Higher Education:
The Way Forward

Chapter 6

Rethinking Strategy and Statecraft for the Age of 4IR: Implications for Higher Education

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Introduction

This chapter[1] recognises that the age of the 4IR (Fourth Industrial Revolution) will transform the context and alter the conduct of statecraft and strategy around the world. Accordingly, we offer a set of forward-looking ideas and observations about how this may evolve, with a focus on new thinking about the looming emergence of the 'noosphere' and 'noopolitik' – concepts we will clarify below. We then identify some prospective implications for HE (higher education) in regard to future coursework and curricula for educating professionals about grand strategy in the age of the 4IR.

Around the world, national-security and foreign-policy strategists are having difficulty adapting to the digital age as part of the 4IR. A rethinking is needed. For decades, countless writings have pointed this out – ours among them – and marginal improvements were being made. However, it is time to urge a deeper rethinking in light of new threats and other challenges to so many societies, institutions, and cultures. Neither experts nor strategists are meeting these threats and challenges well enough. Both need to improve their ability to look ahead in the best ways possible.

Advanced information, communications, and sensing technologies are increasingly available, but the challenge is not simply technological. Instead, the challenge is mainly cognitive. Adversaries everywhere – from nations to nonstate networks – are using dark new modes of political, social, cultural, and psychological warfare against their opponents: Wars of ideas, battles of stories, weaponised narratives, memetic viruses, and epistemic attacks. New kinds of cognitive warfare are being deliberately designed to confound analytic and social strengths and exploit weaknesses in individuals, institutions, and societies as a whole. Covid-related disinformation campaigns are a recent

1 This chapter is adapted from a think-piece with a similar title by Ronfeldt and Arquilla (2020a).

manifestation of this. So are many aspects of the war in Ukraine, particularly Vladimir Putin's twisting of the historical relation between Moscow and Kyiv and his attempt to justify the 2022 invasion as a mission to 'denazify' a duly elected, democratic government.

Strategists of all stripes – theorists and practitioners – remain unsettled and often baffled about how best to analyse, organise, and act amid this stormy flux. Trends and indications around the world suggest that matters may grow worse before they become better – *if* they do become better – in the coming years.

The most advisable way ahead for information-age strategists, especially in the world's capitals, is to reposition statecraft and grand strategy by merging two streams of thought: The first involves the well-known distinction between hard power and soft power; the second engages a lesser-known distinction about the geosphere, biosphere, and noosphere (the last term means 'realm of the mind,' as we clarify below). At first glance, the two streams may seem unrelated, but they are starting to come together in ways that should be recognised – the sooner the better. Doing so, reveals a new kind of information-age statecraft which we call 'noopolitik' as a successor to the traditional 'realpolitik.'

Hard Power versus Soft Power

Strategists have traditionally thought and planned primarily in terms of tangible, material, 'hard' forms of power – military forces, economic capabilities, and natural resources. They refined 'realpolitik' in the 19th and 20th centuries to express their hard-power dispositions as a mode of statecraft that emphasises seeking relative advantages through displays, threats, and uses of force. In various ways, realpolitik-type thinking and covetous campaigns for hard-power resources lay behind the European efforts to acquire colonies abroad back then, notably in 'the scramble for Africa' (Pakenham 1991).

A realisation that immaterial, ideational, 'soft' forms of power – ideas, values, norms, and battles for hearts and minds – may matter as profoundly as 'hard' forms of power started to take hold in the early 1990s, when the end of the Cold War and the relatively peaceful dissolution of the Soviet Union helped to demonstrate the potential effectiveness of ideational approaches to statecraft. Hard power played a central role in deterrence and containment strategies from the late-1940s to the 1980s, but it was the West's soft power (for example, the advocacy of democracy, free flows of information, and civil-society activism) that brought the decades of high-stakes confrontations to a successful, peaceful conclusion. Moreover, by then, the internet and other digital information technologies were on the rise, and strategists, most of all

in the US, were beginning to view information itself as a new form of power, one that favours the 'soft side' of the spectrum.

However, the American idea of soft power contained flaws. The original definition tended to treat soft power as good and hard power as bad, or at least as mean-spirited – i.e., soft power was regarded to be fundamentally about persuasive attraction, hard power about coercion (Nye 1990, 2004). However, in actuality, soft power is not just about beckoning in attractive, upbeat, moralistic ways that make the US and its allies, friends, and other like-minded societies look good. It can also be wielded in tough, dark, heavy ways too, as in psychological efforts to warn, embarrass, denounce, disinform, deceive, shun, or repel a targeted actor. Moreover, soft power does not inherently favour the good guys. Malevolent leaders – say a Hitler, a Bin Laden, or various of today's authoritarians – often prove eager and adept at using soft-power measures in their efforts to dominate at home and abroad.

