Simulating Post-Conflict Environmental Remediation Strategies at SIPA

**Speakers: Professor Marc Levy, Adjunct Professor and Deputy Director of the
Center for International Earth Science Information Network (CIESIN), and
CCNMTL Educational Technologist Maria Janelli.**

**Summary: Dr. Marc Levy, Adjunct Professor and Deputy Director of the Center for
International Earth Science Information Network (CIESIN) and CCNMTL's Maria
Janelli presented GroundWork, a simulation Professor Levy developed with the
help of CCNMTL for use in his graduate course on post-conflict environmental
remediation strategies at SIPA.**

<u>The Presentation</u>

Dr. Levy began by explaining that GroundWork was developed for use in an
International Affairs masters course which he has taught for the last three years at SIPA.
The class is about 25 to 30 students (so between seminar- and lecture-sized), and was
designed in response to student demand for a course that would merge theory and
practice on the subject of environmental remediation in post-conflict zones. Dr. Levy
explained that they decided to try to develop a simulation because the literature on this
topic is very disjointed, and they needed to create a tool that would help students
synthesize and apply the theory in practical situations, replicating as much as possible the
complexity and challenges of doing this kind of work in the real world.

He went on to explain that the development team (himself, two research assistants, and
CCNMTL's Maria Janelli) faced a series of pedagogical decisions about what they
wanted the tool to be and do. They decided that students should work in groups, to better
mimic real-life decision-making processes. Although it was tempting to create a
competitive game with clear winners and losers, such is not the case in the field, so they
opted for a tool in which the "correct" choice is not always clear. Ultimately they
developed a simulation that unfolds over the course of 6-8 weeks and imposes a series of
realistic obstacles, including budgetary and time constraints, and at each turn groups must
come to a consensus about how to proceed.

Here Maria Janelli took over to demonstrate the simulation. She reiterated that the goal
was to merge theory and practice; they knew from the outset they wanted to create a
fictive scenario (so students would not bring preconceived ideas to bear on their
decisions) but that would reflect real-world problems. They also decided that rather than
having each group member take on a different role (e.g. one a U.N. supervisor, another a
subordinate), all members would be in the same role, that of a mid-level U.N. manager.
After considering creating a simulation that students would work through more than once

to try out different decision paths, they decided on a model in which students move through the simulation once, over the 6-8 week period, and that their final paper would be replaced by this project.

The design process involved developing an outline over a 6-month period, followed by a year spent writing the content. The design team used WikiSpaces to share the evolving content. One of their key decisions was how to create a fictitious country that would have specific geographical traits Dr. Levy wanted to incorporate in the decision-making process: a body of water, nearby forest and desert, and border countries. The team decided to invent a fictitious country spanning parts of real-life Kenya and Uganda, which they named Nimpala.

Maria then showed a flow chart mapping the turns of the simulation, with arrows showing points at which decisions led groups down divergent paths. Ultimately the groups can only go in one of three directions. The first and last steps in the simulation are actually individual assignments, the first being a conflict assessment report, the last a final analysis of the simulation project. These steps help the professor critique individual performance in what is otherwise a group exercise. Although they initially planned the tool so that it could be worked through without oversight from an instructor, they ultimately decided groups would meet to do each turn under the oversight of a T.A. At Professor Levy's request they also built in a way for the professor to provide custom feedback to groups in response to their decisions along the way.

The simulation is set up so students collect data in the form of maps, reports, and watch briefs as they go. That data, along with directions for the various stages, remains accessible from a single screen throughout the simulation.

Maria then gave a quick tour of the simulation, explaining that professors could of course see a chart with all the turns mapped out, but students could only see the instructions and other info for each turn as it unfolded. In the third turn, for example, groups are presented with twelve categories of reports about the region, and they must choose which six to purchase, justifying their decision in a co-written report. In two other stages students choose which of a series of projects to fund with a very limited budget. Maria noted that these budgeting turns tend to create a lot of conflict, with students bringing their own experience and expertise to bear in the group decision-making process. Each of the potentially-funded projects has a point value on the backend, and based on their decisions about what to fund Nimpala is either sent down a road to peace, conflict, or humanitarian crisis.

Maria concluded by explaining that in the final turn students are prompted for detailed feedback about their experience using the simulation and they generally give explicit, no-holds-barred comments, partly because the simulation replaces their final paper and this feedback step is part of that.

