Conceptualizing Nuclear Learning: A Study of the Indian Experience

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2 The Concept of Nuclear Learning: A Study of the Indian Experience

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Introduction

Nuclear learning is a grossly understudied area within the vast literature on nuclear issues. Many of the fundamental questions about the nuclear behavior of states, from a learning perspective, remain relegated to the sidelines of the vibrant debates on the dynamics of nuclear deterrence, weapon yields and nuclear decision-making. Does ‘learning’ have anything to do with nuclear behavior at all? Is stable nuclear deterrence a result of nuclear learning by nuclear-armed conflict dyads or is it a necessary aftereffect of the possession of nuclear weapons by them? What goes into making a state’s ‘nuclear behavior’ ‘appropriate’? Do the expectations, demands, practices, doctrines and behaviors of the new nuclear states increasingly reflect the older nuclear states? If so, has nuclear learning got to do something with it? Do states also learn nuclear lessons from their own nuclear or crisis experiences?

There have been very few scholarly attempts to provide satisfactory answers to these questions. There is also an absence of conceptual clarity regarding the concepts relating to nuclear learning. Hence this paper is an attempt to contribute to the existing literature on nuclear learning. It will, first of all, survey the literature on learning in international relations in general as well as the literature on nuclear learning in particular. It then uses the insights and arguments from the literature to understand the instances of nuclear learning in India.

Part I: Nuclear Learning

The Concept of Learning in International Relations

The concept of nuclear learning should be understood within the larger conceptual debate on learning in international relations. Various leading scholars have attempted to define this concept in a number of useful ways. Jack Levy, for instance, defines experiential learning as a “change of beliefs (or the degree of confidence in one’s beliefs), or the development of new beliefs, skills, or procedures as a result of the observation and interpretation of experience.”¹ For him “learning is a change of beliefs at the individual level.” He further argues that only individuals can learn “reification of learning to the collective level—and the assumption that organizations or governments can be treated as organisms that have goals, beliefs, and memories is not analytically viable. Organizations do not literally learn in the same sense that individuals do. They learn only through individuals who serve in

those organizations, by encoding individually learned inferences from experience into organizational routines.”  

For Joseph Nye, learning takes place “when new knowledge is used to redefine the content of national interest. Awareness of newly understood causes of unwanted effects often results in the adoption of different and more effective means to attain one’s ends.”  

This is very much in agreement with what Ernst Hass said seven years before Nye: “We know that learning has taken place when the actors adopt new rules of behavior that make use of new information and knowledge, or adopt ways for the search for such knowledge.”  

Alastair Johnston, however, makes a useful distinction between adaptation and learning. Learning, according to him, occurs “if change in policy is due to shifts in the central paradigm held by policy-makers, either in a more realpolitik or more idealpolitik direction, as new information about the external environment is internalized by decision-makers.”  

Summed up, Levy, Nye, Hass, and Johnston emphasize the role individual decision-makers play in making learning happen.

For Levy, there is a distinction between causal and diagnostic learning. Causal learning is about “changing beliefs about the laws of cause and effect, the consequences of actions, and the optimal strategies under various conditions,” whereas diagnostic learning “refers to changes in beliefs about the definition of the situation or the preferences, intentions, or relative capabilities of others.”  

Nye’s conception of simple versus complex learning seems to fall in the same genre. Complex learning for Nye is “recognition of conflicts among means and goals in causally complicated situations, and leads to new priorities and trade-offs.”  

Another important distinction that scholars have made is tactical versus strategic learning. Philip Tetlock argues that most learning happens at the tactical level, which is different from strategic learning. In the latter kind of learning, “political decision-makers reconsider their basic strategic assumptions and orientation” whereas no such reorientation takes place in tactical learning. Johnston makes a similarly useful distinction between adaptation and learning. Adaptation takes place, Johnston argues, when “change in policy is due to tactical adjustment to changing external conditions.” In the latter case, “we should expect no change in paradigm but rather a re-evaluation of the costs and benefits of previous tactics.”  

Paul Sabatier, a sociologist, argues that policy-oriented learning generally involves the following: 1) improving one’s understanding of the state of variables defined as important by one’s own belief system, 2) refining one’s understanding of the logical and

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2 Ibid.
causal relationships internal to a belief system, and 3) identifying and responding to challenges to one’s belief system.¹⁰

Who Learns?

Who or what is the subject of learning? There are multiple contenders for this: individuals, organizations, states, group of states etc. Levy, as pointed out above, does not recognize organizations as subjects of learning; only individuals can be the subjects of learning. Knopf agrees with that: “In practice, only individuals can learn. Learning is a cognitive process, and only sentient beings have cognition.”¹¹ However, none of these scholars discount the importance of organizational learning. While Levy, Knopf, and others argue that only individuals learn, what needs to be highlighted here is that within organizations and tightly controlled groups, individuals’ ability to understand and draw lessons from external environments is often very limited. Literature on groupthink would suggest precisely that. As Irving Janis argued, “intense social pressures toward uniformity and in-group loyalty within decision-making groups can build to the point where they seriously interfere with both cognitive efficiency and moral judgment.”¹² Indeed, not only do the institutional epistemic structures prevent certain kind of learning from taking place, they also filter and modify the informational from external sources to suit the institution’s worldview. More importantly, while the individuals in institutions might learn, it may not always translate into organizational learning in the absence of which there may not be any long-term change. Nye, in this regard, correctly points out, “individual learning is a necessary, but insufficient, basis for organizational learning.”¹³

Is joint learning between rival states a possibility? Or put differently, is the creation of common knowledge that can shape new behaviors and policies possible between state parties? Nye argues that during the Cold War the United States and Soviet Union had at least five areas of common knowledge that resulted in the creation of security regimes.¹⁴ He does not, however, say whether it is possible for states to learn together. This is an area that needs to be further explored in the nuclear literature.

