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Article *in* International Studies Perspectives · May 2013

DOI: 10.1111/j.1528-3585.2012.00470.x

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Using a Blended Learning Approach to Simulate the Negotiation of a Multilateral Environmental Agreement

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This paper presents the case of a role-play simulation that recreates a recent negotiation of the Convention on Biological Diversity. Using a blended learning approach, our simulated negotiation integrates three educational delivery methods—preparatory learning, face-to-face learning, and online collaborative learning—to recreate the complexity of negotiating global environmental issues. Qualitative student feedback is used to analyze the benefits and challenges of this approach. Our results suggest that blending learning methods within a role-play simulation is an effective strategy to help students appreciate the challenge of achieving consensus among competing interests, understand the pervasive power dynamics that shape political outcomes within the realm of global environmental governance, and hone skills relevant to policy analysis, negotiation, and consensus building.

Keywords: role-play simulation, bended learning, global environmental governance, convention on biological diversity

Role-play simulations—in which students adopt a character and represent this role within an approximation of the real world as part of the learning process—have become a fixture of geographical pedagogy (Maddrell 1994; Dengler 2008; Howard 2011). Lauded as a teaching tool that recreates complex realities in a simplified and condensed manner, simulations have been shown to help stimulate student interest (Druckman and Ebner 2007), enhance the mastery of course materials (Rivera and Simons 2008), and deepen both critical and analytical thinking skills (Shellman and Turan 2006). As Asal (2005) suggests, simulations are particularly valuable to social science students because they offer many of the same benefits that the laboratory offers to students in the natural sciences: They allow students to learn from hands-on experience and to experiment with different strategies for problem solving. In this way, simulations exemplify the active learning approach that advocates more interactive methods to encourage critical engagement with the subject matter (Amoore and Langley 2001:21).

Much of the existing literature on role-play simulations presents case studies that choose between traditional classroom settings and more innovative computer-simulated models. Both approaches have their advantages: Classroom

Authors's notes: Financial support for the SUST 2001 Learning Technology Assistant was provided by a Teaching with Technology grant, offered through Dalhousie's Centre for Learning and Teaching. Any reader interested in emulating this simulated negotiation is invited to contact the authors for specific materials.

Schnurr, Matthew A., Elizabeth De Santo, and Rachael Craig. (2012) Using a Blended Learning Approach to Simulate the Negotiation of a Multilateral Environmental Agreement. *International Studies Perspectives*,
doi: 10.1111/j.1528-3585.2012.00470.x

settings allow students to cultivate interpersonal skills such as public speaking, mediation, and consensus building, while e-learning technologies allow the simulation to operate outside of the logistical constraints of class time, broaden the parameters of student participation, and recreate the dynamics of real-life situations in which digital media play an increasingly important role. But recent interventions stress that combining these approaches is the best strategy for enhancing student learning (Dengler 2008; Brynen 2010). By employing a model of blended learning, multiple learning forums can be combined for maximum benefit (Mortera-Gutierrez 2006). This paper presents the case of a role-play simulation that recreates a recent negotiation of the Convention on Biological Diversity (CBD), in order to help students understand the complexities of achieving consensus within Multilateral Environmental Agreements (MEAs). It integrates three different educational delivery methods—preparatory learning, face-to-face learning, and online collaborative learning—to help recreate the nuance and complexity of negotiating global environmental issues.

Dalhousie's College of Sustainability

Our role-play simulation took place within Dalhousie's College of Sustainability, a new trans-disciplinary academic unit designed to expose students to multiple perspectives that help to elucidate human–environment relations. Students combine their degree in Environment, Sustainability, and Society with another disciplinary major from any of the seven participating faculties (Architecture and Planning, Arts and Social Science, Computer Science, Engineering, Health Professions, Management, Science); thus, classes are populated with students from a wide variety of backgrounds. Core courses are co-taught by two or more faculty members with different areas of expertise relating to environmental issues.

