May 2023
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Meeting Report[1]

Inaugural CNS Roundtable on Nonproliferation Pedagogy

December 9-10, 2022 - Monterey, California

Introduction

In 2002, the United Nations Study on Disarmament and Non-proliferation Education (A/57/124) was submitted to the First Committee of the UN General Assembly. Drafted by a Group of Governmental Experts, it assessed the state of education and training in these areas and identified 34 recommendations "to promote education and training in disarmament and non-proliferation at all levels of formal and informal education."[2] In so doing, the report emphasized importance of teaching students "how to think, not what to think about issues" related to the achievement of general and complete disarmament under effective international control. But what techniques and approaches are the most effective for helping students—broadly defined—to develop this ability?

In 2021, the James Martin Center for Nonproliferation Studies launched a project on nonproliferation pedagogy aimed at answering this question. It established a program of work focused on (1) assessing where and how instructors in different educational settings currently teach students about weapons of mass destruction and the means for their control; and (2) convening workshops for these instructors to exchange views on best practices, share classroom resources, and discuss pedagogical techniques with the goal of filling gaps in knowledge and advancing the state of the field. As part of these efforts, CNS experts and student research assistants compiled a list of recent nonproliferation-related course offerings at many US colleges and universities and conducted a literature review of scholarship on nonproliferation pedagogy. On December 9-10, 2022, CNS convened an inaugural roundtable meeting for nonproliferation instructors to both review the preliminary findings it derived from these analyses and to discuss challenges and opportunities the participants saw for the nonproliferation classroom.

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[1] This meeting report was authored by Sarah Bidgood, Director, Eurasia Nonproliferation Program, James Martin Center for Nonproliferation Studies.

[2] United Nations study on disarmament and non-proliferation education (A/57/124), August 30, 2002, https://documents-dds-ny.un.org/doc/UNDOC/GEN/N02/456/87/PDF/N0245687.pdf?OpenElement.

Most of the participants in this inaugural meeting are current faculty at US colleges and universities who teach nonproliferation at the undergraduate and graduate level:

- Sarah Bidgood, Director, Eurasia Nonproliferation Program, James Martin Center for Nonproliferation Studies and Adjunct Professor, Middlebury Institute of International Studies at Monterey
- Jeffrey Knopf, Chair, Nonproliferation and Terrorism Studies MA Program and Professor, Middlebury Institute of International Studies at Monterey
- Gregory Koblentz, Associate Professor and Director of the Biodefense Graduate Program at the Schar School of Policy and Government, George Mason University
- Jeffrey Lewis, Professor, Middlebury Institute of International Studies at Monterey
- George Moore, Scientist-in-Residence, James Martin Center for Nonproliferation Studies and Adjunct Professor, Middlebury Institute of International Studies at Monterey
- Vladimir Orlov, Professor, Moscow State Institute of International Relations
- William Potter, Sam Nunn and Richard Lugar Professor of Nonproliferation Studies, Middlebury Institute of International Studies at Monterey,
- Scott Sagan, Caroline S.G. Munro Professor of Political Science, Stanford University
- Etel Solingen, Distinguished Professor and Thomas T. and Elizabeth C. Tierney Chair in Peace and Conflict Studies, University of California, Irvine
- Masako Toki, Senior Project Manager and Research Associate, James Martin Center for Nonproliferation Studies
- Rachel Whitlark, Assistant Professor, Sam Nunn School of International Affairs, Georgia Institute of Technology

Over the course of the two-day roundtable, these participants delivered formal presentations and engaged in discussion on the following issues:

- Nonproliferation education – The state of the field;
- Seeing through the eyes of others: simulations and role play in nonproliferation education;
- Introducing nonproliferation to new student audiences: IR and non-IR students; and

- Lacunae in nonproliferation education.

The event culminated with a session devoted to distilling preliminary recommendations from this exchange of views and to identifying next steps with respect to this project. The following event report summarizes the key points that emerged from these discussions.