State Socialization and Learning

I argue that states are constantly on a learning curve but more often than not it is not possible to pin down the ‘learning experience’ of a particular individual in a state in order to show that learning has actually taken place. Sometimes it is also impossible to pin down the organizations within the larger government machinery that is the subject of learning. Hence, notions of state socialization and norm
diffusion, I would argue, should be sufficiently explored in order to understand how and under what circumstances a) widely held knowledge is ‘learned’ by states, b) how such learning is negotiated within the domestic political spheres, and c) how learning can result in policy change. It is not just direct experiences that lead to learning by state actors, but also the power of normative contexts that has the potential to persuade actors to learn.

Kai Alderson defines state socialization as “the process by which states internalize norms arising elsewhere in the international system.” He also argues that foreign policy learning is different from state socialization for four reasons: 1) while the “learning literature emphasizes how and why individuals change their beliefs,” state socialization literature “centers on how and why foreign norms are internalized within a state,” 2) “while learning literature emphasizes changes to beliefs, ranging from notions about how the social and material world works to more complex readings of an adversary or the international situation, state socialization focuses on norms”; 3) “the very notion of learning carries an implicit assumption of progress, a connotation which is absent in the notion of state socialization”; and 4) “socialization has an explicitly political dimension which the psychologically-inspired literature on learning lacks.”

None of Alderson’s arguments, in my opinion, dissuade us from looking at learning through the lens of state socialization for the reasons I raised above. Even if the two concepts have different foci, there is no reason why we should not see them as complementary. Alderson’s understanding of state socialization also does not focus on every individual in the state internalizing international norms in order for observable effects to occur, instead, he focuses on internalizing through institutionalizing. This approach is a very useful way of looking at how groups (states and societies) internalize norms and lessons from experiences. In the context of state socialization, it is also useful to look at elite socialization. Perhaps norms can better explain the context of strategic—opposed to tactical—learning and changes.

What is Nuclear Learning?

How much can we know about nuclear learning? Indeed, as Nye points out it is not easy to ‘learn’ about nuclear learning because nuclear knowledge itself is very limited: “much of what passes for nuclear knowledge rests upon elaborate counterfactual argument, abstractions based on assumptions about rational actors, assumptions about the other nation’s unknown intentions, and simple intuitions.” Moreover, nuclear opacity, which typically forms a major feature of most states’ nuclear strategies, can also prevent proper learning from taking place.

According to Knopf, nuclear learning has an empirical as well as conceptual component. The former “involves the facts of the case: the doctrines, strategies, and force postures developed by the countries in question, the decisions and actors each has taken during crises, the nuclear diplomacy

16 Ibid., 423.
17 Ibid., 424.
between the countries concerned, and so forth.” Knopf also points out that there are two types of learning: factual and inferential learning. “While factual learning involves the learning of basic facts, inferential learning involves broader inferences that are drawn from fundamental facts.”¹⁹ In nuclear learning, inferential learning would be learning about the number of warheads needed for deterrence as well as other requirements for achieving a successful nuclear deterrent. This may be considered inferential because often these numbers are decided upon or revised later in the context of what the opponent has.

**Should Nuclear Learning be “Correct” Learning?**

Knopf argues that learning is inherently normative; he suggests that for learning to be called learning it has to be correct learning.²⁰ For Stein, “learning is an explicitly normative concept.”²¹ Learning is an “improvement” in knowledge for the actor concerned—the subject of learning—but it may not be so for others who are analyzing that learning. From the point of view of the United States, mainstreaming Indian nuclear capability by bringing the country into the international non-proliferation regime, even though India is not a signatory to the major treaties of the regime, is “sensible” because it, in a way, strengthens the regime. While for the United States that is learning, a change of belief at that, it may not have the same normative value for Pakistan. For Levy, though, learning is value neutral. Importantly, Nye has made the point about the need to adopt a relative, non-value based understanding of learning: “The question is whether the new information or skills have enabled the actors to achieve their purposes better, regardless of whether the observer likes those purposes or not.”²²

Hence, according to those who argue that learning is inherently normative, if correct learning is what enables an actor to achieve its goals better, then incorrect learning is what prevents the achievement of its defined goals. This line of reasoning, however, becomes analytically difficult especially when the goals are not clearly specified in advance. Often, actors realize the full implications of their policies only after undertaking them; sometimes the result of certain policies may even be unexpected. Post-facto rationalizations of policies adopted tend to kick in under those circumstances. This creates difficulties in distinguishing “correct” from “incorrect” learning. Furthermore, sometimes outcomes are better understood and policies are calibrated accordingly in the course of a policy initiative rather than prior to the undertaking of a particular policy. In such a case, it becomes more of a constructivist exercise than a rational-choice one.

The argument here is not to discount the importance of distinguishing between “positive” and “negative” learning on the basis of an actor’s subjective appreciation of what suits his or her goals better, but rather, to point out the potential pitfalls in doing so. One could also differentiate between “positive” and “negative” learning by looking at whether a particular instance of learning by an actor

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²⁰ Ibid., 84.
contributed to a common purpose. This is especially useful in trying to understand whether nuclear learning by a particular state has contributed to stable deterrence within a dyadic nuclear situation. For instance, Pakistan’s decision to introduce tactical nuclear weapons (TNWs) into the India-Pakistan standoff, at least partially, resulted from its understanding that such a strategy can offset India’s limited war doctrine, (Cold Start). While this may have contributed to Pakistan’s ability to achieve its goal of deterring potential Indian aggression, one could make the argument that the introduction of TNWs into the region has led to more instability. The weakness of this distinction is that in looking for instances of such learning, the researcher might end up using a deeply subjective criteria in judging what leads to strategic stability or instability in a nuclearized scenario. Academic objectivity could be a casualty.