Thus, while strategists and other leaders in the more democratic societies were misconceiving the concept of soft power, even inflating it into 'smart power' by combining hard and soft power (Nye 2009), they neglected to come up with a doctrinal derivative that could rival hard power's realpolitik. Indeed, many simply persisted with realpolitik, trying to modify it to suit the information age. Spread over several decades, this conceptual inertia, even complacency, has left the US, and quite often its allies and friends, at a strategic disadvantage. The American conceptual arsenal, not to mention those of its allies, is still sorely lacking for understanding about how to apply soft power. Strategists who primarily believe in hard power, have developed quite a set of concepts around it, particularly over the past two centuries – e.g., realism, geopolitics, balance of power, and realpolitik itself. A comparable conceptual arsenal has yet to be developed around soft power.

Meanwhile, various adversaries and competitors of the West and other liberal societies – from nation-state actors in Russia, China, North Korea and Iran, to nonstate networks like Al Qaeda, the IS (Islamic State), and Wikileaks – quickly learned to develop dark approaches to soft power, especially online, in order to undermine American and other democracies via political warfare and challenge their positions in the world. Thus, Moscow fielded new narratives to extol Eurasianism and deride democracy, while releasing a torrent of deception, disinformation, reflexive conditioning, and de-truthing operations. Additionally, Beijing began concentrating on developing and deploying what it called 'discourse power' and 'cognitive domain operations' as its way of influencing how people think about China and its growing reach around the world.

In short, democracy's adversaries began deploying aggressive soft-power strategies and tactics – lately called 'sharp power' (Walker & Ludwig

2017a, 2017b) – far more adroitly than ever expected, catching Washington and other liberal capitals quite unaware and unprepared during the early years of the 21st century. Nonetheless, rather than rethinking matters, leaders in Washington and elsewhere have continued to neglect their soft-power capabilities, Instead, they reverted to re-emphasising hard power and realpolitik (on this point, see especially Bacevich [2010] about America's missteps).

This state of affairs should be viewed with alarm. It should prompt an awareness of the urgent need to rethink statecraft for the information age. In our view of how best to approach the 4IR, this means shifting away from realpolitik toward noopolitik, a concept inspired by a second stream of thought.

Emergence of the Noosphere

Over the past 100 years, various scientists in Europe, America, and Russia have worked on developing a stream of thinking about our planet's geosphere, biosphere, and noosphere. Whether appearing singly or jointly, these three dimensions work as a layered set for understanding Earth's eons of evolution as a planet. Accordingly, first to evolve was a geosphere, consisting of the Earth's geological mantle. Next to evolve was a similarly globe-circling biological layer, or biosphere, consisting of plant and animal life, eventually including people. Third to grow and develop will be an all-encompassing realm of the mind, a 'thinking layer' termed the noosphere. These concepts were all in use by the 1920s, and continue to be today.

The last term emerged when French theologian-palaeontologist Pierre Teilhard de Chardin, his friend, French mathematician Edouard Le Roy, and visiting Russian geochemist Vladimir Vernadsky met in Paris in 1922 to speculate about whether, because of humanity's growth, our planet would ultimately evolve a third layer, namely an all-enveloping noosphere, a term they coined from the Greek term 'nous,' a reference to the mind. Teilhard defined it as a 'realm of the mind,' a 'thinking circuit' – in the later words of his colleague, Julian Huxley, a 'web of living thought' and 'a common pool of thought' that would lead to an 'inter-thinking humanity.' For Teilhard, it was a spiritual as well as scientific concept, whereas for Vernadsky, it was strictly a scientific concept – though both regarded it as having democratic political implications as well (Samson & Pitt 1999).

At first, the concept of the noosphere spread slowly and selectively among environmental scientists and social activists in the West. Some early believers are credited with helping to inspire the creation of the UN (United Nations), UNESCO (the United Nations Educational, Scientific and Cultural Organisation) and other 'noospheric institutions' after World War II. In addition,

the post-war period led to UN-backed covenants that reflected noospheric hopes, such as the Universal Declaration of Human Rights and the Convention on the Prevention and Punishment of the Crime of Genocide, both in 1948. Not long after, the noosphere concept attracted wide attention in Europe and America in the 1950s and 1960s, following the posthumous publication of Teilhard's books on *The phenomenon of man* and *The future of man*, as both became bestsellers. Even so, the concept still spread mostly among a narrow range of intellectuals – until the 1990s.

