



Simulation Design for Learning and Assessment

*Noam Ebner & Daniel Druckman**

Editors' Note: In previous work in this series, Ebner and Druckman have analyzed the widely assumed (but surprisingly unproven) benefits of role-plays, and concluded that students learn more from designing role-plays than from playing them out. Now, they take the logical next step — explicit assessment of students' performance in simulation design. Ebner and Druckman have found it both valuable and practical to assess the concepts that students weave into the simulation instructions, the relationships constructed between them, the way the simulation design provides opportunities for integrative or distributive behavior, and the way it encourages particular communication behavior. While they find that "skill development" may be better demonstrated through participating in the role-plays resulting from the design exercise, assessment of the design phase itself proves particularly useful for increasing students' understanding of negotiation concepts.

Introduction

In previous articles, one of which appeared in the second volume in this series, we have discussed the comparative benefits, for learning purposes, of simulation role-play and simulation design. Building on two sets of experiments which we conducted, we concluded that the process of *designing* role plays is a beneficial method for learning negotiation concepts, even more so than actually playing roles in those simulations. The design process promotes learning of individual concepts; it is also a more effective tool than role-playing for enabling students to understand relationships among multiple negotiation concepts. Moreover, explicitly *priming* students to focus on these concep-

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tual relationships increases their learning even further, making this an effective approach for teaching the way negotiation concepts play out in real-life situations, in which multiple elements continuously affect each other and change during the course of an unfolding negotiation (Druckman and Ebner 2008; Druckman and Ebner 2010).

In an earlier discussion of the benefits of design, we noted that this feature of drawing out multi-concept interactions promotes the value of conducting a simulation design exercise as an assessment method, particularly as an assessed end-of-course project (Druckman and Ebner 2010). At this point in the course, students may be at the peak of their negotiation knowledge and are also experienced with negotiation simulations; they are familiar with how they are constructed and how they play out. Through simulation design, students can integrate the material of an entire negotiation course, displaying their understanding of concepts and dynamics, and their ability to clarify relationships between discrete elements. Thus, the goals of using simulation design as an assessment method are in line with the goals of a negotiation course: achieving, and displaying, a full and rich understanding of the way negotiation concepts are manifest in real-life situations. It also engages students in one final exercise that will, in addition to serving as an evaluation method, provides them with a new learning opportunity (see Ebner, Efron, and Kovach, *Evaluating Our Evaluation*, in this volume).

In a simulation-design exercise, students are assigned to develop a complex simulation incorporating ideas learned in class. Instructors might list specific elements that they expect students to include, or allow students to develop these on their own, assessing their retention and understanding of negotiation elements and dynamics as these were discussed in class. The instructions can provide basic framework parameters, such as the number of parties (two-party or multi-party), the setting (an employment context, a legal dispute, a negotiation between two countries, anything else or no context at all), and the expected length of written roles or other information. A detailed set of sample instructions for this exercise (used in the context of an advanced course on negotiation) is provided in the Appendix.

Electronic Exercises

Recently, we explored with classes an electronic form of design and role-play exercises. Stimulated by the growing popularity of eGames (e.g., Fernandez-Manjon, Burgos, and Richards 2008) and negotiation/mediation support systems (Bui and Shakun 2006; Druckman, Druckman, and Arai 2004), as well as the emerging trend of transferring elements of negotiation courses to the online venue including

simulation (Matz and Ebner 2010) we developed a set of electronic exercises that fit into the syllabi of negotiation classes taught at George Mason University (GMU) and at the Royal Melbourne Institute for Technology (RMIT). Matched pairs of students, randomly assigned to designer or role-player roles, participated during a week set aside between classes toward the end of the semester. Following an on-line lecture on four negotiation concepts (alternatives, time pressure, power, and gender), students were placed in small online work groups, either designer or role-playing groups. Both groups communicated through dedicated email addresses with all communications copied to the instructors at GMU and RMIT. Three days were allotted to each role. Acting as “controllers,” the instructors presented the completed designs (at day 4) to the role players.¹ Both types of groups completed surveys about their experiences and engaged in lively debriefings at the next class. Our impression was that students worked hard to produce engaging scenarios. The students’ impressions, from their survey responses, indicated that they enjoyed the challenge, were satisfied with the products, and would do the exercises again. Whether they learned the negotiation concepts as well or better than their counterparts in face-to-face exercises remains to be evaluated. The ability to carry out design exercises at-a-distance transforms it into a versatile assessment tool that can be used in conjunction with other related exercises, as we will discuss below.