One way of rescuing the “normative” content of nuclear learning is to argue that when the nuclear learning of a particular state is seen in consonance with or influenced by the prevailing “global nuclear norms,” e.g. nuclear safety and security, such learning can be considered as normative learning. This is important because one often witnesses the impact and influence that global norms have on state actors. In other words, states not only learn from their (and other’s) experiences, overwhelming empirical evidence, and analysis by indigenous epistemic communities, but also through international socialization, the acceptance of international norms, and becoming part of treaties, security regimes etc. Hence, there is a normative content to nuclear learning.

**How Do They Learn?**

Janice Gross Stein talked about “political learning by doing” in the context of Gorbachev’s new thinking: “I argue that through inductive trial-and-error learning stimulated by failure, Gorbachev developed a new representation of the “ill-structured” Soviet security problem. Learning by doing must be embedded within the broader social and political context to provide a convincing explanation of how and why Gorbachev was able to learn.”

Learning by trial and error is closer to our understanding of how decision-makers learn. Yet, trial-and-error is complicated in the nuclear context where there is hardly any space for error in critical areas. That said, one can learn through trial and error in the lower levels of escalation. Iterated brinkmanship such as the 2001-2002 military standoff could be considered a learning experience—especially to learn about the risks, redlines and resolve of the other player involved. While learning about each other’s redlines should be considered factual learning, in cases where redlines themselves are not articulated clearly or are ambiguous, learning about those redlines can be considered inferential learning.

According to Levy, individuals also learn to learn. “They learn new decision rules, judgmental heuristics, procedures, and skill that facilitate their ability to learn from subsequent experience.”

The ability to improvise methodologies to learn is perhaps easier in a “stable” conflict dyad wherein crisis situations tend to repeat. Sociologist Richard Ross has argued that comparing policy programs has a key role to play in lesson drawing: “learning involves scanning programs existing elsewhere, producing a conceptual model of a program of interest, and comparing the exemplar with the

23 Stein, “Political Learning by Doing,” 156.
24 Levy, “Learning and Foreign Policy,” 286.
problems of the existing program which have occasioned dissatisfaction. Once this has been done, various kinds of lessons can be drawn.”

Why Do States Learn?

One could argue that states often want to learn so as to achieve material gains—so-called targeted learning—but on other occasions learning happens automatically. Both factual and inferential learning, as coined by Knopf, can be a result of targeted and automatic learning. While targeted learning lends importance to the cognition and subjectivity of individual or collective actors, automatic learning lends importance to the structural constraints that impose certain lessons on states. States (or individuals in them) learn from experiences (successes and failures) and they also learn through socialization in the international community. While socialization reduces the importance of agency, the fact that states sometimes want to mainstream themselves in the system, makes them imitate the norms prevalent in the international arena. India’s unspoken allegiance to non-proliferation treaties that it has not signed shows that it is abiding by a set of norms to mainstream itself into the system.

The other important aspect of learning in this context is the issue of what prompts states to learn. This is indeed a difficult question to answer since the motivations for learning can be manifold and we may never get to know them. States are more likely to learn in times of policy failure (sometimes even at the time of success) and regime change. However, while policy failure and success, regime change, and other structural changes can facilitate learning, they may not necessarily result in learning. On the other hand, learning can take place even when none of these factors are present. Apart from victory and defeat, states also learn from brinkmanship. While Pakistan learned a thing or two about Indian resolve during 2001-2002’s Indo-Pak standoff, India also learned about the limits of action vis-à-vis Pakistan under the nuclear shadow.

What Does Learning Lead to?

Learning can lead to “better” strategies, different and/or better policy outcomes, and better responses. Learning can also potentially inhibit terrible mistakes. Nye argues that nuclear learning can lead to security regimes, which he argues happened in the Soviet-American case. He says that “over the past four decades, new information about nuclear weapons and experience with their handling has altered prior beliefs. In several areas, it even created a core of consensual knowledge that both countries share to an extent.” Nuclear learning can also lead to “negative” knowledge. For instance, nuclear capable states can learn how to bluff other states using the threat of nuclear weapon strikes. They can then use such a bluff to gain tactical advantages over their adversaries. Pakistan’s insistence on a low nuclear threshold with simultaneous use of proxies to attack India is seen by India as nuclear blackmail. This Pakistani strategy might as well be a bluff that Pakistan learned during the many crises that it had with India under the nuclear shadow—but, of course, no one knows for sure.

27 Ibid., 382.
Strategic communities and the public at large in nuclear-capable countries are likely to have a great deal of factual learning. That is indeed the first area of knowledge that Nye talks about when he says that “both sides share a greater knowledge about the destructive power of nuclear weapons.” Yet, this sort of common popular understanding about the dangers of nuclear weapons seems to be lacking in India and Pakistan, at least for the moment.

Learning and Policy Impact

Does learning necessarily result in policy change and does policy change necessarily mean that learning has taken place? While it is clear that learning does result in cognitive change, there is no certainty about its policy impact. Levy says learning is not necessarily policy change because there are multiple sources of policy change. I would argue that learning does not necessarily need to result in policy changes. Even if correct and desirable lessons are learned by policy makers, they may not always be in a position to implement them. Bureaucratic inertia and organizational pathologies can impede the translation of learning into policy change. Hence, by tying learning to policy change misses out on many important aspects of learning. A related concern in this context is about how to “know” about learning. In other words, how do we know that learning is taking place? What are the appropriate methodologies of knowing whether nuclear learning occurs? One way in which we can learn about nuclear learning is “process tracing,” which is especially helpful in understanding radical policy changes adopted at the highest political or individual level. One could also observe policy changes as seen in new policies, declarations, policy documents, treaties, and confidence building measures (CBMs), and then try to relate them with nuclear debates that happen within governments or institutions so as to draw causal inferences to determine whether nuclear learning took place.