Nonproliferation Education: The State of the Field

The first session of the nonproliferation pedagogy roundtable event focused on reviewing the state of the field of nonproliferation education. In a presentation at the outset, Sarah Bidgood provided an overview of the existing literature in this area and identified gaps in knowledge that it left unaddressed. In particular, she highlighted the fact that scholarship on *nonproliferation* education specifically is severely underdeveloped, and that much of what has been written to date focuses instead on the issue of *nuclear* education more generally. She also underscored the fact that, even within this broader body of work, only a small fraction has focused on pedagogy and the way in which these issues are taught, leaving unanswered questions about the kinds of approaches that contribute most significantly to student learning in this area.

In addition to a review of the literature, Bidgood also analyzed current opportunities for undergraduate students to learn about nonproliferation-related issues at top-ranked US colleges and universities to discern trends and gaps. On the basis of a comparison of findings from three CNS studies on this topic from 2002, 2011, and 2019,[3] she found that, among the colleges and universities sampled:

- The number of undergraduate-level courses that focus specifically on nonproliferation increased fourfold between 2002 and 2011;
- Simulations, debates, and case studies figure prominently in specialized WMD-related course offerings;

[3] Leonard Spector, "Nonproliferation education in the United States part 1: Undergraduate education," *The Nonproliferation Review* Vol. 9, Issue 3 (2002), pp. 9-30; Richard Sabatini, et al. "Undergraduate Nonproliferation Education in the United States," *The Nonproliferation Review* Vol. 18, Issue 1 (2011), pp. 263-295; Sarah Bidgood, "Undergraduate disarmament and nonproliferation education: gaps, opportunities, and new approaches," *The Nonproliferation Review* Vol. 26, Issues 3-4 (2019), pp. 329-340.

- WMD-related course offerings tend to focus disproportionately on nuclear weapons rather than biological and chemical weapons;
- Private institutions offer significantly more WMD-related courses than public universities;
- The personal interests of individual instructors in WMD-related issues are often a driving force behind new courses on these topics;
- Undergraduate men enroll in WMD-related courses more frequently than undergraduate women, and significantly more men teach WMD-related courses than women; and
- Nonproliferation consortia composed of institutions outside of those that are most highly ranked provide essential opportunities for more, and more diverse, students to learn about WMD-related issues.

On the basis of these observations, she raised a number of questions for the group to consider, including:

- To what extent are trends in undergraduate WMD education also observable at the graduate level or among professionals?
- To what extent are the pedagogies highlighted in the nuclear education scholarship utilized in teaching different student audiences?
- Will current events, and especially the war in Ukraine and attendant risks of nuclear use, increase interest in WMD-related course offerings at the undergraduate and graduate level?
- What can be done to further increase the number of nonproliferation-specific educational opportunities at all levels (undergraduate, graduate, professional)?
- How can colleges and universities better institutionalize nonproliferation-related course offerings to ensure that they can withstand the departure of individual faculty members with a personal interest in, or connection to, this field?
- What approaches (first-year seminars, common hours on college campuses, teacher workshops, etc.) could be applied to introduce nonproliferation to new student audiences? and

- How can broader trends in higher education (a focus on interdisciplinarity, digital humanities) be leveraged to increase interest in WMD- and nonproliferation-related education?

In the ensuing discussion, participants drew upon their own experiences to answer a number of these questions and to raise others. In particular, they noted that current events were *already* providing a powerful impetus for students to enroll in the nonproliferation-related courses they offered. One participant—a political scientist who teaches both graduates and undergraduates—reported that many of her students this semester cited Russia's invasion of Ukraine as a reason why that they had enrolled in her classes. Another participant, who teaches graduate and undergraduate level courses on biodefense related issues, similarly informed the group that his program had received a huge influx of new students following the onset of the COVID-19 pandemic erupted, but that enrollment had tapered off as the public health situation improved. On this basis of these insights, several participants proposed developing courses that would address both nonproliferation and other "front burner" issues in tandem to draw more students into the field. One example they proposed in this regard was a course with a combined focus on climate change and nonproliferation, which could capitalize upon students' interest in the former as a means to introduce them to the latter.

