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National Institute for Deterrence Studies & Peter Huessy Seminar

The Nuclear Knowledge Gap: Why Deterrence Education Matters

Edited Transcript | Prepared from the October 16, 2026, seminar recording

A Virtual Seminar with Maj. Gen. (Ret.) Garrett Harencak

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Abstract

Maj. Gen. (Ret.) Garrett Harencak examines the consequences of the United States' post-Cold War decline in nuclear deterrence education and argues that the resulting knowledge gap contributed to a broader erosion of nuclear mission focus, expertise, leadership attention, and institutional discipline. Drawing on his experience as a bomber officer, commander of the Air Force Nuclear Weapons Center, and Assistant Chief of Staff for Strategic Deterrence and Nuclear Integration, Harencak connects limited professional military education on nuclear deterrence with later failures in the nuclear enterprise, including the 2007 Minot-Barksdale unauthorized transfer of nuclear-armed cruise missiles and the 2014 Malmstrom missile-crew cheating scandal. He highlights subsequent reforms in command structure, professional education, career development, and deterrence studies, while warning that progress can be reversed. His central message is that deterrence education has no finish line: it should be sustained, treated as a team effort, extended beyond classroom instruction, and approached with intellectual humility because errors in nuclear deterrence carry extraordinary consequences.

Executive Summary

- **The nuclear knowledge gap was created over decades.** Harencak argues that the United States took both a procurement holiday and an “intellectual holiday” after the Cold War, allowing understanding of nuclear deterrence to weaken across the military, national-security community, Congress, and the broader public.

- **Professional military education reflected the diminished priority.** He recalls receiving only a single short block on the nuclear triad at Air Command and Staff College in 1993-1994 and no nuclear-deterrence instruction at Air War College in 2001-2002.
- **Loss of knowledge had operational consequences.** Harencak uses the 2007 Minot-Barksdale unauthorized nuclear weapons transfer, the mistaken shipment of Minuteman III components to Taiwan, and the 2014 Malmstrom cheating scandal as examples of a wider decline in nuclear mission focus, expertise, readiness, and discipline.
- **Institutional reforms helped restore focus.** He points to the establishment and later elevation of Air Force Global Strike Command, creation of senior Air Force leadership for strategic deterrence and nuclear integration, formal nuclear education programs, the School of Advanced Nuclear Deterrence Studies, and defined nuclear career paths.
- **There is no finish line.** Harencak warns that nuclear education and institutional focus can erode again when resources or leadership attention shift to competing priorities. Every gain must be defended against backsliding.
- **Deterrence education should be mandatory and immersive.** In the Q&A, he strongly supports mandatory nuclear-deterrence education across professional military education and argues that education must extend beyond classroom study to operational exposure, career development, and an understanding of the conditions under which the nuclear mission is performed.
- **Nuclear weapons are used every day as instruments of deterrence.** Responding to the claim that nuclear weapons are never used, Harencak distinguishes employment from use: forces on alert and visible exercises serve a continuing deterrent purpose even when weapons are not employed.
- **Intellectual humility is essential.** He closes by arguing that nuclear deterrence is a field in which arrogance is especially dangerous. Because uncertainty is unavoidable and the stakes are existential, leaders must keep studying, questioning assumptions, and learning.

Editorial Note: This transcript was prepared from an automated transcript supplied by NIDS and lightly edited for readability, punctuation, speaker identification, and obvious transcription errors. Apparent transcription errors in names, organizations, acronyms, and dates were normalized where the intended wording was clear. False starts, repetitions, and minor verbal fillers were removed where doing so did not alter meaning. The speakers' meaning and sequence of discussion have been preserved.

Edited Transcript

Kimberly Cherington | Welcome and Introductions

Good morning, everyone. We'll get started in just a moment.

Good morning. I'm Kimberly Cherington, and on behalf of the National Institute for Deterrence Studies, or NIDS, thank you for taking the time to join us today for this important discussion with Major General (Ret.) Garrett Harencak on "The Nuclear Knowledge Gap: Why Deterrence Education Matters."