Learning and Strategic Culture

Does nuclear learning have anything to do with a country’s strategic culture? Does strategic culture influence, bias, prevent, facilitate, or dissuade nuclear learning? Jeannie L. Johnson, Kerry M. Kartchner, and Jeffrey A. Larsen have argued that strategic culture does influence the manner in which weapons of mass destruction (WMD) decisions are made. If one agrees with such a formulation, it would not be out of place to argue that aspects of a country’s strategic culture will have an impact on the kind of nuclear learning that a country engages in or is able to execute. If one considers learning to have a certain subjective element, especially when it comes to correct and incorrect learning, then it is all the more pertinent to explore the links between strategic culture and nuclear learning. From perceiving the objective environment in a particular manner, to decoding it, and finally to translating learning into policy changes, strategic culture is likely to play a key intervening role. In other words, no individual or organization is a tabula rasa, they are carriers of values, beliefs, and other cultural codes, all of which impact on the learning process.

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28 Ibid.
29 Stein, “Political Learning by Doing,” 170.
Part II: Nuclear Learning in India

Is there any evidence of Indian nuclear learning over the years, and if so, what are the sources and nature of such learning? This section will examine the various aspects of nuclear learning that have taken place in the country in the past decade or so. Indeed, only some of the aspects that this section discusses can be characterized as “learning” if one goes by the strict definition of learning as belief change. Some of the aspects highlighted below belong to changes in means to achieve pre-existing goals and hence may be characterized as adaptation rather than learning and yet would still merit consideration. However, despite the analytical complications, it would be useful to examine the full spectrum of nuclear learning in India even though some of it may just be mere adaptation rather than learning.

Normative Learning

First of all, it is necessary to point out that there has been a great deal of normative learning in the Indian nuclear discourse and practice over the past decade or so. India not only decided to come out in the open about its nuclear weapons program but also abide by the expectations of the global non-proliferation order as far as possible. Today, India focuses more on non-proliferation and arms control than the elusive goal of “time-bound global nuclear disarmament.” Raja Mohan eloquently conveys the thrust of India’s Post-Pokhran II approach to the global non-proliferation order in the following words. “From being a protester against ‘discrimination’ in the nuclear order, India was now transforming itself into a nation ready to support the existing order and indeed calling for its incremental reform. The essence of the change in India’s nuclear policy after Pokharan II rested in the shift from the earlier emphasis on disarmament to a new one on arms control – global, regional and national.”

While in the past India used to reject the utility of international non-proliferation treaties such as the Nuclear Non-Proliferation Treaty (NPT) and Comprehensive Test Ban Treaty (CTBT), today it is willing to negotiate with the international community on a better deal for itself within equivalent treaty constraints and obligations. In other words, India today is willing to “negotiate” with the international community on various non-proliferation treaties, which it completely objected to at one time. To quote Raja Mohan again,

The various policies set in motion by India since the summer of 1998 strongly point to a reorientation of India’s premises on the relationship between arms control and national security strategy. This transition was demonstrated with India’s dramatic about-face in rethinking the Comprehensive Test Ban Treaty, as well as its readiness to join Fissile Materials Cut-off Treaty negotiations, endorsement of the objectives of the Nuclear Non-proliferation Treaty, willingness to strengthen export control regimes, support to nuclear-free zones elsewhere in the world, its readiness to move towards substantive confidence-building measures with Pakistan and a political will

to support some of the controversial new US-led approaches to managing nuclear proliferation.\textsuperscript{32}

India also learned to abide by the international norms on nuclear safety and security and the logic of stable deterrence. The additional protocol that it has signed with the International Atomic Energy Agency (IAEA) is an example. India has undergone a great deal of international socialization in the nuclear field. Having maintained a robust nuclear non-proliferation record, India today has learned to do business with the international community to deal with the concerns that the latter has about nuclear safety and security. That said, we must not believe that Indian nuclear learning, whereby New Delhi mainstreams itself with the global nuclear order, has been without any regard for India’s self-interest. On the contrary, perceiving its self-interest in a particular manner has been a cornerstone of India’s adoption of global nuclear norms. Self-interest is a powerful motivating factor for nuclear learning for states.\textsuperscript{33} While the desire to adhere to global norms and protecting its national interests were the causes of India’s normative learning, state socialization provided the context within which this learning could take place.

\section*{Crisis Learning}

Both India and Pakistan have learned the hard way that they need dialogue in order to avoid getting into conflicts that could escalate uncontrollably. As Basrur puts it, “Kargil convinced them of the unavoidability of talks.”\textsuperscript{34} This learning was further strengthened by the 2001-2002 crises and the post-26/11 build-up of tensions. After the Mumbai terror attacks, New Delhi severed all ties with Pakistan and broke-off the peace process, with sections of its strategic community vying for military action against Pakistan. While the nuclear overhang dissuaded New Delhi from carrying out punitive actions against Pakistan, there was a two-year break in the bilateral relationship. However, in 2011 New Delhi “learned” that its no-talks policy with Pakistan was not yielding any fruit. With that realization, today, New Delhi and Islamabad are back on a promising dialogue track. While one could argue that India has not yet learned how to deal with Pakistan “to its satisfaction” during a crisis, the realization that India has to talk with Pakistan certainly represents learning.