A number of the participants also highlighted the important role played by specific faculty members in encouraging students to study nonproliferation and providing course offerings at the undergraduate and graduate levels. In this regard, one of the participants underscored the power of activities aimed at "training the trainers" as a means to increase nonproliferation course offerings by equipping individuals to teach issues in this area and supporting them by providing guest lectures and other resources. At the same time, however, other participants wondered whether some younger faculty might be reluctant to make nonproliferation a focus of their teaching or scholarship both because there are not very many peer-reviewed journals in this field and because those that do exist may not carry as much weight in promotion and tenure decisions as other prestigious IR journal that focus on broader international security issues.

Seeing through the eyes of others: simulations and role-play in nonproliferation education

This preliminary survey of the state of the field was followed by a panel discussion on simulations, a pedagogy frequently used for teaching students about nonproliferation. The insights participants offered both in their formal and informal remarks helped to explain why role-playing exercises such as these have proven to be so effective for helping students master WMD-related subject matter. Their observations helped to highlight common characteristics of successful simulations, along with the diverse learning objectives they deliver beyond traditional teaching methods. Participants also identified ways to encourage more widespread use of simulations and role-play among faculty who teach nonproliferation in various settings.

One key finding that emerged from this discussion had to do with the versatility of simulations, which makes them useful in almost any educational environment. Indeed, some participants reflected upon their experience leading simulations for practitioners in the field, while others described how they used simulations in their undergraduate and graduate IR classes. Likewise, some participants described simulations that lasted almost a full semester and were the primary focus of a course, whereas others outlined simulations that were much shorter, or which comprised just a small component of a class. Their first-hand reflections illustrated, in the words of one participant, the "scalability" of simulations, which helps to explain why they are one of the few techniques specifically highlighted in the very limited scholarship that has been published so far on nonproliferation pedagogy.

Another key finding that emerged from this discussion related to the variety of learning outcomes students derive from simulations. One of these was the development of a sense of empathy for the positions of the other players. The notion that simulations help students learn to see through the eyes of others is well established in the literature on pedagogy, irrespective of topic. That the same is true of nonproliferation education specifically is an important finding that speaks to the utility of simulations in preparing students for careers in nuclear diplomacy.

Another important learning outcome that simulations deliver relates to students' mastery of the subject matter. Indeed, as one of the participants noted, simulations appeared to be especially useful for helping students learn classroom material—possibly more so than traditional teaching

methods. Additionally, as a number of participants noted, simulations afford students opportunities to develop a suite of important ancillary skills that will serve them in a variety of academic and professional setting. For instance, because simulations require students to speak extemporaneously, they can help students hone their public speaking abilities in ways not afforded by traditional teaching methods.

Yet, as the insights shared by the participants also made clear, not all simulations are equally capable of delivering these learning outcomes. The most effective simulations shared the following characteristics, among others:

Realism. The participants agreed that asking students to behave in a way that aligned as closely as possible with reality was important to their mastery of the issues at hand. Likewise, they found that it was important for the organizers/implementers of the simulation to develop simulation scenarios that were as realistic as possible for their students. In some cases, this meant giving students briefings such as those government officials might receive or asking students to choose between two policy decisions, neither of which would lead to an ideal outcome. In others it meant asking students to contend with forces outside of their control, such as backstopping from their capitals, leaks to the press, or other unforeseen developments that would create dilemmas for them to address.

Debriefing. A second characteristic of successful simulations is that they reserve class time for students and their instructors to debrief together after the conclusion of the exercise. This debrief period is critical for cementing students' learning because it allows them to reveal their negotiating strategy, to assess and critique their own performance, and reflect on what worked and what did not in achieving their desired outcomes.