Since then, the rise of the internet as part of the 4IR has excited a sense across the spectrum of theorists and prophets of the information age, that cyberspace is providing a technical foundation for the emergence of the noosphere. While the concept has still not gone mainstream, it is proliferating far and wide, now at the level of online platforms and not just individuals – *Wired* magazine, the *Edge* website, Evolution Institute, and various magazines and websites associated with pro-commons social theory and social activism on the left, often feature articles supporting the concept's potential. Indeed, from a political standpoint, people and platforms on the left have shown the greatest degree of interest in the noosphere and its future prospects. Interest on the right is relatively rare. Theorists and activists on the right are deeply interested in information-related concepts, systems, technologies, and their effects, but they prefer traditional constructs such as culture, ideology, and the media, maybe even atmosphere or *Zeitgeist*, over noosphere or other futuristic notions.

Lately, various technologists and other scientists have preferred concepts that are not exactly focused on the noosphere, e.g., collective consciousness and the global brain. However, they all still descend partly from the idea of the noosphere. Moreover, future successes with alternate concepts are bound to help further the noosphere too. It is here to stay. It will continue growing in significance and popular usage.

Onward into the Future with Noopolitik

In sum, the noosphere concept provides a logical grounding for thinking broadly about policy and strategy in the information age. Furthermore, our derivative concept – noopolitik – matches up with soft power, the way realpolitik matches up with hard power. No alternative concept does this as well. By comparison, cyberspace and the infosphere are smaller, more technological domains. The noosphere is the best all-encompassing concept for thinking about information-based realms and its dynamics.

We first proposed noopolitik as an alternative to realpolitik back in 1999 (Arquilla & Ronfeldt 1999; cf. also Ronfeldt & Arquilla 2007, 2020b). However, little happened then to further its development. Ever since, other strategists

have proposed kindred concepts – notably cyberpolitik, netpolitik, infopolitik, information engagement, information statecraft, information geopolitics – yet they too have failed to gain traction. Individually, these kindred concepts vary somewhat definitionally, but what is more important is that collectively, they all represent innovative but so-far-unsuccessful efforts to improve the conceptual arsenals of strategists for dealing with information-age threats, challenges, and opportunities, in particular by urging strategists to emphasise networks more than hierarchies, and nonstate actors as much as, sometimes more than state actors.

All of which leads to two points. First, noopolitik remains a suitable proposal for reorienting statecraft in the information age. Next, even if this particular concept does not take hold, strategists had better come up with something very similar, fast, before the world's dark adversaries do irreversible harm to the US and other open societies by continuing to apply their own vexing mutations of noopolitik. At stake is the essence of effective strategy and statecraft in the information age: Whose story wins?

Taken seriously, the noosphere concept has particular implications for developing noopolitik as an approach to statecraft. The noosphere began as a scientific and spiritual concept, but it has also acquired a forward-looking political cast. Its expansion implies the ascendance of ideational and other soft-power matters. It favours upholding ethical and ecumenical values that seek harmony and goodwill, freedom and justice, pluralism and democracy, and a collective spirit harmonised with individuality. South Africa's Nelson Mandela and Desmond Tutu have served as exemplars to the world of this kind of value-driven statecraft.

Noopolitik is also better than realpolitik as an anti-war and pro-environment concept. Strategically, it implies thinking and acting in global/planetary ways while minding long-range ends, and the creation of new modes of agency to shape matters at all levels. It implies humanity coming together through all sorts of cognitive, cultural, and other close encounters. It is about the co-evolution of the planet and humanity – it therefore implies understanding the nature of social and cultural evolution far better than theorists have so far. It also means engaging nonstate as well as state actors in a quest to create a new (post-Westphalian) model of world order less tethered to the nation-state as the sole organising principle and focus of loyalty. Furthermore, it favours the widespread positioning of sensory technologies and the creation of sensory organisations for planetary and humanitarian monitoring and response purposes.

