Role-play games and simulations in International Relations: an overview

Juegos de rol y simulaciones en las Relaciones Internacionales: una visión general

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RESUMEN   Los juegos y las simulaciones se han utilizado durante mucho tiempo para el análisis político y la enseñanza de las Relaciones Internacionales. Tras una breve descripción general, este artículo se centra en su empleo como herramienta pedagógica en la enseñanza de las Relaciones Internacionales, destacando los diversos enfoques y las mejores prácticas para su uso.

ABSTRACT   Games and simulations have long been used for both policy analysis and teaching of International Relations. After a brief overview of the field, this article focuses on their employment as a pedagogical tool in the International Relations classroom, highlighting both the various approaches and best practices for their use.

RÉSUMÉ   Les jeux et les simulations ont été utilisés pendant longtemps pour l'analyse politique et l'enseignement des relations internationales. Après une brève description générale, cet article est centré sur sa utilisation comme outil

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pédagogique dans l'enseignement des relations internationales, en soulignant les diverses approches et les meilleures pratiques pour son usage.

Simulations and serious games[1] can be applied to International Relations for a variety of purposes, in a variety of ways, and with very different audiences in mind. They can be used as *educational tools*, intended to impart information and insight to participants; for *experiential purposes,* immersing participants in processes of interaction and coordination; as a *socialization mechanism*, intended to break the ice or promote bonding among players; as a *method of analysis,* designed to answer research questions—or some combination of these. Games can range from simple role-play exercises with few rules, through to more sophisticated boardgames and digital games in which the rules of interaction, cause, and effect are all determined in advance of play. Finally, the intended audience might comprise students in school or university settings, or policy practitioners in a broad range of institutions (including the military, diplomacy, the intelligence community, and humanitarian and development workers, among others).

This article will offer an overview of all of these applications. Particular attention will be paid to the use of simulations and serious games as an experiential and educational tool in the classroom, the setting in which most readers might be most likely to use or encounter them. However, some attention will be devoted to their use as a research methodology, as well as their employment in policy settings.

Overview

The contemporary application of games and simulations in International Relations dates back to the invention of modern wargaming in Prussia in the early 19th century. *Kriegsspiel* was designed as a training game for military officers, helping them to develop their operational skills. By the early 20th century wargames had become a common element of officer education around the world. In Germany, and to a much lesser extent elsewhere, such games had also become a tool for strategic planning[2].

At first there had been little attention to diplomatic and political factors in such games.

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[1] "Simulations" are representations of real-world processes that may or may not be games in the sense of competitive challenge. "Games" may or may not attempt to truly simulate something. In the field of International Relations the tools that are typically applied are "simulation games" that involve major elements of both. In this article the terms will be used interchangeably.

[2] On the history of wargaming, see Perla, P. (1990): *The Art of Wargaming*, Annapolis, United States Naval Institute.

In the 1930s, however games sometimes included participants playing the roles of diplomats and foreign leaders. After all, war—as the Prussian military thinker Carl von Clausewitz had so famously declared—was "a political instrument" and hence "the continuation of policy by other means"[3].

More substantial development of so-called POL-MIL (political-military) wargaming came after the Second World War. The Cold War and the centrality of nuclear deterrence meant that the behaviour of national leaderships in time of crisis had become an important element of national security planning. Moreover, the post-WWII period was also one when the modern academic field of International Relations was developing. American social scientists thus played an important early role in both academic and policy gaming. A series of games held at MIT in 1959[4] significantly influenced the subsequent development of POL-MIL gaming by the RAND Corporation for US government clients in the 1950s and 1960s. The purpose of these games was not so much to evaluate policy choices or forecast political-military futures, but rather to provide experiential insight into "the pressures, the uncertainties, and the moral and intellectual difficulties under which foreign policy decisions are made"[5]. The Inter-Nation Simulation, developed by Harold Guetzkow and his colleagues in the late 1950s, was another effort to use simulation and role-play techniques to model and study International Relations[6]. The 1960s also saw increasing experimentation with using computers to facilitate game play and, more ambitiously, to model military, economic, and other dynamics, or even to act as an artificial intelligence making strategic decisions for one or more sides in a game[7].