Fun. A final, and perhaps less intuitive, characteristic of successful simulations is their social aspect and the manner in which students taking part enjoy themselves. Indeed, multiple participants highlighted the importance of ensuring that students were having fun and exercising their creativity—while staying within the bounds of reality—to achieving learning outcomes.

On the basis of this discussion, the participants agreed that more needed to be done to promote the use of simulations in nonproliferation classrooms and to encourage "best practices" in line with these characteristics. To this end, they recommended greater resource sharing among faculty in terms of syllabi, course materials, online tools, and case studies as a way to make effective simulations more accessible. In a similar vein, they noted that, despite their popularity in undergraduate and graduate classrooms, simulations were underutilized in a variety of other settings where they would appear to be relevant. These included, for instance, arms control verification, where simulations could be useful for training practitioners on how to conduct inspections.

Introducing nonproliferation to new student audiences

The discussion on simulations was followed by two sessions on the topic of introducing nonproliferation to new student audiences. The first of these sessions focused on students who have not studied International Relations, while the second looked at students who had. Although one might have assumed that the best ways to attract these different student populations to the field would vary based on their academic background, the participants' comments suggested instead that this distinction mattered little. On the contrary, as one participant observed, instructors should assume nothing about the extent to which students—IR majors or otherwise—are familiar with nuclear weapons issues, their history, or the institutions that uphold the global nuclear order in introducing them to the field.

This finding is not surprising in light of what past CNS studies have found about the dearth of opportunities for undergraduates at US colleges and universities to study nonproliferation-related issues in a focused way. Indeed, even though the number of courses that address WMD-related issues has increased over time, it is dwarfed by the number of course offerings in areas relating to another existential threat: climate change.[4] And yet, as the participants also underscored during this session, students seem to enjoy learning about nonproliferation when afforded the opportunity to do so. The challenge for faculty and administrators in higher ed, then, is to

[4] Sarah Bidgood, "The Bomb in College Classrooms," *Inside Higher* E, October 14, 2019, https://www.insidehighered.com/views/2019/10/14/colleges-arent-adequately-teaching-students-about-weapons-mass-destruction-opinion

develop more course offerings in this area *and* to ensure that the results are accessible to students for whom these issues are unfamiliar.

On this basis, the participants identified a set of best practices for introducing students to the field of nonproliferation irrespective of their academic background. These included:

1. Avoiding the use of acronyms without first explaining their meaning;
2. Discussing with students the consequences or potential consequences of nuclear weapons;
3. Covering a variety of issues and approaches to nonproliferation as a way of ensuring that the material would resonate with students who have different interests and experiences. These include non-technical issues such as history, policy, and the causes and consequences of proliferation from a social science perspective;
4. For more technically oriented topics, teaching the science as though it is a language course in order to help students develop a degree of fluency in this area;
5. Ensuring that nonproliferation-related courses are interdisciplinary, collaborative in nature, and make use of diverse syllabi; and
6. Offering a nonproliferation boot camp for students who are new to these issues to help them get up to speed on the basics.

A final "best practice" that emerged from this discussion was the importance of being flexible, adaptable, and attuned to changes in the study of nonproliferation, which could have important impacts in the classroom. As one participant observed, for instance, "classical" questions about the drivers and constraints of proliferation appeared to be reemerging in academic discourse—a shift she speculated might increase demand for IR theory courses. Similarly, another participant took note of what he characterized as the current prioritization of quantitative over qualitative research in the study of nonproliferation. He speculated that this focus might have the unintended consequence of making the field more restrictive because it could discourage students who were unfamiliar with quantitative methodologies from enrolling in nonproliferation-related courses.

Lacunae in nonproliferation education

The final session of this roundtable examined gaps in the field of nonproliferation education and approaches to fill them. This wide-ranging discussion highlighted lacunae not just with respect to opportunities for students to learn about nonproliferation but also with respect to participants' understanding of the state of the field itself.