Dr. Levy then stepped back in to address the lessons learned thus far. He noted that the simulation basically seems to meet their objectives: in the 1st and 2nd years they used

focus groups to assess it and found results consistent with their initial goal to merge theory and practice. Students said they found having to argue and come to a consensus within the group especially edifying. However, he also observed that, contrary to his expectations, rather than drawing on large-scale theories to support their decisions in the simulation, students consistently refer to specific cases they have read. This has had implications for how he teaches the class and he noted that the simulation could easily be tweaked to refer students to illustrative cases along the way.

He noted that students also express a consistent desire to have clear winners and losers; they dislike the ambiguity of not knowing which group has performed best. While initially he and the designers felt this was a preferable conclusion, reflective of the real world, he is now considering making the simulation more of a straight-forward competition among groups. He also added that in the first year they had done a paper-based version of the simulation, and although the subsequent computerized version was more streamlined, some of the paper-flying, frenetic energy in class seemed to have been lost in the transition, so it would be nice to find a way to regain that.

Dr. Levy concluded the presentation by explaining they had also gotten feedback about the simulation from a UN representative who does this kind of work. The rep said overall the simulation seemed to cover key points very well, but also suggested improvements, including giving a better sense of the timeline; incorporating more voices of national actors who would also be involved in decision-making about these issues; and including the border countries in the action more.

Discussion

The discussion began with an attendee asking how in such complex situations one decision could be judged superior to another. Dr. Levy responded that it's a good question; most of the time in practice it's not clear which decision is better, even after the fact. They do try to make the "better" choices in the sim consistent with the existing literature and the P.O.V. of the class (for example, they emphasize the importance of land reform in class, and reward a nuanced approach to this in the sim), but students are free to disagree with these guidelines. They are ultimately judged by their level of critical thinking, not which decisions they make.

Seminar co-chair and CCNMTL Executive Director Frank Moretti asked for more info on how critical thinking was encouraged in the way the simulation was presented to the class and supported by instructors. Dr. Levy responded that the T.As prompt students toward critical engagement and away from groupthink, but that being in very diverse groups also helps a lot. Students are placed in groups based on their profiles (background, work experience, etc.) and every effort is made to make groups as diverse as possible, which generates a lot of internal debate. Maria interjected that groups are, however, discouraged from sharing information with other groups since they are exposed to new data based on their decision-path through the simulation.

Seminar co-chair Ryan Kelsey asked whether students were shown the backend points system at the end as part of a post-sim debriefing exercise, to which Maria and Dr. Levy responded that no, that had not been done in the past although it's an option for the future. Dr. Takeshi Utsumi observed that it may be useful to distinguish between a true computer-based simulation, such as those used for scholarly research, and computer-assisted role play, or "normative gaming." Dr. Levy agreed, although he noted that this tool was definitely for instruction, not research. He went on to add that one of the challenges of this work, which is reflected in the simulation, is that we often don't know what the right answers are.

Another attendee volunteered that she has worked for years developing simulations in corporate contexts, and that she has observed that practitioners really need simulations that take a complex world and simplify the decision-making process, rather than replicate the complexity. Dr. Levy responded that since this sim was designed for instructional purposes, their intent was to avoid the temptation to oversimplify at the outset. Instead they tried to replicate the near-stultifying complexity of the real world, then guide students through a kind of filtering process that would let them make key decisions, but all the time keeping that complexity in the back of their minds. But he agreed that if the simulation were deployed for practitioners, simplifying the decision-making process would have to be a priority.

Ryan Kelsey observed that after using similar programs in a class CCNMTL often recommends that faculty present a new, out-of-simulation exercise, in part to see if students can apply/transfer what they learned in the simulation to a new scenario. Had they tried that in this case? Dr. Levy replied that they had not but that observational and anecdotal evidence suggests that students are indeed learning from the simulation.

Another attendee asked if there was evidence of cooperation or competition between groups, to which Dr. Levy replied that cooperation between groups was discouraged, but that competition was evident in the final class, at which each group presented its decision-making pathway through the sim under the critical eye of their classmates.

Ryan Kelsey concluded the meeting by thanking the presenters and inviting all to attend the next seminar on June 9th.