Such gaming had both its critics and supporters. At RAND, Robert Levine argued that it could be it could be a "clumsy and dangerous tool" for both planning and research, because the course of any given game was subject to "ersatz history" (which confused plausibility with the probability) and "ersatz people" (who may not behave as their real world counterparts do, in addition to the effect of individual player idiosyncrasies)[8]. Interestingly, Thomas Schelling—who would later win the Nobel Prize for his contributions to game theory—offered arguments strongly in support

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3 Von Clausewitz, C. (1976): *On War*, Princeton University Press, Princeton, Book 1, Chapter 1, Section 24, ed. and trans. by Michael Howard and Peter Paret.

4 Bloomfield, L. and Padelford, N. (1959): "Teaching Note: Three Experiments in Political Gaming", *American Political Science Review*, vol. 53, nº 4. See also Bloomfield, L (1984): "Reflections on Gaming", *Orbis*, vol. 27, nº 4, Winter.

5 Goldhamer, H. and Speier, H. (1959): "Observations on Political Gaming", *World Politics*, vol. 12, nº 1.

6 On the INS, see Guetzkow, H. *et al.* (1963): *Simulation in International Relations: Developments for Research and Teaching*, Englewood Cliffs, NJ, Prentice-Hall.

7 Brody, R. (1968): "Simulations in International Relations Research", in Guetzkow *et al.*, *Simulation in International Relations*. See also Wilson, A.: *The Bomb and the Computer*, Barrie & Rockliff, London.

8 Levine, R.; Schelling, T. and Jones, W. (1991): *Crisis Games 27 Years Later: Plus C'esy Déjà Vu*, RAND, Santa Monica, pp. 1, 3-12.

of crisis simulations that emphasized their *experiential* value rather than their formal theoretical rigor. Specifically, he suggested that such games, quite apart from their substantive findings, were also "intensely stimulating," generating an atmosphere wherein "ideas and conjectures get tossed around and analyzed by a highly motivated group of people," and that "people discover facts, ideas, possibilities, capabilities, and arguments that do not in any way depend on the game but nevertheless emerge in it"[9]. He further argued that they led participants to do a great deal of factual learning. Finally, they performed a socialization function of sorts, building a network of personal familiarity among participants that were likely to find of use in their subsequent professional interactions.

Among practitioners of International Relations, crisis simulation and wargaming is widely used in the national security field for research and planning, most especially in the United States[10]. They are also very extensively used for training and education purposes, both in the military and in the intelligence community[11]. The US Army has used games as a recruitment tool, in the form of the popular first-person-shooter videogame *America's Army*[12].

Outside of the military, peacebuilding practitioners use simulation games to teach about conflict resolution[13]. Serious games and simulations have also become an increasing part of training for those working in the humanitarian assistance and development fields, especially in the context of fragile and conflict-affected countries[14].

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[9] Ibidem, p. 23. See also Perla, P. and Mcgrady, E. (2011): "Why Wargaming Works", *Naval War College Review*, vol. 63, nº 4, Summer, and Brewer, G. (1984): "Child of Neglect: Crisis Gaming for Politics and War," *Orbis*, vol. 27, nº 4, Winter.

[10] Allen, T. (1987): *Wargames: Inside the Secret World of the Men Who Play at World War III*, Heinemann, London (available in revised and reprinted form from the John Curry's History of Wargaming Project as *Thomas Allen's War Games: Professional Wargaming 1945-1985*). On the methodology of military wargaming, see Burns, S. (ed.), *War Gamers Handbook: A Guide for Professional War Gamers*, Newport, RI, US Naval War College, nd, available at https://www.usnwc.edu/getattachment/Research---Gaming/War-Gaming/WGD-HB---Complete-2.pdf.aspx. See also Perla: *The Art of Wargaming.*

[11] Lahneman, W. J. and Arcos, Rubén (2014): *The Art of Intelligence: Simulations, Exercises, and Games*, Lanham, MD, Rowman & Littlefield. See also Kris Wheaton's excellent *Sources and Methods* blog at http://sourcesandmethods.blogspot.com

[12] Mead, C. (2013): *War Play: Video Games and the Future of Armed Conflict*, Boston, Houghton Mifflin Harcourt.