More specifically, the 2001-2002 standoff and 2008 Mumbai crisis taught India that war against Pakistan is not an option under the nuclear shadow, and, in combination with the lessons from Kargil, demonstrate that regional crises turn international when nuclear weapons are involved. New Delhi has clearly learned that there is no way that it can forge a war against Pakistan. India has learned that it simply cannot change the status-quo as much as it would like to. Perhaps Pakistan is “playing” the nuclear madman in the subcontinent by signaling to India that even limited conventional aggression would invite nuclear retaliation. Pakistan might well be bluffing, but India is not prepared to call this bluff. This explains why the Indian strategic elite or the political class does not take the Cold Start doctrine seriously as a real war-winning, bluff-calling strategy. The question then is what happens if

\textsuperscript{32} Ibid., 153.

\textsuperscript{33} I am grateful to Jeffrey Knopf for this point.

there is a repeat of November 2008. In my opinion, an attack similar to Mumbai would not lead to any Indian punitive action against Pakistan; rather it is likely to lead to further international isolation of Pakistan and even further Pakistani self-destruction. This is something India learned from Mumbai: while you cannot physically attack Pakistan, you can always shame Pakistan, and the international community will happily join the chorus. This learning seems to have worked. Kargil also clearly taught the two sides that the Line of Control and the International Border are sacrosanct: if Pakistan uses force to change the status quo, it will not be tolerated by India, a la Kargil. In other words, India and Pakistan have learned from Kargil and other crises thereafter, what is acceptable or unacceptable to each other and to the international community.

While nuclear weapons on the subcontinent do have the capability to instill a certain amount of crisis stability, the potential for sub-conventional aggression to spark off a nuclear crisis cannot be ruled out. In other words, if we can somehow remove sub-conventional aggression from the Indo-Pak equation, we are well on our way to achieving crisis stability and hence stable nuclear deterrence in the region.

Learning to Respond

There has also been partial learning in India regarding responses to external aggression in a nuclearized scenario. First of all, India was unable to militarily respond in a timely fashion during the 2001-2002 crises and after the Mumbai attacks. Now though, there has been some progress in improving response time. The mobilization time has come down to seven days from 21 (as was the case in 2001) for the Indian army to mobilize forces to strike Pakistan, which is an example of learning to respond. Other reports suggest that the Indian army is trying to mobilize in 48 hours.

Post-Kargil, India also undertook a number of organizational reforms in order to better respond to crisis situations. India has realized that it is not useful to trust Pakistan during peacetime without verifying its real intentions so that it does not get caught napping. Continuously verifying Pakistan’s intentions was seen as a must, and hence, organizational reforms were carried out in the country’s intelligence bureaucracy. The current discussion in India regarding the need for a Cold Start doctrine shows that New Delhi has learned that it needs to have flexible response options to respond to Pakistani actions in future. Pakistan in turn developed tactical nuclear weapons to offset Cold Start. When the Indian side realized that Pakistan was developing an assortment of ballistic missiles, India started giving a lot more importance to developing a limited ballistic missile umbrella to safeguard its strategic assets. While this is clearly a strategic arms race between India and Pakistan, this is also nuclear learning of a certain kind.

37 Basrur, “Lessons of Kargil as Learned by India,” 315.
Learning Nuclear Maturity

I would also argue that it is possible to perceive a certain level of evolving nuclear maturity in India that was not seen immediately after the 1998 nuclear tests. The very fact that there has been a considerable reduction in the Indian nuclear rhetoric over the years (from aggressively defending and flaunting nuclear assets to directly linking the weapons to Indian defense strategies towards China and Pakistan) shows that India’s political leadership has managed to abstain from offensive nuclear rhetoric. The Indian side hardly ever emphasizes the nuclear aspect of its military might; nuclear weapons, for the Indian side, are political weapons with no war fighting utility. That is nuclear maturity—learned over a period of time.

Another related aspect is the fact that New Delhi tries to keep its nuclear weapon program and assets immune from domestic public pressures, if not debates. Exposing nuclear issues to public pressure can often be counterproductive due to the prevalence of competitive nationalism in India and Pakistan. In August-September 2009, nuclear scientists such as K. Santhanam and P. K Iyengar started publicly pushing for more nuclear tests in order to “evolve an efficient thermonuclear device.” Yet, the Indian government did not buy into the growing outcry from some members of the scientific community for more thermonuclear tests. Instead, it merely stated that the country’s nuclear security was well taken care of.

India has also tried to send positive and reassuring signals to Pakistan, China, and the international community on the nuclear front—in comparison to the aggressive nuclear pitch it had adopted soon after the 1998 tests. As recently as January 2012, the Indian Army Chief made clear that “Nuclear weapons are not for war fighting, let’s be quite clear on it. They have got a strategic capability and that is where it should end." This, in my opinion, is an example of incremental trial-and-error learning of nuclear maturity. India has also been making it clear to the international community that it is serious about nuclear safety and security concerns and that India is taking the necessary steps. In continuation of the spirit with which India signed the additional protocol with the IAEA, the Indian foreign secretary said at the conclusion of the recent Nuclear Security Summit’s Preparatory Sherpas Meeting in New Delhi that

Security of nuclear materials is fundamentally a national responsibility but there is considerable scope for international cooperation to strengthen nuclear security objectives and standards. In this regard, there was considerable emphasis on the leading role of the IAEA in the international nuclear security framework and the need to strengthen multilateral instruments that address nuclear security such as the Convention on the Physical Protection of Nuclear Material and the International

Convention for the Suppression of Acts of Nuclear Terrorism. India is a party to all major international instruments in the field of nuclear security.  

There has also been vibrant public debate in India on nuclear safety and security after years of indifference. In the words of Rajive Nayan, “for years, neither the Indian strategic community nor the Indian government paid serious attention to the problem of nuclear terrorism.” Today, not only the Indian government is seriously concerned with the issue. A very vibrant debate within Indian strategic community on the subject exists.