Yet, positive and peaceful as all this may seem, growth of the noosphere also implies having to deal with persistent ideational clashes and conflicts. Indeed, Teilhard, Le Roy, and Vernadsky expected ruthless struggles, shocks

and tremors, even an apocalypse, as different parts of the noosphere begin to mingle and fuse around the world. These are not implications which the founders simply tacked on, they rather stem from discerning principles and dynamics that attended the prior development of the geosphere and biosphere as global envelopes.

Proponents and practitioners of noopolitik should heed these distinctive implications, and not view noopolitik as a self-aggrandising public relations or propaganda game. When the switch to noopolitik deepens in the decades ahead, strategists will gradually figure out how different it is from realpolitik. The reason is that noopolitik requires a fresh way of looking at the world – a new kind of mindset, situational awareness, knowledge base, and assessment methodology, along with a generally more philosophical and theoretical outlook. How to look at hard power, thus realpolitik, is quite standardised by now. However, how best to understand and use soft power is far from settled. Noopolitik depends on *knowing* – and finding new ways of knowing – about ideational, cognitive, and cultural matters that have not figured strongly in traditional statecraft. As the information age deepens in the decades ahead, it will eventually be acknowledged that noopolitik is not only an information-age alternative to realpolitik, but also a prospective evolutionary successor to it (cf. Table 1 below, which compares aspects of realpolitik and noopolitik).

Table 1: Contrast Between Realpolitik and Noopolitik

Realpolitik	**Noopolitik**
Nation-state as key unit of analysis	States, nonstate actors, networks as key units
Primacy of national self-interest, sovereignty	Primacy of shared interests, mutuality
Primacy of hard power	Primacy of soft power
System as anarchic, conflictual	Harmony of interests, cooperation
Power politics as zero-sum game	Win-win as preferred game
Politics as unending quest for advantage	Politics as pursuing a *telos* (*end purpose*)
Alliances conditional (oriented to threat)	Alliance networks vital to security
Ethos is amoral, if not immoral	Ethics are crucially important
Behaviour driven by interests, threats	Behaviour driven by common values, goals
Balance of power as the 'steady state'	Balance of responsibilities
Power embedded in nation-states	Power also embedded in 'global fabric'
Guarded, manipulative about information	Seeks information-sharing, inter-thinking

In essence, noopolitik is ultimately about whose story wins, not whose military seems stronger. This means that the conduct of noopolitik (and noopolitics

more generally) will depend on carefully crafting strategic narratives to suit varied contexts. The fact that narratives are crucial for manoeuvring in today's world, is widely accepted. As one expert has noted, 'Kinetics may win battles; narratives win wars' (Maan 2017). However, designing strategic narratives remains more an art than a science, and there is still plenty of room for new ideas about how to build expertise and wield influence.

For example, US efforts to promote democracy abroad – often through the use of force – have proceeded unsuccessfully, even defectively, for many years. The theologian Reinhold Niebuhr, still a favourite philosopher of many conservative (as well as some liberal) strategists, cautioned back in the 1950s that 'the greater danger [for US strategy] is that we will rely too much on military strength' (Niebuhr 1958:35) – a warning that has come all too true. Given the sorry record of militarism – most recently manifested in the American-led debacle in Afghanistan – the matter of how best to promote democracy may well become a key opportunity for noopolitik, as the answer(s) and strategies that noopolitik may develop, will likely prove quite different from what has been assumed and pursued under past grand strategies.

Here are some of the steps we have recommended to enable and energise a shift to noopolitik:

- Rethink 'soft power,' especially its dark sides: We should not have to list it. It should be cleared up by now, but it is not.
- Create international 'special media forces' that could be dispatched into crisis and conflict zones to help settle disputes through the discovery and swift dissemination of accurate narratives, and for purposes of rumour control and countering 'hate messaging.'
- Uphold 'guarded openness' as a strategic principle: This means remaining open (particularly among allies) in accordance with democratic values, while also creating mechanisms for guardedness (e.g., mutual defence treaties, robust cybersecurity norms, disease detection and control, and early-warning and tracing systems) to mitigate the risks inherent in being open.
- Take up the cause of protecting and managing the 'global commons' – those air, sea, land, space, and other parts of our planet that belong to no single state or jurisdiction – as a pivotal issue area for the future of noopolitik. Though valued by many civilian activists and military strategists, the global-commons concept has yet to gain public recognition, and it is presently under challenge from arch-traditionalists who prefer a return to nationalist/neo-mercantilist policies in the name of state sovereignty.
- Institute a governmental requirement for periodic reviews of the nation's 'information posture:' One's information posture toward allies and adversaries is now as crucial as one's military posture. The latter receives regular review. It is time to figure out how best to assess and enhance

the national information posture as well. (If a national information posture assessment were conducted at this time by, for example, the US government, it would surely clarify that Washington is in strategically worse shape – on matters ranging from cybersecurity to America's standing in world opinion – than its regular military and economic posture assessments seem to indicate.)