[13] Brynen, R. and Milante, G. (2013): "Games, Simulations, and Peacebuilding", *Simulation & Gaming*, vol. 44, nº 1, February. This special issue of the journal was devoted to peacebuilding simulations and games.

[14] Hockaday, D *et al.*: *Simulating the Worst to Prepare the Best: A Study of Humanitarian Simulations and their Benefits*, Emergency Capacity Building Project (May 2013) at http://www.ecbproject.org/resources/library/416-the-ecb-project-case-study-simulating-the-worst-to-prepare-the-best-a-study-of-humanitarian-simulations-and-their-benefits; MILANTE, Gary: "Carana," *PAXsims* blog, 27 January 2009, at http://paxsims.wordpress.com/2009/01/27/carana/

Despite earlier work done in the 1950s and 1960s, within the academic field of International Relations serious games and simulations have had much more impact on teaching than research. Certainly game theory and agent-based models of competition and collaboration have influenced the study of International Relations over the past several decades. However, gaming or crisis simulation using humans as decision-makers has very much fallen out of favor as a research tool—despite evidence that role-play improves predictive accuracy in making forecasts of social or political events[15].

As a teaching tool, however, simulation and gaming have maintained a degree of popularity in the International Relations classroom. Indeed, that popularity appears to have increased in the recent years, in part because of greater attention to innovative teaching techniques and active learning in political science[16], and in part because of greater interest more broadly in games-based learning and "gamification"[17]. It may also reflect recognition that simulation and gaming, especially role-play, provides students with insight into processes of policy formation, and other elements of International Relations that may be difficult to fully explore through readings and lectures: the challenges of coordination, the art of diplomacy, practical constraints, moral dilemmas, and the possibilities of failure[18].

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15 In general, political scientists and other pundits have a very poor record of prediction; see Tetlock, P. (2006): *Expert Political Judgment: How Good is it? How Can We Know?* Princeton, Princeton University Press. However, when asked to role-play conflict situations, undergraduate students do better than game theorists in forecasting outcomes. Green, K. (2002): "Forecasting Decisions in Conflict Situations: A Comparison of Game Theory, Role-Playing, and Unaided Judgment," *International Journal of Forecasting*, vol. 18. The "playing" (or gaming) part of this seems to be essential. Other research shows that mere "role thinking" (in which participants are merely asked to consider the perspective of other actives) does not have such a positive effect. Green, K. and Armstrong, J. S. (2011): "Role Thinking: Standing in Other People's Shoes to Forecast Decisions in Conflict," *International Journal of Forecasting*, vol. 27.

16 Lantis, J.; Kuzma, L. and Boehrer, J. (eds.) (2000): *The New International Studies Classroom: Active Teaching, Active Learning,* Boulder, Lynne Rienner Publishers; Asal, V. (2005): "Playing Games with International Relations," *International Studies Perspectives*, vol. 6, nº 3, August; Brynen, R. (2014): "Gaming Political Science", *PAXsims* blog, 23 February, https://paxsims. wordpress.com/2014/02/23/gaming-political-science. See also the *Active Learning in Political Science* blog at http://activelearningps.wordpress.com.

17 Mcgonigal, J. (2011): *Reality is Broken: How Games Make Us Better and How They Can Change the World*, Penguin, New York.

