement. Initially they defined their goal as attempting to convince others to side with their positions. In the middle of the simulation, students realized the difficulties of persuading others, and they felt frustrated. At the end of the simulation, students expressed satisfaction with the creative negotiated agreements.

TABLE I  
TRAJECTORY OF THE SIMULATION

	Before the simulation	During the simulation	After the simulation
Feelings	Uncertain Apprehensive Excited	Frustrated	Satisfied
Criterion for Success	Persuade others		Reach consensus

Here are representative quotations from the journals:

- **Before the Simulation:** *I'm a bit nervous about my role, but that's exactly why I'm excited about it. It's a role that so unattached to who I am, and I find it really interesting.*
- **During the Simulation:** *Last Thursday was an extremely frustrating day for Scenario 1. Going into the day, I had a feeling that no progress would be made, and that both sides would "stick to their guns." This is exactly what happened, and even though I can say that I was not surprised, it is still difficult to believe that after two days of debate, we are still where we started.*
- **After the Simulation:** *In Scenario 3 we had a few creative ideas that I felt should be explored.... Such ideas, in my opinion, are what allow people to reach a compromise or even go so far as satisfying everyone.*
- **After the Simulation:** *I felt that our biggest success in Scenario 1 was on Day 3, when we attempted to find common ground rather than continuing to butt heads until one side eventually gave in. Once we established this tone, we were able to listen to each other and agree on points that allowed our discussion to be more productive.*

The role-play simulation helped students learn to understand and appreciate the perspectives, values, and feelings of others, especially those with whom they disagree:

- **Final Reflection:** *Also, this course—particularly the role-play simulation—taught me to respect others' opinions and understand the unique perspectives that produce those opinions. I have learned to see beyond my own interests and to briefly experience the world from the point of view of someone with a different background, different beliefs, and different ways of thinking.... [T]his class has actually trained me to be a more compassionate human being.*

Students reported that they improved their negotiation and listening skills:

- **Final Reflection:** *Participating in the simulation taught me the value of understanding a person's motives behind his/her stance on an issue, and it helped me develop other techniques of negotiation and debate while encouraging quick thinking.*

To check for reliability, I plan to ask two colleagues to code the journal entries and final reflections independently.

DISCUSSION AND CONCLUSIONS

Although the simulation featured imaginary characters in a fictional community at a future time, the simulation had many realistic elements. Each character's individual private information influenced the character's motives and decisions. In other ways, the simulation was unrealistic. In particular, the characters could ignore the costs of solutions.

This study has several limitations. The benefits of the simulation might have depended on the particular readings, assignments, instructor, and students in this offering of this course. Furthermore, the self-reported benefits should be verified through other assessments. In addition, this study provides no evidence that the benefits will be permanent.

In this extended role-play simulation, students resolved conflicting values to reach consensus about technological decisions in a fictional community. Students reported that through the role-play experience, they learned to appreciate the perspectives of others, and they developed practical negotiation skills. It appears that an extended role-play simulation can help prepare students for the civic responsibilities of citizenship in a diverse society.

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