SUST 2001: *Environment, Sustainability, and Society: A Global Perspective* is one of the College's core undergraduate offerings at the second-year level, with a focus on issues of global environmental governance.[1] The course counts as a full-credit taught in a single semester, with six contact hours per week (three hours of lecture, two hours of tutorial, and one hour of guest lecture). The primary learning objectives of this course are to (i) analyze pressing issues within global environmental politics and (ii) critically evaluate the governance regimes that have emerged to regulate them. SUST 2001 revolves around three substantive modules of three weeks each, organized thematically around biodiversity, food and agriculture, and environmental security. The course culminates with a three-week simulated negotiation at the end of the semester.

As Dengler (2008) notes, the study of environmental governance and that of sustainability more broadly are particularly well suited to more interactive teaching methods that are better able to convey the complexities of global environmental issues. Role-play simulations can help students appreciate the dynamics of environmental issues that transcend national political boundaries and how these issues link institutions, organizations, and actors at different spatial scales. Role playing has the added advantage of engaging students experientially in practical scenarios that illustrate complex issues that may seem easily solvable when presented in an academic setting, thus helping to temper some of the well-meaning student idealism that persists among undergraduate students passionate about issues of environment and development (Youde 2008).

[1]There were 92 students enrolled in this first iteration of SUST 2001. All students participated in the simulated negotiation.

Simulation Setting

The focus of the SUST 2001 simulated negotiation is the Convention on Biological Diversity, the Multilateral Environmental Agreement launched at the 1992 Earth Summit in Rio de Janeiro to sustain the diversity of life on earth. A number of factors drew us to this setting: The CBD is current, timely, and contentious, with enough controversial elements to sustain lively debates among students. It also resonates soundly with the thematic focus of the course. Another advantage of focusing on a contemporary agreement such as the CBD is that the outcome is ongoing, allowing students to participate in a debate at the cutting edge of real-world environmental politics (Wheeler 2006).

The simulated negotiation has three major learning objectives. First, we used the simulation to highlight the complex and interrelated dynamics that characterize the negotiation of MEAs. Like Brynen (2010), we mobilized the role-play simulation as a tool to recreate the complexity of real-life negotiations and to help students appreciate why consensus around global environmental problems is so difficult to achieve (see also Howard 2011). Second, we wanted to tease out the multiple ways in which power relationships shape political outcomes in global environmental governance. Role playing allows students "to experience some of the practical difficulties of equitably resolving conflicts among highly contested stakeholders" (Dengler 2008:482). Third, we hoped the simulation would allow students to hone skills relevant to the negotiation of environmental agreements, such as mediation, lobbying, consensus building, public speaking, as well as environmental policy writing and evaluation.

Our simulation begins where real-life negotiations left off. The most recent Conference of Parties to the Convention on Biological Diversity took place in Nagoya, Japan, in October 2010. One of the main issues discussed was Access and Benefit Sharing (ABS), that is, the fair and equitable sharing of benefits arising from the utilization of genetic resources. Negotiations on an ABS Protocol (known as the "Nagoya Protocol") revolved around the specific rules governing how users who access and commercialize genetic resources (such as conservation agencies or pharmaceutical companies) enter into mutually agreed-upon terms with the providers of these resources. Recognizing that the scope of the entire Conference of Parties was too great to recreate for second-year undergraduate students, we decided to limit our negotiation to re-opening the four most contentious articles of the recently adopted Nagoya Protocol for debate: those dealing with (i) equitable sharing of benefits, (ii) access to genetic materials, (iii) traditional knowledge, and (iv) monitoring and evaluation.

Students were given a list of stakeholders to choose from (including representatives from nation-states, non-governmental organizations [NGOs], industry representatives, or multilateral organizations) and were invited to sign up to represent the stakeholder of their choice on a first come, first signed-up basis. Students were also given some guidance on choosing a stakeholder: We advised them to consider the type of activities associated with each role (for example, nation-states would be expected to do more formal speaking, NGOs would have more opportunity for active dissent) and made it clear that those students who selected the major roles (for example, big players in the policy process, such as China and the United States) should expect an increased workload. Our aim was to maximize student buy-in and minimize the commonly cited pitfall of having key roles filled by students who were not up to the task (Dougherty 2003).