Such measures can open up transformational possibilities and opportunities for shifting from realpolitik to noopolitik as the basis of a new mode of statecraft attuned to the information age as part of the 4IR. They could help burnish the image of the US and its allies and friends in the world once again, lessen the bitterness and violence of conflicts, revitalise diplomacy, especially public diplomacy, and set the world on course toward sustainable peace and prosperity. Whereas realpolitik treats international relations as intractably conflictual, the starting point for noopolitik is faith in upholding our common humanity around the world, pursuing a belief that, in statecraft, ideas can matter more than armaments.

Even now, many shifts, risks, and conflicts that are commonly categorised as geopolitical in nature are, on closer examination, primarily noopolitical. For example, during the past decade or two the Arab Spring – affecting countries from the Maghreb to the Levant – the rise of the far right in Europe, Hindi-Muslim clashes in South Asia, protest movements in Venezuela, Sudan, Lebanon, Hong Kong, and Belarus, and most recently the fight for Ukraine, all have geopolitical implications, but they may be better understood as having an essentially noopolitical nature. Around the world, many cognitive wars – ideological, political, religious, and cultural wars – are underway, aimed at shaping people's minds and asserting control over this or that part of the emerging noosphere. Some analysts forecast the spread of information warfare into parts of Africa as well (Van Vuuren 2018). At the same time, people are also searching for new ways to get along together and cooperate in addressing such global challenges as pandemic control, climate change, and refugee resettlement. Here, too, policies and strategies guided by noopolitik rather than realpolitik will likely fare better for purposes of pursuing the common good.

New Frontiers for Teaching Statecraft and Grand Strategy

Colleges and universities have long offered courses, programmes, and degrees in international relations and other topics that concern statecraft. However, the few that focus specifically on grand strategy are quite recent. The first appeared only 10 years ago, at Yale University, with the creation of its Brady-Johnson Programme in Grand Strategy. Today not only Yale but also Duke University, the MIT (Massachusetts Institute of Technology), the IWP

(Institute of World Politics), and a few other schools offer their own courses, programmes, and degrees on grand strategy and statecraft.

For the most part, these courses revolve around classic readings in strategic thought and practice, from ancient Greece through modern times. They educate students, often through assigned readings in military and diplomatic history, about political, military, economic, social, and cultural forces that have affected international relations. The focus is mostly on state-led strategies and policies across the centuries. However, modern nonstate, citizen-activist, social-change movements may receive bits of attention too, as may the ways such movements benefit from the rise of new networked forms of organisation, enabled by the digital information revolution. Accordingly, class syllabi may range across writings by, *inter alia*, Thucydides, Niccolò Machiavelli, Carl von Clausewitz, H.J. Mackinder, Hans Morgenthau, and Henry Kissinger. The list can be made very long when it extends to including writings by the latest crops of theorists and practitioners.

A very broad range of both hard- and soft-power factors may thus be covered. However, for the most part, the hard-soft distinction is not a major theme, except when including what is deemed the single essential reading on this topic, which is Joseph Nye's seminal book, *Soft power: The means to success in world politics* (Nye 2004). As a result, these courses on grand strategy and statecraft generally cover the important roles that values, ideas, narratives, communications, culture, and other 'soft' ideational factors may play in international relations, in peacetime as well as in war (cf. Kennedy 1991). However, much greater attention is usually devoted to educating students about strategic concepts that have grown around the 'hard' material forms of power, e.g., geopolitics, realpolitik, realism, the use of economic coercion and military force, the balance of power, great-power competition, etc. Ever since Nye first fielded the concept of 'soft power' in the late 1990s, strategists have increasingly attended to the significance of soft-power factors, but not in systematic ways – no particular set of strategic concepts has yet arisen around it.