We're delighted to welcome everyone joining us live, and we'd also like to recognize and thank our sponsoring partners represented on today's call: Bechtel, Collins Aerospace, General Dynamics, Lockheed Martin, Moog, TechSource, Northrop Grumman, JRC, SBCC, and SPA. We truly appreciate your continued support of NIDS and our programming.

Throughout today's presentation, we encourage you to submit your questions using the Q&A button at the top of your screen or in the chat, and we will address them during the dedicated Q&A portion of today's seminar.

We want to highlight two important seminars coming up. On October 30, we're honored to have Vice Admirals Robert Gaucher, Douglas Williams, and Richard Seif discuss the future of the undersea deterrent. On November 13, Joe Oder, Assistant Deputy Chief of Staff for Strategic Deterrence and Nuclear Integration in

the U.S. Air Force, will speak on deterrence integration, connecting policy, modernization, and operations in the nuclear enterprise.

You can find more information and updates about our upcoming speaker lineup, subscribe to our monthly newsletter, and register for events at thinkdeterrence.com. Please also take a minute to follow, like, and share our content on X, YouTube, and LinkedIn. This helps us more than you think.

With that, it is my distinct pleasure to introduce Major General Garrett Harencak, United States Air Force, retired. General Harencak has spent much of his distinguished career working at the heart of our nation's strategic deterrence mission. His extensive experience in deterrence, national security, strategic planning, and senior leadership gives him a particularly valuable perspective on the challenges facing the United States and its allies today. Throughout his career, General Harencak has been closely involved with the people, policies, capabilities, and strategic thinking necessary to maintain a credible deterrent. We're fortunate to have him with us today to share his perspective on a question at the heart of the NIDS mission: why deterrence education matters.

General Harencak, thank you for joining us today. And now I'd like to turn things over to Peter Huessy, President of GeoStrategic Analysis and a senior fellow here at NIDS, whose decades of work in nuclear deterrence and national security are the foundation for this seminar series. Peter, thank you for your continued leadership and commitment to the deterrence mission. The floor is yours.

Peter Huessy | Opening Remarks

Thank you very much, Kimberly, and I want to welcome all our guests here to hear from our good friend, General Harencak.

One of the key issues I've been working on for almost half a century is nuclear education. I often call it public diplomacy. It's what you do with open doors. That's part of what we're trying to do: educate the wider community of nuclear experts as well as those who support us in the military, the civilian community, Congress, and the public at large.

Nuclear education requires three things. First, you have to demonstrate that what you have works, and that is the deterrent. Second, you have to show that it is durable and enduring, that it remains viable. That is connected to how long you wait to modernize systems that, in some cases, are between 40 and 70 years old. Third, you have to show that the deterrent can achieve its objectives and be clear about what those objectives are.

I asked General Harencak to speak with us because some years ago, at one of my seminars, he said that we had taken a "holiday from history." By that he meant not only that we took a holiday from acquiring nuclear systems and kept kicking the can down the road, but also that we lost urgency in understanding the nuclear business and repairing the deterrent.

That concern has been echoed by retired commanders from Air Force and Navy nuclear organizations: there has been a lack of urgency, both inside and outside the military, about understanding what is happening in the nuclear enterprise and the urgency of restoring the deterrent. That is why I asked General Harencak to discuss what kind of nuclear education we need and why it is important. General, welcome, and thank you for taking the time to talk with us today.

Garrett Harencak | The Intellectual Holiday and the Nuclear Knowledge Gap

Thank you, Peter, and thank you, Kimberly. It's always a pleasure. We've been colleagues for decades on the issue of nuclear knowledge and the importance of nuclear deterrence. Thank you all for joining us today.

I want to begin with some history. For many people, especially those of a certain age, these events do not feel like history because we lived them. But some of the significant events that shaped today's lack of nuclear-deterrence education occurred 20 years ago or more, and many people simply do not remember them. I want

to talk about that history, but also about the way forward and how all of us together can address the nuclear knowledge gap.