Learning to Play the Game of Stable Deterrence

India has been a reluctant nuclear power. This reluctance is exhibited by the evolution of India’s nuclear posture: from unwilling to develop nuclear weapons, to becoming a reluctant nuclear weapon state, to insisting on weapons being a minimum deterrent purely for retaliatory purposes. It would therefore be helpful to see India’s insistence on credible minimum deterrence as a logical extension of the country’s reluctance to have nuclear weapons in the first place. However, what is more important in the context of this paper is that learning the game of stable deterrence through the logic of minimum nuclear posture was easy for India as it sits well with Indian nuclear tradition. It is also important to note in this context that India has learned to deal with conventional, sub-conventional, and nuclear issues at the levels they belong in without confusing one level with the other. As Vipin Narang correctly points out, India’s conventional forces and strategic forces commands run parallel, that is, they do not intersect. Thus, there is no linking of the two, in practice or philosophy.

India’s insistence on the minimum aspect of its nuclear deterrent is not an indulgence in pious platitudes intended for deception. India’s intent is verifiable from the manner in which it has physically separated the various components of its nuclear program. The Nuclear Threat Initiative assessment on India indicates that “nuclear-capable missiles, bombers, non-nuclear warhead assemblies, and fissile cores are maintained in a de-alerted state by their respective custodians—the individual armed services, the DRDO, and the Department of Atomic Energy with plans to reconstitute them rapidly during an emergency or national crisis.”

Negative Lessons

Various Indo-Pak crises have taught each side not to trust the other. If for Pakistan the lesson came from India’s Siachen encroachment, for India the lessons from Kashmir, Kargil, the attacks on the Parliament, and Mumbai stand in good stead. This lack of trust is seen in the nuclear field as well.

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41 Ibid.
Pakistan has no faith in the Indian ‘No First Use’ declaration and India knows all too well that Pakistan will make use of its nuclear umbrella for under-the-radar anti-India activities.

While India’s conventional superiority has led Pakistan to seek sub-conventional warfare to achieve its objectives, the nuclear overhang that prevents New Delhi from responding to Pakistan’s sub-conventional tactics has led it to look for flexible responses (a la Cold Start): both are examples of negative learning. Furthermore, India’s Cold Start has prompted Pakistan to develop tactical nuclear weapons. This spiral generates negative learning as it does not lead to deterrence stability in the region.

Yet another example of negative learning is the belief that seems to be prevalent in New Delhi, perhaps also in Islamabad, that when things spiral out of control, the United States will intervene and cool things down. That is a negative lesson because it is dangerous to get on to an escalatory ladder, which could potentially lead up to nuclear levels, and assume that a third country would not let it happen. What if the sequence of events turns out to be too quick for U.S. diplomacy to handle—especially given the fact that United States-Pakistan relations may not retain the same warmth forever?

**What India Has Not Yet Learned: Doctrinal Ambiguities**

Stable deterrence needs to be aided by clearly defined nuclear doctrines. That is, of course, if a dyad wants to have stable deterrence. Pakistan does not have a clearly defined and declared nuclear doctrine, and hence, it would not be unfounded to assume that Pakistan would want to inhibit stable nuclear deterrence, at least not in the way it is understood traditionally. India, on the other hand, seeks to achieve stable deterrence in South Asia. But does India have a completely unambiguous doctrine?

There are a few ambiguities in the Indian doctrine as well. While India has long maintained that it has a NFU policy, official statements have cast doubts on India’s NFU claim. The text of National Security Advisor Shiv Shankar Menon’s speech at the National Defense College in October 2010 did give mixed signals about India’s NFU posture. While the Draft Nuclear Doctrine of 1999 talked about minimum nuclear deterrent, the 2003 official doctrine talks about carrying out ‘massive’ strikes in response to a nuclear strike against India. They could be seen as contradictory. Such doctrinal dilemmas, minor though they may be, could be seen as eroding the political nature of the weapons. Put differently, as Karthika Sashikumar argues, “an elastic concept of minimum deterrence fosters the temptation to bring nuclear security to bear on politically salient issues, tending to

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43 In the talk, Menon said that India has a policy of “no first use against non-nuclear weapon states” which could potentially be interpreted as having a first use policy against nuclear weapons states. Shri Shivshankar Menon, “Speech by NSA Shri Shivshankar Menon at NDC on ‘The Role of Force in Strategic Affairs,’ October 21, 2010. Available at http://www.mea.gov.in/Speeches-Statements.htm?dtl/798/Speech+by+NSA+Shri+Shivshankar+Menon+at+NDC+on+The+Role+of+Force+in+Strategic+Affairs. However, Narang has argued that such an interpretation is incorrect. See Vipin Narang, “Did India Change its Nuclear Doctrine?: Much Ado about Nothing,” Institute for Defence Studies and Analyses, March 1, 2011. Available at http://www.idsa.in(idsacomments/DidIndiaChangeitsNuclearDoctrine_vnarang_010311.}
coercion rather than deterrence.”44 That said, does it actually represent nuclear learning or doctrinal degeneration?

Incomplete Learning of the Mechanics of Deterrence

Has India fully learned the mechanics of nuclear deterrence? Ashley Tellis argues that India seems to have a mechanistic understanding of deterrence.45 Basrur reinforces the points, “one lesson that India learnt from the Kargil crisis is that the mere existence of nuclear weapons in India would not deter the enemy. India would need to make its nuclear assets usable, credible, and have to have a proper mechanism to use them in order to deter the enemy. 46 Nuclear signaling is not something that India has mastered fully. Still, it is laudable that India has not upped the ante or the level of conflict during a crisis—even though it never lost a war with Pakistan. And yet India has not learned to “use” its nuclear weapons to signal Pakistan (and the international community) that India will keep multiple levels of options open to deal with any threats to its security. In other words, inadequate signaling from the Indian side regarding what is likely to follow in various scenarios, in a way, dilutes the efficacy of Indian deterrence. The success of the Indian deterrent would lie in convincing Pakistan that no level of aggression against India, including the sub-conventional, would be tolerated.