The rules of procedure governing the negotiations were adapted from the actual rules of procedure used to moderate UN conferences. Because our goal was to teach students about both content and process, we decided to stay true to the actual rules of procedure governing CBD meetings in all but two crucial ways: In real life, only nation-states who have signed and ratified the CBD can

propose text and vote, but in the simulation, all delegates were allowed to propose text for adoption and vote on procedural matters (such as opening and closing sessions). We were concerned that students representing other stakeholders might feel marginalized or excluded if denied access to these activities, which could lead to them disengaging from the proceedings (Asal and Blake 2006). In order to preserve the real-life hierarchies that characterize the CBD, only nation-states who had signed and ratified the Convention were allowed to vote on substantive matters (such as adopting text).

Prior to the opening of the simulation, students were also briefed on the proper rules of decorum and respect governing multilateral negotiations, as well as tips on effective lobbying and negotiation. They were encouraged to immerse themselves in the proceedings, including dressing the part and partaking in organized efforts of active dissent. Placards, lanyards, and nametags designed to replicate those used in the real CBD meetings were provided to help set the stage. Students were reminded that any and all proceedings were at the discretion of the Secretaries General (the course instructors) and that any action deemed offensive or inappropriate would result in censure from the proceedings.[2]

Blended Learning

In developing this simulated negotiation, we subscribed to a model of blended learning that strategically and meaningfully seeks to incorporate computer-mediated tools alongside more traditional classroom methods (Garrison and Kanuka 2004; Bonk and Graham 2006; Littlejohn and Pegler 2007). Our goal was to incorporate e-learning technologies alongside face-to-face interactions to replicate the dynamism and complexity of international policy negotiation. To accomplish this, our simulation contained three overlapping methods of learning: preparatory learning, face-to-face learning, and online collaborative learning.

Preparatory Learning

Student buy-in is crucial to the successful running of a role-play simulation. In order to ensure that students felt confident about both the process and the substance of the negotiation, they engaged in a progression of skills throughout the course that prepared them for this exercise. In lectures, students were introduced to the CBD, current debates over ABS, and the challenges of achieving consensus around global environmental issues more broadly. Early in the semester, students participated in a mini role play that revolved around community-based conservation, which took place over two tutorials. This gave them an opportunity to practice representing a position in a simulated setting, along with gaining hands-on training on how to articulate their viewpoints in both verbal and written forms. An assignment on policy analysis due in effectively the weeks before the simulation helped students to develop and practice their skills of policy evaluation and formation. Students therefore had substantial training and experience to draw on when the simulation began in the final weeks of the semester.

Students were also required to formulate a four-page position paper outlining their particular stakeholder position going into the negotiation, including relevant background information, intended outcomes, and a draft proposal written

[2]Many students decided to dress in character for the plenary proceedings, though there was never any need for formal or informal censure due to inappropriate behavior. This suggests that distributing and explaining the Rules of Procedure successfully conveyed the parameters of appropriate behavior within the simulation.

in the style of UN resolutions that reflected their bargaining position (this assignment was worth 15% of their final course grade). The position paper was due on the day the negotiations opened to help ensure that all students began the process with a clear sense of the broader issues at stake and their own position going into the negotiations. This kind of background preparation—particularly when it is researched and presented in the role that the student is assuming—has been shown to be an effective strategy to help reinforce student learning about both content and process in simulation exercises (Stover 2005:211; Asal and Blake 2006:5).

Face-to-Face Learning

Two forums allowed for face-to-face learning. The lectures devoted to the simulation represented the plenary sessions. These were the formal meetings attended by all stakeholders, which allowed time for moderated debate on each of the four articles under discussion and convened the final vote on the wording of each article. The Secretaries General moderated all aspects of the plenary sessions: They called on speakers to offer brief statements on particular issues, allowed for questions or clarifications on procedural issues, and organized the final voting procedures. The plenary sessions were also the site for acts of organized dissent. These included displays of placards and banners by Environmental NGOs pleading for concerted action to ensure protection of global biodiversity[3] and the distribution of seeds by indigenous groups to call attention to the issue of farmers' rights over planting materials.