Today the nation is modernizing the nuclear triad. That absolutely has to be done. As Peter said, we ran out of runway. For roughly 30 years, we took a procurement holiday when we should have been modernizing, and now we have to bear the consequences.

But in my view, the larger debt was not simply the procurement holiday. We also took an intellectual holiday. As a nation, a military, and a community of national-security professionals, we did not adequately study, learn, discuss, or debate the importance and value of our nuclear deterrent.

The result was an entire generation of military leaders, officers, NCOs, national-security professionals, politicians, congressional staffers, and members of the public who did not truly understand the value of the nuclear deterrent, what it means to the defense of the nation, or how it underpins everything else we do.

Garrett Harencak | Professional Military Education and the Post-Cold War Decline

I went back and checked my own professional military education. In 1993-1994, I was a new major attending Air Command and Staff College in residence at Maxwell Air Force Base. In that ten-month program, there was one one-hour block of instruction on the nuclear triad. In practice, that meant roughly 50 minutes of classroom instruction.

We spent the rest of the course on many important subjects, but one of the most fundamental things future Air Force leaders should understand is the importance of the triad and nuclear deterrence. Yet that education amounted to a single class period.

I did not protest. I had sat B-52 nuclear alert at Blytheville Air Force Base as a young officer, and I had sat some of the last B-1 nuclear alerts. I was thrilled when President George H. W. Bush took the bomber force off nuclear alert because we wanted to focus on conventional long-range strike. I did not think I would have to deal with nuclear issues again.

A few years later, after serving as a B-1 squadron commander, I attended Air War College in the 2001-2002 class. I checked that curriculum as well. How much nuclear-deterrence theory did we discuss? Nothing. There was not even an elective for officers who wanted to study nuclear deterrence. I remember taking an elective on Hollywood and military movies. It was a good elective, but we had prioritized something like that over nuclear-deterrence education.

Garrett Harencak | Operational Consequences: Minot-Barksdale, Taiwan, and Malmstrom

Where did this disregard for nuclear knowledge lead? It contributed to significant events that finally jolted us out of our nuclear-education slumber.

The first was the 2007 Minot-Barksdale unauthorized nuclear weapons transfer. On August 30, 2007, a B-52H flew from Minot Air Force Base to Barksdale Air Force Base carrying six nuclear-armed AGM-129 Advanced Cruise Missiles under one wing. The transfer was unauthorized. The crew believed the missiles were inert as part of a reposturing effort in which warheads were supposed to be removed at Minot before the missiles were ferried to Barksdale.

The central failure was a loss of positive control, accounting, and custody discipline for nuclear weapons. There was no concern that the weapons could be used, but it represented a serious procedural and systemic breakdown. Investigations found weakened nuclear mission focus, confused responsibility for weapons movement, degraded processes, and other deficiencies.

That was followed by the discovery that Minuteman III components had mistakenly been shipped to Taiwan, reinforcing concerns about management and oversight.

The Schlesinger panel concluded that these incidents exposed broader deterioration in the Air Force nuclear mission, including erosion of focus, expertise, mission readiness, resources, and discipline, along with fragmented leadership and ownership. At the time of the 2007 incident, the most senior person on the Air Staff who could be identified with primary responsibility was a colonel buried within the Headquarters Air Force A3 structure.

Corrective actions followed, but what became apparent to those of us working in the nuclear enterprise was an appalling lack of knowledge at senior military and civilian levels about the importance and value of the nuclear deterrent. When leaders do not understand the mission, resources do not flow, career paths are not defined, and the basic institutional mechanisms needed to sustain an enterprise weaken.

The issue surfaced again in the Malmstrom missile-crew cheating scandal, which became public in January 2014. Nuclear missile launch officers had shared answers to proficiency exams, while others knew of misconduct and did not report it. Coming several years after Minot-Barksdale and the Taiwan incident, it demonstrated that the lack of focus had not been fully solved.