It is this lack of political commitment to thinking through India’s deterrence options thoroughly that has given rise to a multiplicity of voices in the country on nuclear deterrence. Often we see Indian service chiefs and nuclear scientists talking in public forums on nuclear deterrence issues in an unsolicited manner and without deference to the civilian leadership. There is also the problem of incomplete factual learning in India. In 1999 there was a huge debate in the country as to whether or not India had thermonuclear weapon capability. Mr. K Santhanam, a former nuclear scientist associated with the 1998 tests, surmised that India’s thermonuclear test was a failure which was supported by another former chief of the atomic energy commission P. K. Iyengar. Thus serious doubts exist then and today regarding the factual nuclear learning the country has undergone.47 India is highly unlikely to carry out a nuclear strike first. It also does not expect a nuclear strike on its territory. These beliefs are evident in the manner in which India’s nuclear deterrent has been operationalized. There are serious doubts about whether the country’s nuclear command and control system is reliable enough to respond quickly and in time. If those doubts are true, this is a serious lack of nuclear learning. This also means that the mutually assured destruction principle is not in full operation.

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45 Ashley J. Tellis, India's Emerging Nuclear Posture (Santa Monica, CA: RAND Corporation, 2001), quoted in Sasikumar, “Learning to play the game,” 44.
46 Basrur, “Lessons of Kargil as Learned by India,” 327.
New Factors in South Asian Nuclear Learning

What new factors have become more important since the first decade that will affect the learning curve in the future? One of the things that might have an impact on South Asian nuclear learning is the complication that the intrusion of new technologies would bring to South Asian nuclear stability. New technologies would mean new complexities, which in turn will make learning more and more complex. While India’s conventional defense build-up and modernization might have an impact on what lessons Pakistan would learn, Pakistani reliance on TNWs and consequent fusing of conventional and nuclear aspects of deterrence could make India rethink its strategies.

The other factor that would have an increasing impact on Indo-Pak nuclear learning is the future evolution of the global and regional balance of power, which will determine the influence of extra-regional parties in Indo-Pak conflicts or the lack thereof. Thirdly, domestic politics, epistemic communities, political parties etc., could play an increasing role in the nuclear field in both India and Pakistan. That would bring additional complexity to Indo-Pak nuclear deterrence. The real challenge in this context for both countries is to maintain the minimum part of their respective deterrents.

Unique Features Informing South Asian Nuclear Learning

What are some of the unique features informing South Asian nuclear learning process? The most important factor is the existence of significant opacity in nuclear matters—while true of both sides, the Indian case is most glaring. Prevailing confusion within the government and strategic community on test yields, weapon characteristics (atomic or thermonuclear), potential targets (universal NFU or NFU against non-nuclear weapons states only), alert states, nuclear safety and security, etc., demonstrate that opacity is an inherent aspect of Indian nuclear learning and is likely to remain so. Such opacity also leads to widespread nuclear ignorance and arrogance, which is why one observes senior officials speaking out of turn on nuclear deterrence and unnecessarily complicating the strategic environment.

There is also a great deal of nuclear nationalism in both the countries. Extreme forms of nuclear nationalism not only prevent proper nuclear learning, it can also infuse a sense of invincibility in the minds of uninformed strategic elites, the public, and the political class. Extreme levels of opacity and high levels of ignorance when combined with dangerous forms of nuclear nationalism induce a widespread sense of invincibility, which surely can prevent proper nuclear learning in the region.

Indo-Pak Joint Nuclear Learning

A great deal of Indo-Pak joint learning has also taken place. The many peace processes that both sides engage in have led to the introduction of various CBMs. Bilateral nuclear CBMs, crises, and general interactions have compelled each side to learn the other’s redlines and approaches toward coping with said redlines. Both sides also learn about the potential responses from the international community. Indo-Pak Track II meetings also facilitate joint learning and the propagation of said learning into the wider nuclear arena. Both the Ottawa Dialogue and the Chaophraya dialogues
undertake dedicated sessions on nuclear issues. Indeed, the Ottawa Dialogue is in the process of developing an Indo-Pak common nuclear lexicon. These Track II engagements regularly brief their respective governments and media, and suggesting that some transfer of ideas takes place as a result seems reasonable.\textsuperscript{48} Of particular importance, is the extent to which Track II’s have gone further than their official counterparts. For instance, some have discussed the potential for civilian nuclear cooperation in the field of medicine and agriculture. Most plenary sessions of the Ottawa Dialogue bring together Indian and Pakistani scientists to discuss these issues—some of who are developing joint papers. Perhaps these joint assessments present a good direction for further nuclear efforts in South Asia.

\textbf{Lack of Joint Learning}

I would say that India and Pakistan, their wider publics especially, have yet to learn of the disastrous implications that an Indo-Pak nuclear confrontation would entail, which Nye argues the Soviets and Americans did learn. Further, the level of mutual learning regarding each other’s C2 systems are also underwhelming, which raises escalation concerns. Crucially, to quote Nye, the two sides have not jointly learned enough about the “volatility of the arms race.”