The second forum for face-to-face learning was represented by the working groups, which took place in tutorials. Moderated by a Committee Chair (Teaching Assistant), each of the four working group was tasked with delving deeper into one of the four articles under debate and formulating the specific language and clauses that would be voted on in the plenary. The more informal nature of the working group also allowed opportunities for lobbying, mediation, and coalition building.

Online Collaborative Learning

The virtual negotiations were hosted in Blackboard Campus Edition 8, which is the learning management system currently in use at Dalhousie, and involved three components. The first component was an online discussion board with two threads: one devoted to logistical comments and concerns and the other devoted to stakeholder discussion. This first thread allowed students an outlet for asking questions or seeking clarification on any aspect of the simulation: Titled discussions included "can't access the Blackboard site," "how to propose clauses," and "please someone help!!!" Course instructors monitored this thread closely, though most queries ended up being answered directly by other students, lending credence to Rovai and Jordan's (2004) assertion that blended learning helps to solidify a strong and supportive community of learners.

The second discussion thread was designed to be "in role." It allowed students to state their position on a given issue, upload videos or documents in support of that position, initiate new proposals for discussion, and schedule virtual or in-person meetings. One of the most popular uses of this thread was to form coalitions of like-minded stakeholders around a particular item of debate, including the "Working Group for the Preservation of Indigenous Rights," the "Like-Minded Mega-Diverse Countries," and the "Bio-Regional Indigenous

[3]The protesting NGOs' posters and banners read: "Recognize Authority within Majority," "We Deserve Benefits from Derivatives," and "Raise Your Placard for Indigenous Rights."

Conglomerate." Many students chose to make regular use of the discussion forums: More than 250 posts were created over the course of the simulation.

The second virtual forum was Wimba Classroom, an online virtual meeting room that allows students to meet, share ideas and proposals, and strategize regarding upcoming plenary or working group meetings. Few students took advantage of this outlet: Only a handful of virtual meetings actually took place. Anecdotal accounts from students suggest that many found time outside of class to meet in person, or relied on alternative and easily accessible web-based technologies such as Skype or iChat for virtual meetings.

The third virtual forum was the Campus Pack Wiki, an editable Web site that allows students to collectively build on the existing text of each of the four articles up for debate. This software allows students to post amendments, revisions, and comments to the original article text, creating newly updated versions that reflect their bargaining positions. Other students can then comment on these proposed changes, indicate their support or opposition, and suggest revisions to overcome an impasse. This final revised version of each Wiki was then voted on in the concluding plenary session. Student engagement with the Wiki was extremely high: More than 200 contributions were made over the course of the simulation.

Five percent of the final course grade was allocated to participation in all aspects of the simulation, in order to encourage and reward student contributions in both the face-to-face and virtual negotiations.[4] This highlights one of the key advantages of integrating e-learning technologies alongside traditional classroom formats: Virtual meeting spaces broaden the possibilities for participation to include those students who may shy away from or be "crowded out" of face-to-face interactions (Carr, Cox, Eden and Hanslo 2004; Ellis, Goodyear, Prosser and O'Hara 2006). As Dengler (2008:489) notes, online venues provide a safer, more comfortable space for student discussion, with fewer gendered, cultural, or linguistic barriers that inhibit some students from participating in the more traditional classroom setting. Integrating online technologies thus serves to broaden the opportunities for meaningful student participation.

All three elements of the blended learning model—preparatory learning, face-to-face learning, and online collaborative learning—were crafted to reinforce one another. The preparatory learning equipped students for the procedural and substantive challenges of negotiating MEAs by offering an incremental progression of skills to help them excel in the complex milieu of international negotiations. Students arrived on the first day of the simulation with their position clearly articulated in the form of a position paper, including a series of draft proposals or amendments to the text of the articles that became the focus of the face-to-face and virtual negotiations. The plenary sessions and working groups offered students a chance to articulate their positions to other stakeholders, build coalitions around these positions, and defend these against those with opposing views. The virtual negotiations gave students the opportunity to examine the specific changes proposed by other stakeholders and offered forums for mediating conflicts and proposing compromise solutions, the final versions of which were then voted on in plenary session. In this way, all three learning components reinforced one other to replicate the real-world nuance and the complexity of negotiating Multilateral Environmental Agreements.