Conducting Design Exercises for Assessment: Issues

Three questions are often raised with regard to using this method.

Should Designers Work by Themselves or in Groups?

We have conducted these exercises both ways, with similar results. Our sense is that task motivation and creativity are enhanced when designers work in pairs, although we have noticed that this does not necessarily lead to enhanced concept learning. On the other hand, teamwork adds a dimension of coordination, which increases the time needed to complete the exercise. It also introduces an element of interdependence, which often motivates students but can also backfire when group members struggle with conflict over ideas, formatting issues or workload division. A decision on this issue turns on matters of class timing, numbers of students, configurations of classrooms, requirements for numbers of parties in the role plays to follow, and preference for (and evidence for the relative benefits of) individual vs. cooperative learning and group projects for assessment.

What Should Designers Write About?

Should students base their scenarios on situations they have experienced, or invent fictional scenarios based primarily on their knowledge of negotiation? Our research thus far has not shown differences in learning outcomes between the two types of scenarios (Druckman and Ebner 2010), and there is no reason to think that either of the two would provide a better platform for assessment. As a result, this might be best left to students' preferences, in the hope that this freedom will translate into motivation. In negotiation courses taught in specific-discipline frameworks (e.g., law, business, political science), teachers might assign a particular context for the negotiation situation (examples might be, respectively, a contract negotiation, a corporate merger, or an international dispute).

How Should the Exercises be Debriefed?

We have found it helpful to provide students with three types of feedback when using this exercise.

- 1) Individual feedback: This should be given as part of the teacher's assessment of the simulation, in addition to a numeric/letter grade. Of course, this feedback should relate closely to course and assignment objectives, rather than storyline commentary or literary advice.
- 2) Class discussion of the simulation design exercise: We have found that conducting a whole-class debrief about this exercise is beneficial for learning, despite the fact that students have had quite separate experiences in designing their simulations and have written about different topics. We suggest opening the session by going around the room, asking each student or design team to introduce the topic of their simulation in a couple of sentences, in order to create a sense of a shared experience, and thereafter to focus on top-level and shared questions, rather than on individual simulations. Typical issues on which to focus include:
 - New understanding of negotiation concepts ("What have you learned about concept X as a result of incorporating it into your simulation?")
 - New understanding of relationships between negotiation concepts ("What have you learned about the relationship between concept X and concept Y in negotiation, as a result of the design exercises?")
 - Comparison of learning formats ("What have you learned through the simulation design experience which you might not have gained through the classroom lectures or role plays?")

If the exercise was conducted electronically, or if it was assigned as an end-of-course assignment and the class has dispersed, such a discussion might be conducted in an online discussion forum – with forum participation being a mandatory and graded part of the exercise.

- 3) A follow-on experience allowing students to self-debrief: This could be provided by allowing a student to watch other students playing out the simulation which he or she designed. This is often a very interesting and thought-provoking experience for designers. Conducting follow-on role-plays is somewhat challenging in an end-of-course assignment; once again, the online environment offers many media through which role-plays can be conducted (see Matz and Ebner 2010).²

Motivation and Performance

We have encountered one notable challenge with the approach. While the overall motivation to conduct designing exercises significantly outstrips the motivation levels instructors typically enjoy when students perform negotiation role-plays, there are usually a small number of students in any given course who simply *do not enjoy* the design exercise. This might be due to a student sensing s/he lacks the creativity needed to produce an original design, to concern about writing skills, or to anxiety regarding what, exactly, the teacher is looking for. These issues can usually be overcome by instructors who provide support, encouragement, and above all, assignment clarity.

We have employed this method – in both face-to-face and electronic forms – in negotiation courses in many different settings, with an equal degree of success across the board, leading us to believe that this is a useful tool for learning and assessment. We have found that, as a rule, students approach the assignment enthusiastically and creatively, as evidenced by the quantity of material produced, the creative production of support material, the intricacy of the story lines, and students' direct feedback. We have not noted differences regarding students' motivation or resistance or regarding their performance in successfully completing the task assigned, across the range of contexts, cultures, and formats in which it has been used.³

Assessment

The actual act of assessment can be done according to preset parameters (which should be shared with students beforehand). These come to light through the concepts students weave into the simulation instructions, the relationships constructed between them, the way the simulation design provides opportunities for integrative or distributive behavior, or the way it encourages particular communication be-

havior. We have developed a coding procedure for gauging the extent to which key concepts are incorporated in the design and role-plays (see Druckman and Ebner 2008).