Garrett Harencak | Rebuilding the Nuclear Enterprise and Education System

There was, however, good news. The Air Force took concrete steps. Air Force Global Strike Command was established to provide singular command focus and to enable young officers to build viable careers in the nuclear mission. The Air Force also established senior leadership for strategic deterrence and nuclear integration at Headquarters Air Force.

Even then, I believe the initial response was not quite a full measure. The Air Force called the nuclear mission its number-one mission but initially made Global Strike Command a three-star command. The Assistant Chief of Staff for Strategic Deterrence and Nuclear Integration was initially a two-star position on a staff of three-stars. After further problems, Global Strike Command became a four-star command, and the nuclear integration position became a three-star Deputy Chief of Staff. Those were positive changes.

We also rebuilt education. Today there are serious courses of instruction in nuclear deterrence at Air Command and Staff College and Air War College. The School of Advanced Nuclear Deterrence Studies provides graduate-level study. There are Nuclear 100-, 150-, 200-, 250-, 300-, and 400-level courses, NC3 courses, and other formal opportunities. NIDS is involved in supporting this broader education effort, and industry and community organizations are involved as well.

We now have defined nuclear career paths for officers and civilians. The United States Air Force Academy has a nuclear minor, developed over many years. I hope someday there will be a nuclear deterrence major. These are meaningful gains, but they have to be protected.

Garrett Harencak | Four Lessons for Sustaining Deterrence Education

I will end my prepared remarks with four points.

First, there is no finish line. Institutional and resource pressures will always exist, and there can be no backsliding. We cannot say we solved the nuclear-focus problem and move all our attention to the next bright, shiny challenge. Every gain has to be defended.

Second, nuclear education is not something that can be declared complete because we have courses, institutions, communities, and think tanks. Ultimately, in deterrence, you either succeed or you do not. There is no useful percentage of success when the consequence of failure can be catastrophic.

Third, this is a team sport. NIDS, organizations such as the Strategic Deterrence Coalition, industry, communities, military organizations, and everyone who cares about the deterrent have to work together.

Fourth, this field demands intellectual humility. In Plato's Apology, Socrates recognizes his wisdom in knowing that he does not possess complete knowledge. If there is any area of study that requires a rejection of arrogance, it is nuclear deterrence. Getting it wrong threatens our very existence.

Peter Huessy and Garrett Harencak | Q&A: Should Deterrence Education Be Mandatory?

Peter Huessy: Should nuclear-deterrence education be mandatory in professional military education?

Garrett Harencak: Absolutely. I have advocated for that for years. When you look at some of the subjects that are mandatory, I do not understand how something this fundamental, across all the services, is not. When I was at both the Nuclear Weapons Center and Headquarters Air Force A10, I spoke at virtually every Squadron Officer School class.

The nuclear deterrent is the foundation and bedrock for everything else we do. It does not matter how many autonomous vehicles you have, how many battalions you have, or whether you have 600 ships or 200 ships. The nuclear deterrent underpins everything else. I believe studying it should absolutely be mandatory. Sadly, it is not.

Peter Huessy: For many years I taught at the Naval Academy as a guest lecturer on the history of nuclear deterrence. Willie Curtis in the history department invited me to teach. One thing we observed was an increase in the number of midshipmen interested in a career in the nuclear deterrence business after those classes. Yet the school could not make nuclear-deterrence classes mandatory, even though nuclear propulsion education was available.

Peter Huessy and Garrett Harencak | Q&A: What Changed After the 1980s?

Peter Huessy: Was nuclear-deterrence education in places such as Air Command and Staff College better in the 1980s than it later became? Was nuclear deterrence a priority?

Garrett Harencak: In the 1970s and 1980s, it was, because Strategic Air Command demanded it. Having Strategic Air Command say, "You are going to teach my officers this material," made a difference. The decline in focus and education began in a fairly well-defined period in the early 1990s, after Strategic Air Command went away and the belief took hold that peace had broken out.