[4]Each student's contributions to the plenary, working groups, and virtual negotiations were graded on a scale of zero to five. The final grade received was the average of these three assessments. The average participation grade was 3.2 out of five, with a Standard Deviation of 1.07.

Debrief

A thorough debrief is critical to ensuring that the learning objectives of the role-play simulation are attained. Debriefing ensures that students understand the connection between real-world events and those depicted in the course setting. Reflection is paramount: Students need time to step out of their assumed roles to reflect on and share their lived experiences, in order to internalize the lessons of the simulation (Maddrell 1994; Asal and Blake 2006). Debriefs are particularly vital in a setting where students have vastly different experiences based on the roles taken, to allow students to collectively grasp why certain roles lent themselves to certain experiences (Wheeler 2006).

Our debrief started with an invited speaker from the Secretariat of the Convention on Biological Diversity, who was one of the architects of the tenth Conference of Parties that took place in Nagoya. After attending one of the simulation's plenary sessions, this expert delivered a guest lecture to students, in which he reflected on the similarities and differences between the simulation and the real-world negotiation. He gave students "the gossip" on what transpired in Nagoya, including details on how the ballooning size of national delegations, changing government positions, and the personalities of individual negotiators all played a part in shaping the proceedings. He focused on the often agonizingly slow pace of international negotiations, the difficulties of bringing stakeholders with different viewpoints to a compromise, and the complex combination of cajoling, lobbying, and mediation used to obtain the final agreement. This real-world perspective served to anchor the simulation as a model for the international negotiation of environmental issues and helped students appreciate how complex and messy such negotiations are in real life (Churchill and Liebowitz 1990; Stover 2005).

The final hour of both the plenary sessions and the working groups was devoted to students recounting their individual experiences and reflecting on the key learning outcomes of this exercise. Feedback from these sessions along with anonymous written comments solicited at the end of the debrief session overwhelmingly confirm that the exercise was successful in achieving its primary learning objective of helping students appreciate the challenge of achieving consensus in the negotiation of MEAs. A sample of written responses to the question "what did you learn from the simulated negotiation" underscores the depth of this learning:

- "I learned that negotiating international policies can be very frustrating because everyone has different opinions, economic status, incentives and abilities"
- "It is extremely complicated to get consensus on anything, especially when it comes to legally binding agreements"
- "I learned how complex these environmental policy development initiatives really are"
- "I learned the larger picture of international policy law. It was important to realize how annoying it is to negotiate for long periods about seemingly benign parts of different articles"
- "I learned that large plenary negotiations are difficult and frustrating when so many stakeholders are gathered together from diverse backgrounds and positions"
- "I learned about how difficult it is for different nations to come to an agreement on anything."

The debrief session also revealed that the simulation achieved its second learning objective: helping students understand how power relationships shape political outcomes in international negotiation. Many students representing

nonvoting parties expressed frustration at their exclusion from the final vote on the adoption of text, concluding that without this privilege they "had no real say in the decision-making process." Other students representing less-powerful nations voiced similar complaints about feeling left out. In the rush to come to some kind of consensus within the limited time constraints, the most powerful actors sought each other out to agree on the final wording, leaving others feeling excluded and marginalized. We attempted to draw out these feelings during the debrief session in order to highlight the inequities that persist within such negotiations in the real world. As Asal and Blake (2006:4) note, such feelings of outrage or unfairness are important learning opportunities for undergraduate students who may be confronting such structural global inequities for the first time.

One student seized upon this understanding of power and politics to connect the events that transpired in the simulation with those of real-world politics. The student representing Canada was so frustrated by the position she had to adopt during the simulation that she contacted all five candidates in the Halifax riding of the then-ongoing Canadian federal election, asking them to explain their party's stance on the Nagoya Protocol and the issue of Access and Benefit Sharing more broadly. She received two detailed replies for individual candidates, which she then shared with her classmates on the Blackboard site.