A number of participants noted, for instance, that little was known about the degree to which students studying the law were exposed to relevant nonproliferation-related issues. What was certain, however, was that students studying nonproliferation had virtually no opportunities to learn about the legal aspects of nuclear weapons use. Other participants, meanwhile, reiterated the fact that most nonproliferation-related course offerings focused disproportionately on nuclear weapons issues to the neglect of other weapons of mass destruction. As they observed, however, even within this focus on nuclear weapons issues, certain key issues—such as those relating to delivery systems, multilateral diplomacy, and international organizations—appeared to be largely ignored based on syllabi.

Beyond gaps in the kinds of issues covered in the nonproliferation classroom, several participants noted lacunae in terms of the research skills students were taught in these settings. As one participant observed, for instance, students receive little formal instruction on how to engage with primary source texts—placing them at a disadvantage when conducting archival research on nonproliferation-related issues. Another participant likewise observed that few nonproliferation classrooms equipped students to use "new tools" such as satellite imagery analysis and 3D modeling. Not only are these skills essential for conducting open source analysis, but they are increasingly coveted by employers. Particularly with respect to the latter of these observations, participants acknowledged that a major barrier to increasing training opportunities is the fact that few instructors themselves are very familiar with these tools. One recommendation that emerged from this discussion was to establish a consortium to train instructors on the use of new analytical approaches so that they could more readily incorporate them into their pedagogy.

With respect to gaps in nonproliferation pedagogy itself, all participants agreed that experiential learning was crucial to subject matter mastery. In this regard, they highlighted the utility of field trips, site visits, and engagement with practitioners in helping students deepen their understanding of nonproliferation-related issues beyond what was possible in a traditional classroom setting. At the same time, however, participants also noted that the logistical lift required of faculty to organize these kinds of activities was significant, and that this lift had become heavier as a result of the COVID-19 pandemic. On this basis, some participants suggested that greater use be made of virtual and augmented reality as a means of bringing outside sites and experiences to students, rather than the other way around.

Next Steps

The final session of this two-day roundtable event focused on distilling preliminary recommendations and concrete next steps from the preceding day-and-a-half long discussion. Among the proposals participants put forward, in no particular order, were to:

a. Compile a directory of individual instructors who teach nonproliferation in various settings;
b. Convene one or more follow-on roundtable discussion on nonproliferation pedagogy that would engage more international instructors of nonproliferation, as well as those representing a more diverse array of academic environments, including community colleges, HBCUs, and Predominantly Black and Hispanic Serving Institutions;
c. Convene a nonproliferation pedagogy boot camp for instructors in Monterey, California that would include faculty from disciplines outside of IR or political science, such as history;
d. Compile a repository of multimedia resources—films, documentaries, podcasts, videocasts, etc.—that instructors could use to introduce nonproliferation-related topics to undergraduate students and inexperienced graduate students;
e. Develop model syllabi for new instructors who wish to offer nonproliferation-related courses that incorporate articles from *The Nonproliferation Review;*
f. Conduct an oral history project with nonproliferation instructors as a means to preserve institutional knowledge in this area;

g. Convene a meeting of the recipients of Stanton Foundation Nuclear Security Course Development grants;
h. Update the data underlying the studies CNS has conducted previously on the state of undergraduate nonproliferation education in the United States;
i. Put together a roundtable discussion on the topic of nonproliferation education for a future meeting of ISA or APSA;
j. Engage with both ISA and INMM to understand what education-related resources they may have already compiled and the activities in which they may already be engaged in this area; and
k. Commission short studies of how nonproliferation-related issues are being taught in other countries similar to the studies CNS has produced in the past with respect to US institutions of higher education.

One challenge participants highlighted in moving forward with these proposed next steps related to the lack of funding for nonproliferation education-related activities. Nevertheless, they identified a number of institutions and national governments that might be interested in supporting nonproliferation pedagogy, and they committed to exploring potential future funding sources as a follow-on activity. Relatedly, participants also compiled a list of potential partners with whom some of the activities above or others might be undertaken. During the next phase of work, the organizers at CNS will explore opportunities for institutional collaboration with partners for whom nonproliferation education is a high priority.