Suppose our forecast is correct about the noosphere and noopolitik. Then imagine how this may reshape curricula for graduate coursework on grand strategy. Current-day curricula seem quite staid, looking far more to the past than to what looms ahead. In recent decades, 'realists' have run into theoretical and practical challenges that their conventional approaches to strategy have proved insufficient for characterising or meeting much less mastering. Classes and readings for education about noopolitik will have to be very different from those used for realpolitik. Realpolitik requires knowing primarily about tangible military, economic, technological, and other geopolitical forces, and much less about intangible, ideological, social, and cultural forces. In contrast, noopolitik requires knowing primarily about

ideological, cultural, social, religious, and other noopolitical forces – and finding new ways of knowing about them.

In the US, strategic thinkers have long known, and urged that a grand strategy should attend to socio-cultural as well as political, military, technological, and other 'hard' contextual factors. However, in practice, strategists have repeatedly neglected analysing operational environments so comprehensively during the past few decades – they have neglected cultural and cognitive conditions to strategy's detriment, notably in Iraq and Afghanistan (cf. Hoffman 2020; Lynch 2020). Calls are finally emerging for rethinking grand strategy so that it attends equally and properly to 'the social dimension,' including its domestic import for grand strategy (cf. Arquilla & Roberts 2020). A future turn towards noopolitik will require this.

A comprehensive guide for how to become a knowledgeable practitioner of noopolitik remains a distant goal at this time – the concept is still too new, the writings too few. Nonetheless, we can list some topics that will surely require elevated if not entirely new kinds of attention as the noosphere and noopolitik take hold. We discuss them briefly below, in order to suggest their prospective future importance for teaching and learning in forward-looking courses and curricula about grand strategy. However, we expect that the topics we list here will eventually require far more pages of argument and elaboration before strategists, steeped in traditional approaches, become convinced that such a reorientation is needed.

Recognising the Significance of Social Evolution for Grand Strategy

We have never seen a writing that explicitly pairs social evolution and grand strategy for analysis. Yet, grand strategies often rest on judgements about social evolution – who is gaining strength, progressing the best, becoming a model for others to follow, etc. Modern examples include the containment theory in the 1950s, the modernisation theory in the 1960s, and democratic enlargement in the 1990s. In the 2000s, three ideas advanced during the previous decade that touched on social evolution theory: The 'end of history,' 'clash of civilizations,' and 'export of democracy' concepts influenced strategists engaged in the 'global war on terrorism,' which became notable for its presumptuous *naiveté* about imposing a democratic political evolution on tribalised, strife-torn societies in Afghanistan and Iraq. Attempts to reroute the currents of history and culture in these sad lands have foundered, at terrible human and material cost.

What a grand strategist thinks (or dismisses) about social evolution can make a decisive difference. Indeed, a case can be made that grand strategy would benefit immensely if it were grounded in a better theory about social evolution. This may seem a passing matter for realpolitik, but it may be a

requisite concern for noopolitik and noopolitics more generally – better ideas about social evolution will be needed in the coming age of the noosphere. Grand-strategic thinking that ignores social-evolutionary dynamics will not be worth much for long (especially for such purposes as fighting terrorism and promoting democracy in regions around the world). The fact that there is no agreed-upon theory of social evolution does not obviate this concern.

Exactly what a noopolitik-oriented curriculum should include is not clear today, but the aim would be to educate students to think more deliberately about social evolution and its implications for a grand strategy, without opting necessarily for a particular framework or theory. To this end, readings by Peter Turchin (2016) and David Wilson (2019) may be advisable, along with selected writings by David Ronfeldt (1996, 2009). Readings on specific topics, e.g., the evolution of government institutions, market systems, political democracy, and civil-society networks, may also deserve inclusion.

Realising the Significance of Social Cognition for a Grand Strategy

According to realpolitik, strategy is the art of relating ends, ways, and means – usually as defined in hard-power terms (cf. Marcella & Fought 2009). Strategy from a noopolitik perspective will be more about identifying, assessing, and affecting peoples' cognitions – a soft-power concept. Assuming that peoples' key cognitions are about space, time, and agency, then strategy may be regarded as an art of positioning for spatial, temporal, and 'agentic' (agency-oriented) advantages. For noopolitik, this may mean thinking and acting in global/planetary ways (spatially), while minding long-range future end-states (temporally) and creating new modes of agency to shape matters at all scales of strategy.