Student feedback further confirms that the simulation also succeeded in its third learning objective: honing skills relevant to international negotiation. Some students felt that the simulation helped improve their public speaking skills ("it taught me about making concise, accurate points to large group of people") and offered valuable insight into the process of policy analysis ("I learned to carefully analyze the language of political documents"). Others appreciated the focus on the soft skills of negotiation, such as articulating a particular bargaining position ("I learned how to effectively research a policy and a nation's stance on a policy, and how to use that stance to effectively make changes to a policy that others can agree with") and coalition building ("I learned about forging alliances, finding like-minded groups of people to form coalitions"). These comments suggest that role-play simulations can make a valuable contribution to skill development.

Students also responded favorably when asked about how the simulated negotiation built upon course themes. Eighty-eight percent of students answered affirmatively to the question "did the simulated negotiation fit well with other course components?" Students praised the simulated negotiation as an opportunity to put many of the course's core concepts into practice. Sample comments include: "the simulated negotiation was definitely an effective learning tool because key concepts, terms and information taught in class were implemented to a situation that would truly happen on the international playing field" and "I feel as though the simulation succeeded in wrapping up all of the different components of the class. It allowed us to actively take part in class by applying what we learned in class to the negotiation."

Other comments offered during the debriefing process highlight some of the simulation's less intended benefits. A number of students commented on the value of being forced to immerse oneself in a role that might conflict with one's own personal views: "I think the best lesson from this activity is that putting yourself in another country's, organization's, or individual's position can help increase your [own] understanding." This feedback connects with insights offered by Maddrell (1994), Stover (2005), and Wheeler (2006), who suggest that one of the key advantages of the role-play simulation is that it allows students to immerse themselves in alternative viewpoints, which fosters identification and even empathy with other perspectives. This mask can ignite significant self-reflection over the individual's own views on both the content and process of international negotiation. Another common theme that emerged via feedback

was that students used their experiences in the simulation to reflect on future career options within the realm of global environmental governance. Some were enthusiastic about seeking a career that would allow them to participate in real-world environmental negotiations: "it is incredibly stimulating and exciting to be a part of such negotiations." Others learned that such career opportunities were not for them: "I never, ever want to be involved in something like that again." These career-minded reflections suggest that an added advantage of the role-play simulation is that it can offer valuable insight into future professional possibilities (Fletcher 2001).

Our case study suggests that integrating online technologies alongside face-to-face interactions promotes deeper learning in role-play simulations (Moore and Gilmartin 2010). Online discussion forums served as valuable tools that intensified the feeling of community among students, created opportunities for collaboration, and assisted in knowledge building (Cox, Carr and Hall 2004). Wikis allowed students to experience the nuance of negotiating the specific text of Multilateral Environmental Agreements. One student commented that "[the Wiki] helped me understand the language behind these conventions. I now have a better understanding of how to read such legal texts." Another reflected that s/he learned to "carefully analyze the language of political documents." In Dalsgaard and Godsk's (2007) terms, the Wiki served as an open-ended, self-governed tool that offered students the opportunity to work collaboratively toward the common goal of creating a text that could achieve consensus and be successfully adopted in the plenary. More broadly, students valued the online forums as alternative venues for participation. Student feedback suggests that many felt intimidated by the plenary sessions, describing them as "unnerving" and "overwhelming." The blended learning model succeeded in encouraging participation from students that might otherwise have been missed: Many of the students who were most active on the discussion boards and the Wikis were mostly silent in lectures and tutorial.

As Voos (2003) notes, the value added by the blended learning approach is not simply the integration of face-to-face and online learning methods, but rather the fundamental reconsideration of course design to maximize new technological possibilities. Our goal was to integrate online components so that they became a natural extension of traditional classroom learning (Matheos, Daniel and McCalla 2005). We gravitated toward e-learning technologies such as discussion forums, Wimba Classroom, and Campus Pack Wiki because these allowed us to more realistically recreate the complex and often frustrating process of real-life environmental negotiation. Integrating these varied instructional strategies supported self-directed learning, increased student engagement, and broadened opportunities for student participation. Blending the virtual negotiation with more traditional learning methods thus created a more robust, dynamic, and engaging learning experience for students.