An additional evaluation task might be assigning students to provide a brief “Teachers Guide” for conducting the simulation, emphasizing simulation management and the conduct of a debriefing. Such a guide provides insight into the student’s grasp of the scenario, the particular negotiation elements stressed and the relationships among them (see Appendix). (For a similar approach, see Lande (2012)).

Assessment of a simulation-design exercise can be regarded as feedback contributing to conceptual learning. The feedback is particularly valuable and formative if offered in a timely way, before students produce their final papers for the course.

Simulation Design and Role-play

As is often done, negotiation class exercises include role-play in addition to any design activities incorporated. This provides an opportunity to use the two methods together for the purpose of assessment, given their complementary relationship with each other. Any assessment measuring both of these should take into account differences in the type of learning facilitated by each one. Although we have demonstrated advantages of design for concept learning, performing role-plays engages students in tactical learning, through *practice* in negotiation. For this reason, it may be useful to make this distinction in assessment: designers should display knowledge of concepts and relationships among them; role-players should demonstrate tactical skills in the way they use the concepts during the negotiation process (for more on using role playing as an assessment method, see Coben, *Empowerment and Recognition*, in this volume). This distinction also suggests additional value to performing both roles, designing a scenario for others and also role-playing another team’s scenario. Thus, impacts would be assessed separately for the two roles. A third assessment would be to ascertain the extent to which synergies are realized from performing both roles, by comparing learning outcomes from separate versus joint implementation of the roles.

Conclusion

Designing simulation scenarios is an activity providing significant learning benefits to negotiation students. Students are not only more engaged and motivated through this method than by other commonly encountered methods; they also learn more, and in particular learn to synthesize related concepts. Given the value of this method for learning, and its potential to uncover differ-

ent levels of student understanding of the course material, teachers are advised to consider its place – whether in conjunction with or separate from role playing – in their array of assessment methods.

Notes

¹ Examples of bilateral negotiation designs included the following: U.S.-PRC presidents on arms supplies to Taiwan; a militant group seeking to establish Sharia law within Somalia; contesting the results of an election in Afghanistan; containing a smallpox epidemic that is spreading from the Sudan to Egypt, and an Iran-United States standoff on the development of nuclear weapons. The international scenarios reflect the fact that the negotiation class was in the field of international relations. In other negotiation courses in which we have used the simulation design method for assessment, we received a mix of international, interpersonal and organizational simulation scenarios. Examples of the last two include spouses negotiating a divorce settlement, landlord-tenant negotiations over rent and responsibilities, negotiations concerning the formation of corporate joint ventures, and disputes between co-workers.

² Insights from such an experience might then be captured through a class discussion, writing a reflective paper or submitting a revised version of the simulation – all of which can be assessed. In essence, this “package” of assessment vehicles emanating from a simulation-design exercise presents teachers with a multi-modal assessment portfolio. For more on this approach to assessment, see LeBaron, *Portfolio Evaluation*, in this volume.

³ This includes, *inter alia*, courses in the United States, Australia, Israel and Turkey, many of which had a diverse student body.

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Appendix

Instructions for the Design Assignment

Working *alone or in pairs*, you are expected to write a conflict and negotiation role-play simulation-game, of a general nature similar to those we have played in class, according to the parameters set out below. Writing a comprehensive role-play requires theoretical knowledge about the process it focuses on, a practical understanding of how it works, and a feel for how the type of situation described might play out in real life. Simulation-game designers and researchers have commented that the main beneficiaries from a simulation-game are often the designers rather than the participants; this has been my experience as well. For more on this, you might read Druckman and Ebner (2008) at: <http://sag.sagepub.com/cgi/rapidpdf/1046878107311377v1.pdf>, and Druckman & Ebner (2010) at http://law.hamline.edu/uploadedFiles/Hamline_Law/Content/Departments/DRI/content/16-Druckman-Enhancing_Concept_Learning.pdf (In particular, reading these articles might help clarify and demonstrate the pedagogical value of the exercise.)