18 Highlighting operational complexities and coordination problems of conflict resolution is a major purpose of my own "Brynania" civil war simulation; see: Brynen, R.: (2010): "(Ending) Civil War in the Classroom: A Peacebuilding Simulation," *PS: Political Science & Politics*, vol. 43, January. See also Youde, J. (2008): "Crushing Their Dreams? Simulations and Student Idealism," *International Studies Perspectives*, vol. 9, nº 3, August; Sasley, B. (2010): "Teaching Students to Fail: Simulations as Tools of Explanation," *International Studies Perspectives*, vol. 11, nº 1, February; Brynen, R. (2014): "Teaching About Peace Operations," *International Peacekeeping,* vol. 21, nº 4.

Games, simulations, and teaching about International Relations

There are a variety of ways in which games and simulations can be used to teach about International Relations. These include role-play simulations; the adaptation of existing board games or digital games that were originally intended for hobbyists and entertainment for education purposes; purpose-designed digital games, intended to teach International Relations; and purpose-designed boardgames. It is also possible to have students design their own simulations as a learning exercise.

The most common approach among these is that of *role-play*, where students assume the role of states or decisions-makers grappling with major issues or sets of international negotiations[19]. Requiring little more than background briefings and face-to-face interaction in one or more classroom sessions, such simulations are easy to organize and conduct. Some pre-packaged materials exist, ranging from simulated international systems[20] through to individual negotiation scenarios[21].

Although simulations can be run manually through face-to-face contact and email, more sophisticated web-based platforms are available to facilitate the briefings, communications, collaboration, and record-keeping[22]. The most significant of these is the ICONS Project, located at the University of Maryland[23]. ICONS can be used with user-generated scenarios, a number of prepared simulations are available for purchase, or staff can work with clients to develop simulations for specific purposes and topics.

In some cases, *commercial non-educational games* can be adapted for educational use. Several instructors have, for example, have used popular games like *RISK* or *Diplomacy* as an in-class or outside-of-class teaching tool[24]. Popular computer games, such as the

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19 For an extensive listing of articles on role-play and other simulations, see the bibliography at PAXsims (http://paxsims.wordpress.com/research-bibliography/), as well as the listing maintained at Kansas State University, "Gaming Political Science: International Relations," http://www.k-state.edu/polsci/gaming/international-relations/

20 Tessman, B. (2007): International Relations in Action: A World Politics Simulation. Boulder: Lynne Rienner Publishers.

21 Kumar, R. (ed.) (2009): *Negotiating Peace in Divided Societies: A Set of Simulations*, New Delhi, Sage Publications India; Public Law and Policy Group, "Negotiation Simulations," at http://publicinternationallawandpolicygroup.org/library/negotiation-simulations; United States Institute of Peace, "Simulations," at http://www.usip.org/simulations.

22 Wills, S.; Leigh, E. and IP, A. (2001): *The Power of Role-Based e-Learning*, Routledge, New York.

23 ICONS Project: http://www.icons.umd.edu

24 Bridge, D. and Radford, S. (2013): "Teaching Diplomacy by Other Means: Using an Outside-of-Class Simulation to Teach International Relations Theory," *International Studies Perspectives*, early view online (June 2013); Romano, D. (2014): "Teaching international relations through popular games, culture and simulations (Part 2)," *PAXsims* blog, 8 September 2014, at http://paxsims.wordpress.com/2014/09/08/teaching-international-relations-through-popular-games-culture-and-simulations-part-2; Asal, V.: "Playing Games with International Relations."

Civilization series, can be used in a similar ways[25]. Commercial games like these have the advantage that they tend to have relatively straight-forward rules that students can work out by themselves. Designed for entertainment purposes, however, they do not necessarily give an accurate rendering of real-world International Relations. In particular they tend to impart a very hyperrealist view, with an excessive focus on state-as-actors and interstate warfare. Care must be taken, therefore, that the experience provides a basis for discussion and that students learn the right lessons rather than the wrong ones. As will be noted later, effective debriefing of simulations is an important element of this.