Lessons Learned

There are a number of changes that we intend to implement when running the CBD simulation in future years, based on a combination of our own evaluation of the strengths and weaknesses of this first iteration, and the wealth of student feedback we received. First, rather than assigning each student to a role, multiple students will represent individual stakeholders. Our hope is that the intra-group discussions around prioritizing interests and zeroing in on strategies will be as educationally significant as the negotiations between groups, with the additional benefit of decreasing the workload on students during the end-of-semester rush (Asal and Blake 2006:9). Another possibility for future years would be to vary the size of delegations according to their relative positions of power, in

order to better reflect real-world disparities and underscore how power imbalances shape negotiation outcomes (Dengler 2008:491).

Second, the build-up to the simulation will be reworked to ensure that all students are equipped for the increased challenges associated with this exercise. Some students reported feeling overwhelmed or intimidated by the process, an often-reported stumbling block associated with large-scale simulations (Fletcher 2001). Various modifications are being made to address this concern. The simulation timeline will be expanded to span more of the semester. Our plan is to introduce the simulation in the first weeks of the semester and have students sign up for their stakeholders well before the simulation begins, to enable them to begin formulating their positions much earlier in the semester. This will further allow us to explicitly link the warm-up exercises as tools that will serve to strengthen student performance in the simulation. Students also requested more training in policy writing and evaluation so that they are better equipped to debate the nuances of writing and revising the article text. Our plan is to modify the policy analysis assignment (due in the weeks before the simulation begins) so that it revolves around the text of the four articles under debate and to offer some workshop-style introductions to the tools of international negotiation. Our aim is to solidify the progression of skills that lead up to the simulation so that this role-play exercise becomes the culmination of the knowledge, skills, and techniques that students are exposed to throughout the course.

Third, the use of online technologies will be tweaked. While students enthusiastically embraced both the discussion boards and the Wikis, very few took advantage of Wimba Classroom. Anecdotal feedback from students suggests that many opted for readily available web-based technologies such as Skype or iChat to conduct virtual meetings, while others found the time to arrange face-to-face meetings outside of class time. New media-related stakeholders will be introduced next year, which will allow students with an interest in journalism to cover the events and post videos or news articles for others to see.[5] We are also exploring the possible use of Camtasia Relay to offer students short video clips demonstrating the use of each online tool, which should help to reduce the number of technical questions and concerns fielded during the simulation.

Fourth and finally, many students felt that the evaluation of the simulation—particularly the five percent allocated to participation—undervalued the amount of time and work they put into the proceedings. This grade will be raised to ten percent in future years, though we share Brynen's (2010) wariness about raising the grade allocated to participation much further as each stakeholder does not have an equal opportunity to participate in the negotiation. Instead, we intend to introduce a second writing assignment associated with the simulation. This will be a short individual reflection piece to allow students to write about their personal experience, in hopes that a written component of the debrief will give students another opportunity to reflect on their learning experience (Chasek 2005).

Conclusion

At the end of the final plenary session, none of the four articles up for debate achieved unanimous consensus, which is the precondition for adoption of any new text by the CBD Conference of Parties. Yet despite this lackluster outcome, 71% of students indicated in their final course evaluations that the role-play simulation was an effective learning tool. This disconnect underscores the value of the role-play simulation as an educational tool: The major lesson inculcated in students is an appreciation for the complexity of international negotiations.

[5]This is modeled after the very successful integration of media in the Brynania simulation (Brynen 2010).

This exercise helps to illuminate why, despite all the existing research, lofty promises, and quixotic rhetoric, the negotiation of environmental agreements so often stall and sputter. As Brynen (2010) emphasizes, the learning is in the failure.

The CBD role-play simulation further evinces the benefits of using a blended learning model to promote active learning. Integrating computer-mediated learning alongside more traditional approaches such as preparatory learning and face-to-face learning helped recreate the dynamism and nuance of international negotiation, furthering the three primary learning objectives of this exercise: having students appreciate the challenge of achieving consensus among competing interests, understand the pervasive power dynamics that shape political outcomes within the realm of global environmental governance, and hone skills relevant to international negotiation. Student feedback suggests that integrating these varied instructional strategies further supported self-directed learning, increased student engagement, and broadened opportunities for participation. Our case study suggests that integrating online technologies alongside more traditional methods serves to promote deeper learning in role-play simulations.

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