You may choose any situation you like to build your scenario. It can be real or fictional. It might echo a real-life experience of your own or of someone you know – or it may reflect a scenario from a book or a movie. It might come out of the pages of yesterday's newspaper or be a figment of your imagination. It might be the type of situation you could encounter everywhere in the world, or a uniquely local one. It can be an interpersonal situation, or international in scope; it could involve a cross-cultural clash, or something occurring between inhabitants of a fictional country (or planet). This might be an opportunity to design a conflict that suits your own preferred negotiation approach. Storylines can be crafted to support cooperation or to induce competition, to promote constructive dialogue or to trigger angry, aggressive communication.

Mandatory Simulation-Game Parameters

- 1) *At least* 3 distinct parties should be involved;
- 2) *At least* one of the parties should be a team – comprised of two or more roles;
- 3) There should be enough content to provide for *at least* an estimated one full hour of role-playing.

Roles, Information and Materials

I expect to see that all the different roles are detailed in such a manner that each potential role-player will know what their background is and what is expected from them, and such that an outside observer will be able to review the entire package and obtain a situation overview. *How you choose to do this is entirely up to you.* You may choose to stick to a familiar method, providing all players with some common information regarding the situation,

and in addition providing each player with private information regarding their own role (including, I might add, separate information for individual members of the same team). On the other hand, you may choose any alternative method, and use any media you wish in order to accomplish this; for example, tapes that self-destruct in five seconds, or newspaper clippings. Creativity is certainly welcome. There is no minimum or maximum length for the roles, nor any limits (other than your fellow students' need to be able to prepare for playing the roles) on the amount of material accompanying them.

In addition to the simulation itself, prepare an accompanying "Teacher's Guide." The Guide should, in one to two pages, provide teachers with instructions for conducting the simulation, and list the points which you think a class debrief of the simulation-game might stress. Relate these points to particular elements in the storyline (e.g., "The importance of team preparation prior to negotiation: A and B (teammates) have different agendas, but if they don't bother to put this on the table between them, they might find themselves arguing in front of the other parties"). These points should reflect elements you viewed as central while writing the scenario. The Guide's inclusion is an important window into your analytical and creative process, and will help me to understand exactly what it is that you set out to design.

Negotiation Content Expectations

In general, the simulation-game should build up a negotiation situation comprised of the elements we are familiar with. Build parties' roles such that the obvious clashes or tensions between them are defined. Keep Ebner and Efron's (2012, forthcoming) "10 elements of negotiation" model in mind – these elements can serve as your guiding points; they can serve as your guiding points, and provide the main components of the situation. On the other hand, you do not have to describe the scenario down to the smallest detail: keep in mind that role-players need room to flesh out their roles with their own preferences, and will fill in anything missing. There is no need to try to design a magic, hidden solution into the role-play, as these are seldom to be found in reality.

Incorporate past stages of conflict escalation or of relationship deterioration the parties have gone through, so that role-players know what background they are coming from, and leave room for future development. Help parties understand the "emotional package" they walk around with, in regard to the other parties.

Besides basic negotiation and conflict elements, the scenario should incorporate elements of complexity common to multiparty conflicts. Remember the simulations performed in class, as well as the video-clips we saw, and review your reading material. Design the conflict to incorporate coalition forming, intra-team dissonance and other common elements of multiparty negotiation. If you wish, you may also choose to add in other elements of complexity: multiple issues, time pressure, communication limits.

Assignment Goals and Grading

This is *not* a test of your English writing skills, or of your ability to produce outstanding literary accomplishments. Errors in spelling or grammar will *not* affect your grade so long as I am able to understand your intent, and your

work will not be read through the eyes of a literary critic. Similarly, while an added value of this paper is viewing situations through trainers' eyes, it is *not* a test of how good you are as a trainer or training-material designer.

You will be graded on your skill in constructing a conflict that gives rise to a negotiation, in a manner that

- brings to light the common elements of conflict and the dynamics of negotiation which we have studied in the course,
- stresses the complexities discussed in class, and
- portrays all of this in a "life-like" situation.

This last element has two aspects: the "realness" of the conflict vis-à-vis the parties involved in it (whether actual or imaginary characters), and the sense of reality you convey to potential participants in the role-play. The first emphasizes your understanding of how complex conflict plays out in the real world, while the second focuses on an understanding of learning processes. While the grading will concentrate on the first, you would do well to keep the second in mind as you create the scenario, as it will improve the clarity of your writing.