More complex conflict simulations aimed at the wargaming hobbyists may give a more sophisticated treatment of aspects of contemporary International Relations, be it the elements of military strategy, the politics of conflict, or the dynamics of modern counter-insurgency operations[26]. Games may also last rather longer, typically 3-4 hours or more. Moreover, these games are often too complex for students (and even most non-gaming instructors) to pick up and play on their own. If they are to be used at all, therefore, the likely require both simplification and instructor guided play. This tends to make them inappropriate for large classes[27].

There are some *purpose-designed digital educational simulations* that address aspects of International Relations. *Country X*, for example, is a computer simulation used to teach both conflict resolution practitioners and university students about mass atrocity prevention[28]. A much larger and more widely-used simulation is *Statecraft*, an online computer game which simulates an entire international system of between six and twelve fictional countries, each consisting of between one and nine students playing the role of various decision-makers or policy advisors. Countries are assigned regime types, natural resources, domestic quality of life ratings, technologies, and military forces. Student teams then confront a series of diplomatic, economic, military, social, and environmental challenges, pursing both individual and collective goals. While many users have noted very positive student feedback from the simulation, others have expressed concern that not all students find such simulations appealing, and that it tends to a rather cartoonish depiction of realism wherein the role of military

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25 Romano, D. (2014): "Teaching international relations through popular games, culture and simulations (Part 3)," *PAXsims* blog, 11 September 2014, at http://paxsims.wordpress. com/2014/09/11/teaching-international-relations-through-popular-games-culture-and-simulations-part-3/

26 Brynen, R., "Gaming the Non-Kinetic.", in Harrigan, P. and Kirschenbaum, M. (eds.), *Zones of Control: Wargaming in Analog and Digital Worlds*, Cambridge, MIT Press, forthcoming.

27 For several recent examples of such games, see Brynen, R. (2013): "Gaming Middle East Conflict," *Middle East Journal*, vol. 67, nº 1, Winter. See also Sabin, P. (2012): *Simulating War: Studying Conflict Through Simulation Games*, London, Continuum Books.

28 Harding, T. and Whitlock, M. (2013): "Leveraging Web-Based Environments for Mass Atrocity Prevention," *Simulation & Gaming,* vol. 44, nº 1, February.

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force and inter-state conflict is exaggerated[29]. Designers of the game respond that these sorts of problems arise when Statecraft (or any other simulation) is poorly embedded in course curriculum[30].

Digital games can offer impressive sophistication, but may have other shortcomings. They are not easily modified for particular purposes, since this usually would require rewriting their software. They also tend to bury their causal mechanisms in computational algorithms that are beyond the view of players. If players cannot be sure of cause and effect in a game its learning value is diminished.

Purpose-designed manual boardgames intended for teaching International Relations are extremely rare. One of the few is *Peacekeeping the Game*, in which players must try to strengthen political institutions, the judiciary/security forces, civil society/media, social welfare, and the economy while confronting spoilers and the threat of violence[31]. The goal of the game is to hold successful transitional elections. While very simple in design, it is easily learned, requires little in the way of resources (a few sheets and markers), and—like most manual games—is easily modified. Another example is the somewhat more complex *Humanitarian Crisis Game*[32]. Set in a fictional country (but loosely based on the 2010 Haiti earthquake), players assume the role of the affected country, the United Nations, foreign military personnel, and non-governmental organizations struggling with problems of logistics and coordination as they address the emergency and recovery needs of the affected population. "Matrix games"—a free-form game system in which game pieces and maps are largely for display and illustration, and game play largely revolves around sequential arguments made by players and adjudicated by an umpire—would lend themselves particularly well to being adapted for classroom use[33].

Instructors can also *design their own boardgames* for instructional purposes. Designing manual games is obviously a very much easier task than designing digital games. However, it can still be fairly challenging given the need to keep the underlying game system elegant and relatively simple, while at the same time using the game to teach key concept and illuminate important interrelationships. Substantial playtesting is necessary to assure that the game works the way the designer intended. On the positive side, the "model" of International Relations used in a game is readily apparent to participants, reflected as

29 Carvalho, G. (2013): "Virtual Worlds Can Be Dangerous: Using Ready-Made Computer Simulations for Teaching International Relations," *International Studies Perspectives*, online early view, 8 August.