The above dynamics represent just a few examples, however. Another primary reason for the lack of joint learning is the absence of a useful Indo-Pak nuclear dialogue at the official level. In December 2011, the latest round of the India-Pakistan Expert Level Talks on Nuclear CBMs took place and led to two minor achievements: both sides agreed to recommend to their Foreign Secretaries the extension of the “Agreement on Reducing the Risk from Accidents Relating to Nuclear Weapons” (signed in 2007) for another five years and “both sides reviewed the implementation and strengthening of existing CBMs in the framework of [the] Lahore MoU, and agreed to explore possibilities for mutually acceptable additional CBMs.”\textsuperscript{49} Indeed, since 1999, besides the 2007 Agreement all that the two countries have done at successive meetings is to reiterate the spirit of the Lahore Declaration, and review the existing nuclear and missile-related confidence-building measures.. Simply put, in 12 years nothing substantial has been achieved to bring about nuclear stability on the subcontinent.\textsuperscript{50}

The prevalence of competitive Indo-Pak missile testing highlights both states’ symbolic reliance on their nuclear weapons and related accessories to cater to domestic audiences. Moreover, the two sides also utilize contentious declaratory statements in parallel to these tests, which only leads to further arms racing dynamics. In other words, arms race stability is something that the South Asian nuclear dyad has yet to learn. These symbolic actions intensify the regional arms race as well as each


\textsuperscript{49} “India, Pak to renew nuclear accident pact,” \textit{Times of India}, December 28, 2011.

country’s material decisions: India would like to deploy partial ballistic missile interception capabilities and develop a nuclear triad; Pakistan seeks to bolster its nuclear capability by increasing arsenal and offensive capabilities, in part for tactical scenarios. Narang has argued that India has been deemphasizing the Pritvi missile—a short-range ballistic missile useful for nuclear and conventional missions—nuclear role “so that there is less potential for miscalculation and misperception in a crisis with Pakistan.” Such unilateral actions can contribute to building stable deterrence in the region.

Areas Where Joint Learning Can or Should Take Place

The two areas where there has to be lot more mutual or joint learning in the nuclear field are CBMs and doctrinal understanding. It is not enough for the track-two participants to discuss the possibility of the doctrinal ambiguities and how to resolve them. Officials on both sides have to do so in order to better understand assumptions, redline, and options. What is promising in all this, however, is that the compliance record of nuclear CBMs between India and Pakistan is commendable and this is an indication that what is needed to be done is to put together more nuclear CBMs.

What Inhibits Nuclear Learning in South Asia?

A realistic analysis of the India-Pakistan nuclear balance is hardly reassuring, and yet, there is almost no focus on the need to put mechanisms in place to avoid a nuclear catastrophe in the region. What prevents the achievement of a stable nuclear order in the region? What inhibits the learning of the right nuclear lessons in India and Pakistan? First of all, there is a fundamental mismatch of worldviews in India and Pakistan on the role of nuclear weapons in their national security strategies. Owing to this fundamental conceptual dissonance, the ensuing nuclear learning in India and Pakistan are likely to be divergent. The actors in the respective countries are socialized into starkly different normative settings, assimilate very divergent worldviews, and hence ordain fundamentally different nuclear strategies. The key question to ask here is whether there is a real desire in both the countries to go beyond nuclear muscle flexing for self-assertion and playing to the domestic gallery, and instead move towards stable deterrence—and eventually stop considering the other a nuclear target.

Secondly, it is necessary to point out that partial ambiguity in the South Asian nuclear balance tends to impede the mutually assured destruction principle and under such a scenario it is difficult for any positive learning to take place. More positive nuclear learning is likely to take place in the stable deterrence phase rather than in the unstable deterrence phase or even in the initial stage of a deterrent relationship.

Thirdly, as pointed out earlier, opacity on matters relating to nuclear issues, extreme forms of nuclear nationalism, mechanistic understanding of deterrence, and a dangerously self-defeating sense of invincibility, all contribute to an absence of nuclear learning in the region. Most politicians in the region do not bother with the dynamics of nuclear deterrence and hence are not interested in discussing it. Such things are left to the professional bureaucrats who, for a variety of institutional

and bureaucratic reasons, do not think out of the box or think ahead on nuclear issues, thereby not achieving effective nuclear learning.

The trust deficit between the two sides has again meant that there is no joint learning on nuclear issues by the two countries. Joint learning requires that each country view the other as a responsible interlocutor who is unlikely to pull the plug midway through. Such statesmanship is only beginning to appear now. Also important is the fact that India and Pakistan are still in their nuclear infancy, with their doctrines, arsenal, numbers, postures, and knowledge still evolving. A great deal of joint learning is unlikely to happen in the initial phases of the deterrent relationship in the nuclear dyad. In such initial phases, it is not so often that we find informed nuclear commonsense and a resultant urgency to address critical issues in the field.

Conclusions

By way of concluding the paper, I would like to flag four major points. One, it is perhaps more useful to look at nuclear learning in the Indian case within the larger conceptualization of state socialization rather than purely in the context of individual decision makers’ belief changes. While it is true that the personal commitment of the Indian Prime Minister, Manmohan Singh, has been responsible to a great extent in mainstreaming India into the global nuclear order, his actions need to be seen as part of a process in which he simply took the next logical step of bringing India closer to the global nuclear order. More importantly, it is necessary to look for elite socialization in the domestic and international normative environments in trying to understand the Indian nuclear learning process.

Secondly, for too long, the goals of India and Pakistan’s respective nuclear policies have remained the same, unchanged, and hence most of their nuclear learning could be seen as tactical and not strategic. In other words, we see a great deal of adaptation rather than belief change on nuclear issues in India and Pakistan.

Thirdly, there has not been any substantive joint learning that has taken place at the bilateral India-Pakistan level, primarily due to the divergent visions that each side holds about the utility and the role of nuclear weapons in their national security strategies.

Finally, much of the nuclear learning in India is still in the process of becoming evident. It is not only the longevity of learning that depends on the extent of its institutionalization, but also its practice in real life situations. Once learning is internalized and institutionalized, its longevity increases and it continues to guide action until it is replaced by a new learning. Hence to fully appreciate India’s nuclear learning, the Indian case should be periodically surveyed.