Why focus on people's space, time, and agency (or action, or efficacy) cognitions? The reason is that numerous psychological, sociological, anthropological, and other studies have shown that people's key cognitions are about space, time, and action (or agency). These cardinal cognitions – space, time, and action – take form in people's minds during childhood, and play key roles in shaping their beliefs and behaviours from then on. They are essential building blocks behind the development of consciousness and culture. No mind, culture, or society can function without its particular set of space, time, and action cognitions. Moreover, changes in people's space-time-action cognitions – their worldviews and mindsets – can lead to changes not only in an individual's beliefs and behaviours, but also in how a mass public thinks and acts collectively throughout an entire culture and society.

Thus, the better strategists can find ways to analyse people's space-time-agency perceptions, the better they can ascertain why people think and behave as they do, how societies and cultures evolve, and what makes

one historical era or phase different from another. Through such learning, strategists will be better positioned to assess the effects that different strategic options may have, including for such matters as climate control and pandemic relief.

Today, it would not be easy to design courses and curricula to educate students about how to do a triplex (i.e., space-time-agency) cognition analysis for purposes of grand strategy. Most experts have specialised in just one of the three key cognitions, in isolation from the others (even though the others always creep into their analyses). For the time being, courses and curricula would have to rely mainly on single-focus studies – say, Philip Zimbardo's writings about time orientations (Zimbardo & Boyd 2008), or Albert Bandura's about efficacy orientations (Bandura 2006). They should, however, still head steadfastly in the direction of a triplex cognition analysis until new readings emerge (as argued and forecast in writings by David Ronfeldt [2018]). All three cognitions are at stake, and being targeted, in various cognitive-warfare campaigns being waged in numerous societies around the world.

Finding Ways to Assess and Improve National Information Postures

The US has, over the past 75 years, provided an illuminating example of the governmental encounter with information strategy and policy, though it has yet to call for regularly assessing its information posture the way it has its military posture. Nevertheless, the American government does have a history of treating the nation's *de facto* information posture seriously – just not under that name. A modern landmark arose in 1946 with George Kennan's seminal 'containment' concept, which was meant to be applied more in the ideational than the military realm. Later, in 1953, President Dwight Eisenhower created USIA (the US Information Agency), and always included its director in cabinet-level meetings. As another landmark event, President Ronald Reagan ('the Great Communicator') called on his administration in March 1984, with his National Security Decision Directive 130, to develop a formal information strategy and posture review process. He then used it to help guide his summitry with Premier Mikhail Gorbachev and end the Cold War. Quite a set of accomplishments!

However, after the Cold War ended, President George H.W. Bush did not see fit to extend Reagan's initiative, preferring instead to proclaim an American-led 'new world order' based on preponderant military and economic strength, and in 1999, President Bill Clinton dis-established the USIA as an independent entity (it was folded into the State Department, where it remains up to today, much weakened). Thus, the US government began turning its back on developing a formal information posture at the very time when the digital information revolution and the 4IR were getting underway.

'Information' was already being reconceptualised as a new form of power, but mostly by foreign state and nonstate competitors who were intensifying their usage of new information operations against the US, its allies, and friends – without American or other friendly policymakers and strategists adequately realising much of any of this.

Today, new voices are calling on the US government to revitalise the USIA and rekindle the process that Reagan so wisely developed in 1984. These are good ideas, but far more than a limited institutional renaissance in one country will be needed in order to assure that policymakers begin to require national information-posture assessments as a regular matter. The US is still too enamoured of trying to impress other societies with its hard-power capabilities, e.g., as with its recent decision to share its nuclear submarine technology with Australia in an effort to counter rising Chinese influence in the Indo-Pacific region.

Posture assessments are normally about a nation's capabilities to apply all manner of power on behalf of its national interests – the case with US national military, economic, and cybersecurity assessments. These assessments are supposed to identify a nation's strengths and weaknesses, its priorities and possibilities, as well as vulnerabilities and risks, the better to enable a nation's leaders to craft strategies for meeting the ideational, organisational, operational, and other challenges that lie ahead.

To our knowledge, no one has ever tried to do a formal national information posture assessment. It could prove daunting as well as controversial to undertake. To begin, 'information power' and 'information posture' (not to mention 'information space') are far from settled concepts. However, if it could be broadly defined, spanning ideational as well as material aspects of 'information' (as we think they should be), then a posture assessment might be well advised to cover the following:

- Key aspects of a nation's image (the 'face' it presents to the world, its 'brand identity'), in particular the national values, goals, character, and the reputation it attempts to uphold and project, at home and abroad.
- The wealth (or lack) of information resources a nation has at its disposal and is developing (or failing to retain and develop) in schools, universities, research centres, libraries, and elsewhere in the 'infosphere,' including the nation's civil, public, and private sectors.
- The information policies and practices which a nation favours, for example freedom of information coupled with guarded openness in the American case.
- The status of infrastructures pertaining to stocks and flows of information, including the ways access is distributed or concentrated, management is centralised or decentralised, ownership and intellectual property are

proprietary or shareable, and whether the designs are suited to meeting national needs in case of emergency.
- The information-monitoring and -sharing networks that exist for coordination and cooperation across all levels of government – domestic and foreign – as well as with IGOs (inter-governmental organisations) and NGOs (non-governmental organisations) around the world on all manner of issues, and with business and civil-society actors at home.
- The range of media that are used for information gathering and broadcasting, as well as for uses that may range from message projection to early warning.

Such an assessment should identify strengths and weaknesses in a nation's information posture, its points of resilience, and vulnerability in case of an attack or other disaster. It should consider how well the posture serves to attract and work with friends and allies, as well as to deter or dissuade adversaries. It should set priorities and specify options for future improvements.

Today, the idea of formally assessing and improving a nation's information posture is so new and so lacking in background materials, that it would be difficult to specify, much less design educational courses and curricula. Yet, it is too significant a topic to set aside. So, for now, it may be best to approach the topic via exploratory workshops, rather than instructional classes. It may also be advisable for such workshops to try and design ways for all governments to eventually produce information-posture assessments, not just one's own government (or other entity).

Additional Topics for Education in Noopolitik

The preceding three topics are easy to suggest, for they derive from our recent work. Yet, they are just a beginning. Other topics could easily be added to this list. For instance, the significance of strategic narratives – in light of the centrality of 'whose story wins' to noopolitik, future strategists should receive training in the construction and application of forward-looking strategic narratives. Another topic might be the growing significance of having (and building far more) networks of sensory technologies and sensory organisations around the world to monitor, share, and act on information about global health, education, environmental, and other critical matters that cross jurisdictional boundaries (imagine the benefits, had such a network been in place as Covid was emerging). At first, this may sound like a mostly technical matter, but no, for this topic will prove to be mostly about designing and building vast organisational and informational networks that involve all sorts of state and nonstate actors, large and small, near and far. Thus, as the noosphere and noopolitik grow in tandem, organisational races to build networks may well prove more important than the technological races to

build ever newer products and weapons, catalysed by the digital information revolution and the 4IR in which it is embedded.

Coda

New courses and curricula for such matters would make for a very different, far more future-oriented approach to educating students about statecraft and grand strategy in the age of the 4IR. To our knowledge, such matters are not being addressed much, either singularly or collectively, in today's institutions of higher learning. However, in other areas of inquiry, from the scientific to the economic and beyond, innovative curricular design initiatives have begun, many focusing on the importance of 'university-industry collaboration' (for a good overview, cf. Perkmann & Walsh 2007; Salleh & Omar 2013, for an excellent overview of the impact of this approach in a developing country like Malaysia). The particular value of university-industry collaboration is that there is a cross-fertilisation of insights into the implications of the 4IR between the academy and industry that quickens the development process. Such a collaboration, attuned to university-industry-government collaboration and focused on grand strategy, might well have profoundly beneficial effects.

It is also interesting to note that the aforementioned literature on these collaborations keys on the importance of employing inquiry-based, problem-solving 'design approaches' to curricular development as having more impact than the traditional frameworks, based on either formal analytic or socio-historical paradigms. Given that the 4IR is still in its early stages, particularly in areas like AI (artificial intelligence), additive manufacturing, and gene editing, etc., there is probably good reason to focus more on design approaches than more traditional quantitative, algorithm-driven, or historical/sociological methods when building new curricula. Design, as noted above, seems to be working quite well across a range of fields. It may be ideally suited to improve the theory and practice of grand strategy too.

Admittedly, the ideas and observations we have offered here are preliminary – for example, further discussion would surely lead to more refined ways to conduct a national information posture assessment. There is also much more to investigate about curricular design. Yet, if our forecasts about the rise of the noosphere and noopolitik are correct, then it is already well past time we all begin exploring and adapting to these new frontiers. Time grows short, as the effects of climate change worsen for all, and even so-called 'limited conflicts' wreak horrible human havoc *in situ* and inflict profound, globe-spanning economic disruptions. *Realpolitik* is proving ever less relevant as a guide to effective grand strategy in the age of the 4IR. *Noopolitik* is ready to step in.

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