30 Keller, J. (2013): "Misusing Virtual Worlds Can Be Dangerous: A Response to Carvalho," *International Studies Perspectives*, online early view, 31 August.

31 Goon, M. (2011): "Peacekeeping the Game," *International Studies Perspectives*, vol. 12, nº 3.

32 Brynen, R. (2013): "Humanitarian Crisis Game (beta release)," *PAXsims* blog, 29 September, http://paxsims.wordpress.com/2013/09/29/humanitarian-crisis-game-beta-release.

33 Curry, J. and Price, T. (2014): *Matrix Games for Modern Wargaming*, Developments in Professional and Educational Wargames, vol. 2, History of Wargaming Project.

it is in visible game components, rules, and mechanics. For those who wish to attempt the task of designing their own, several useful volumes exist on the topic[34].

It is also possible to have *students themselves design a simulation game*, as a way of developing greater insight into the political and military processes they wish to model. Perhaps the best-known example of this is the MA module in conflict simulation, taught by Philip Sabin at King's College London[35]. Research on role-playing simulations suggests that student may learn significantly more from designing a simulation than from simply just playing one[36]. While some forms of simulation design may be daunting for students, role-play simulations (which involve little more than scenario and briefing notes for the participants) or interactive fiction (of the "choose your own adventure" sort, for which several simple online applications exist) are comparatively straight-forward[37].

Best practices in simulation use

As noted above, the effectiveness of any given simulation is greatly dependent on how it is used. By way of conclusion, therefore, this article offers a few brief pointers on how to get the most out of the technique.

First, in making the initial decision whether to use a simulation an instructor needs to pay careful attention to both its potential value-added and its opportunity cost. Simulations have many advantages, and can act as a sort of intellectual cross-training of sorts by forcing participants to approach issues in new ways from new perspectives. However, they also take up limited time that could otherwise be spent in lectures, discussions, or other class activities.

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34 For military and political-military simulations, see Sabin, *Simulating War*, and Dunnigan, J. (2000): *Wargames Handbook*, 3rd ed., San Jose, Writers Club Press. For game design more generally an excellent resource is Salen, K. and Zimmerman, E. (2004): *Rules of Play: Game Design Fundamentals*, Cambridge, MIT Press.

35 Sabin, *Simulating War*. Completed student simulations are available from the KCL website at http://www.kcl.ac.uk/sspp/departments/warstudies/people/professors/sabin/consim. aspx. I have also had students, as independent study courses, undertake simulation of topics ranging from the Arab Spring to the Syrian civil war. See Goldberger, C. (2014): "Gaming the Arab Spring (Part 1)," *PAXsims* blog, 25 January, http://paxsims.wordpress.com/2014/01/25/ gaming-the-arab-spring-part-1/ and Langer, A. (2014): "Gaming the Syrian Civil War (Part 1)," *PAXsims* blog, 29 September, http://paxsims.wordpress.com/2014/09/22/gaming-the-syrian-civil-war-part-1.

36 Druckman, D. and Ebner, N. (2008): "Onstage or Behind the Scenes? Relative Learning Benefits for Simulation Role-play and design," *Simulation & Gaming*, vol. 39, nº 4, December.