Peter Huessy and Garrett Harencak | Q&A: Nuclear Deterrence Is Used Every Day

Peter Huessy: You mentioned that our nuclear capability is the umbrella under which our other military capabilities operate. Some people say that we cannot use nuclear weapons. From an educational standpoint, how do you address that?

Garrett Harencak: To me, that statement is a glaring example of the education problem. One of the myths I discuss is that we never use nuclear weapons. In fact, nuclear weapons are used every day. Every day a Minuteman III is on alert, that weapon is being used for deterrence. Every time we exercise at a bomber base, we are using the deterrent.

There were periods in my career when no bomber engine was turning and no conventional force was moving, but there was never a minute when nuclear weapons were not being used for deterrence. Do we employ them? No. But they are used every minute of every day as a deterrent. When someone says we do not use them, that signals a very basic gap in nuclear-deterrence education.

Peter Huessy and Garrett Harencak | Q&A: Education Beyond the Classroom

Peter Huessy: Would you agree that rebuilding a robust, disciplined nuclear-security and deterrence culture requires going far beyond traditional classroom training, professional military education, or annual compliance checklists?

Garrett Harencak: Absolutely. It involves continuing operational education and training, and it cannot be limited to officers. NCOs and Airmen need to understand the value of what they are doing. People need clear career paths and opportunities to understand the mission in practice.

Education has to be more than book learning. I remember difficulty obtaining specialized cold-weather gear for northern-tier nuclear bases. People elsewhere did not understand why it was necessary. We took senior leaders to Minot in February for a Nuclear Oversight Board and brought them into the conditions our Airmen were working in. After that experience, the cold-weather equipment we had been requesting was approved.

The point is that leaders need to understand what it actually takes to sustain and maintain the nuclear mission. Education should include that kind of orientation and immersion across the national-security apparatus.

Peter Huessy and Garrett Harencak | Q&A: Ukraine, Escalation, and the Need to Keep Studying

Peter Huessy: Are we learning from the invasion of Ukraine that deterrence, and particularly nuclear deterrence, really matters given Russia's repeated nuclear threats? Will this produce greater interest in nuclear-deterrence education?

Garrett Harencak: That is a difficult question. I do not think people necessarily make a simple connection from one event to the conclusion that nuclear deterrence is working. It is another example of how incredibly complex the nuclear-deterrence problem is. I do not think any single event gives us a definitive answer.

That uncertainty should drive us toward more study. If no one can answer these questions definitively, then we should be studying them very seriously. That returns to my point about intellectual humility.

James Petrosky and Garrett Harencak | Closing Discussion: The Invisible Value of Education

James Petrosky: Thank you. You and I go back a long way in this education business, and it is really important. Your ideas, your history, and your perspective are exceptionally important.

As you were talking, I remembered a comment made to me about supporting NIDS education. The difficulty with getting support for education is that you cannot walk outside and look at a big "education." It is a lot of people doing a lot of things, and the payoff can be far in the future. But we are now seeing the future consequences of that earlier pause in education. I think that becomes the real argument for sustaining it.

Garrett Harencak: I think you are absolutely right, Jim. That is what makes this so hard and why it is vitally important that we continue the fight. It is not over. You cannot build an education and put it on the flight line, so it can be difficult to show where the education happened or demonstrate its success.

We do know what happens when the education is not there. That is why you have to keep working at it. I appreciate the opportunity, and I appreciate what NIDS is doing. NIDS truly is making a difference. Thank you.

Kimberly Cherington | Closing Remarks

General, thank you for everything you have done for the deterrence community, for NIDS, and for continuing to help educate the next generation of leaders.

If you are new to NIDS, we are a 501(c)(3) nonprofit organization supported by generous donors and dedicated to advancing peace and stability by strengthening the understanding of national security and deterrence through education.

If today's discussion leaves you wanting to hear more conversations like this, I encourage you to check out our podcast, Deterrence Matters. It gives us another way to bring important voices and perspectives on deterrence and national security to a broader audience.

Please share our content with your network and help us spread the word and grow our community. We will see you next time, and have a peaceful day.