37 I have used interactive fiction as an optional alternative to the research paper assignment for a course on peace operations. Students have developed projects that examine everything from managing refugee camps to demobilization of combatants to humanitarian negotiations with armed groups. Brynen, R. (2013): "Student interactive simulation-writing in political science," *PAXsims* blog, 8 May, http://paxsims.wordpress.com/2013/05/08/student-interactive-simulation-writing-in-political-science/

It is important that the simulation materials relate to those delivered elsewhere in the course (through lectures and readings) in a meaningful way. It may be that simulation materials illustrate course concepts, or that resolving in-game dilemmas requires applying course knowledge. It may also be that the game highlights the complex relationship between theory and practice, and the complications of process and coordination. If a simulation or serious game is used, it should be appropriate for both the resources available (time, space, other requirements) and the participant group. Neophyte simulations users may acquire useful tips on how to run an effective simulation by sharing ideas with more experienced colleagues. Several professional forums exist where they can do this[38].

Next, a course instructor needs to adequately prepare students for the simulation or serious game. Part of this is making sure that they are familiar with how to play, if this is not self-evident—nothing ruins a simulation faster than frustrated participants. In some cases, especially for most role-play simulations, it is important that students are well-briefed on their actors, capabilities and objectives so that they can portray this is a reasonably realistic way. In some cases voluntary preparation may not be enough, and students might be required to undertake a preparatory graded assignment such as a strategy paper.

Simulation materials and procedures can be crafted in such a way as to maximize the participants' sense of immersion and engagement, and hence their identification with their roles. Things as simple as national flags and background histories can contribute to this. So too can multimedia elements, such as realistic-looking newscasts to inject simulation events.

During the simulation, game moderators need to tactfully keep the game on track without heavy-handed intervention. Rules must be enforced, and players who are deviating from their roles nudged back into more appropriate behaviors. They may also run into problems of players in "gamer mode" who prioritize winning over learning or appropriate behaviour[39]. If the game or simulation is one in which the instructor is playing the role of umpire (for example, by adjudicating the results of student actions), it is important that participants generally feel that they are in control of their own destinies through the choices they make, and not being forced down a predetermined route by instructor interventions. On the other hand, a valuable simulation objective may be to highlight how very intractable certain policy challenges may

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[38] The annual Teaching & Learning Conference of the American Political Science Association, for example, usually has two full tracks devoted to simulation and gaming. The annual Connections conferences in the US, UK and now Australia bring together professional wargamers from government and education. Many countries have national simulation and gaming associations largely focused on educational gaming. See also the website PAXsims (http://www.paxsims.org), which addresses the educational and policy use of conflict, humanitarian, and development games and simulations.

[39] Frank, A. (2012): "Gaming the Game: A Study of the Gamer Mode in Educational Wargaming," *Simulation & Gaming*, vol. 43, nº 1, February.

be, and how difficult it may be (whether due to coordination problems or bureaucratic inertia) to develop and implement policy responses.

Debriefing is an essential part of effective simulation use[40]. It should not be assumed that all participants have learned the same things from their experiences, or that they have necessarily learned all the right lessons. Indeed they might have even learned some "wrong" lessons arising from unrealistic play or characteristics of the simulation game system[41]. The debriefing provides an opportunity to draw out from the experience key insights for the participants, and address any misconceptions that may have arisen. It also provides an opportunity to link the experience to other course materials or parallel, real-world events. The debriefing process should not solely be a top-down process whereby the instructor tells players what to learn. Players should also be given an opportunity to reflect on their own experiences, through discussion and/or a written assignment. Indeed, in many cases players will have observations that were not immediately evident to the game moderator.

Finally, it is important to recognize that effective simulation and gaming is often an iterative process of trail, error, and learning for a course instructor too. After a game, he or she should identify what went well and what weaknesses there might have been, then modify their approach for the next time. Educational gamers ought to share their experiences with others too, so that everyone can learn from mistakes and borrow and build upon simulation successes.

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40 Fanning, R. and Gaba, D. (2007): "The Role of Debriefing in Simulation," *Simulation in Healthcare*, vol. 2, nº 2, summer. See also Crookall, D. (2010): "Serious Games, Debriefing, and Simulation/Gaming as a Discipline," *Simulation & Gaming*, vol. 41, nº 6, December.

41 A flawed simulation can provide useful teachable moments too, with students encouraged to discuss what the simulation got right and wrong, and why.

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