Universities and Networks: Scientific Engagement with North Korea

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Following the end of World War II, the United States demonstrated its belief in the important and ultimately beneficial effect of open discussion of competing ideas with support of such programs as the United Nations, the Marshall Plan, and the Fulbright Program. In different ways, these initiatives served to expose citizens of many countries, some of whom had just been at war with one another, to the openness on which the United States prides itself. It is important to remember that the war had been fought, in part, about competing ideas and that the world would soon find itself in a cold war in which ideas of democracy and communism were pitted against one other. A core assumption of all these programs is that while armies and machines may be required to win wars, it is ideas that might prevent them. This notion was expressed eloquently in George Kennan’s conclusion to his “Long Telegram” of 1946:

We must formulate and put forward for other nations a much more positive and constructive picture of [the] sort of world we would like to see than we have put forward in past. It is not enough to urge people to develop political processes similar to our own. … After all, the greatest danger that can befall us in coping with this problem of

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Soviet Communism, is that we shall allow ourselves to become like those with whom we are coping.¹

That ideas matter is also central to the practice of science. Ideas—in the form of theories, conjectures, and experiments—are at its very foundation. The specifics of these ideas are open for discussion in such venues as classrooms, peer-reviewed publications, and scientific meetings and conferences. Science is also about openly confronting ideas with empirical evidence.²

Modern academic science is particularly well suited for the United States to engage countries with which there has been a history of mistrust. Perhaps there is no better current example of this than the United States’ relationship with North Korea, officially the Democratic People’s Republic of Korea (DPRK). First, U.S. science is generally admired by citizens of other countries including those countries with which the United States has considerable political differences.³ Second, science is empirical rather than ideological in the political sense. That is, there are generally accepted standards for assessing truth claims within the scientific community. Third, science has become increasingly global with respect to areas of inquiry (e.g., climate change), data, and participating scientists.⁴ Fourth, scientific collaborations are increasingly virtual (e.g., high-energy physicists from Syracuse University (SU) have greatly reduced travel to Geneva as they share data with the European Organization for Nuclear Research (CERN) via high-speed digital networks). And underlying all of these factors is that science is normally quite standards based. These standards include everything from communication protocols, such as Transmission Control Protocol/Internet Protocol, to merit-based and peer review.

These latter factors are areas where the DPRK’s isolation has led to its lagging behind in many areas of science. The point here is not that DPRK scientists are not good (all evidence I have seen suggests that their best scientists are quite strong) but that their isolation from the global community of scientists is costly to them and, ultimately, to the world of science (assuming that the more good people there are working on problems, the better, over time, the results will be). For these reasons, working with U.S. scientists has appeal to DPRK scientists. And if we believe, ceteris paribus, in the positive power of open discussion of ideas, it should have appeal to the United States as well. Moreover, if we wish to encourage the DPRK to more fully accept world standards, we also must help demonstrate the mutual benefits of such acceptance.

It is worthwhile to distinguish among several somewhat distinct objectives, listed below, that might lead scientists from different countries to become involved with one another.

• *Science Cooperation:* The emphasis here is on the development of science for the sake of science.
• **Science Engagement**: The emphases are on both building and maintaining relationships and the development of science.

• **Science Diplomacy**: The emphases are on relationships, science, and policy.

Given these distinctions, the work being reported on in this paper falls almost entirely within the science engagement category. We are attempting to build trusted relationships among scientists even as we endeavor to further science through collaborative research.

There is considerable anecdotal evidence suggesting that science engagement has played a significant role in trust building. Examples here include Cold War science exchanges between the United States and the Soviet Union, European cooperation in the creation and ongoing administration of CERN, cooperation in the Middle East around the region’s only synchrotron (Synchrotron-light for Experimental Science and Applications in the Middle East, or SESAME), and our own experience working with North Korea on its first digital library. Personal conversations with top scientists including Kip Thorne (about the Cold War), Herman Winnick (about SESAME), and Peter Agre (about North Korean engagement) as well as published accounts of the early days of CERN all suggest that the attractiveness of science plays an important role in overcoming political barriers to cooperation. And at least in the cases of CERN and the Cold War, there is fairly clear evidence of spillover from science engagement to high politics.

**Engaging North Korea through Science**

*The Syracuse University Experience*

SU has had a long-standing relationship with Kim Chaek University of Technology (KCUT) for more than a decade. In the late spring of 2001, representatives of SU met in New York with Donald Gregg (then president of the Korea Society, or TKS) and Frederick Carriere (then TKS executive director and vice president) to discuss the possibility of research collaboration in information technology between SU and a North Korean counterpart. Gregg facilitated, convening a discussion at the DPRK UN Mission in New York that was followed by a visit to SU by a delegation from the Mission led by DPRK’s permanent representative to the United Nations. At the closing dinner, SU’s then chancellor Kenneth Shaw and members of the SU Board of Trustees emphasized SU’s strong desire to extend its involvement on the Korean Peninsula to include the DPRK. I later learned this university-level commitment was important to the DPRK’s willingness to work with SU.

Pyongyang suggested KCUT as the appropriate partner for SU. Once KCUT was identified, each of the universities agreed to provide a team of researchers. The SU team was composed of faculty members and researchers from the Maxwell School, the L. C. Smith College of Engineering and Computer Science, and the School of Information Studies as well as the English Language Institute and the
University Library. KCUT’s Information (Computer) Center director headed the DPRK team. It was further agreed that despite technical and political difficulties in communications between the United States and DPRK, we, at SU, would do our best to share relevant information between delegation visits. The facilitation of communication by the Mission has continued to be a vital component of the engagement work with the DPRK.6

It is important to note, it was mutually agreed from the beginning that the joint work should provide substantive benefit for both KCUT and SU scientists. This was not intended as a humanitarian aid effort, nor would SU in any way engage in a pay-for-play exercise with the DPRK. In this latter regard each side has contributed the time of its scientists and administrators. SU has used external grant money to cover the direct costs of KCUT scientists’ travel to SU as well as their lodging and meals while participating in joint meetings away from Pyongyang. KCUT has shared in hosting costs while SU delegations were in Pyongyang. This agreement on mutual benefit has been important in keeping both parties focused on things that matter. That said, it also must be acknowledged that the understanding of benefit has cultural and political components, and discussions of what constitutes benefit in particular cases have, while productive, not been easy.

The activities of the joint work have focused on the areas of digital library development, English-language training for scientists, and helping to prepare DPRK undergraduate teams for participation in the Association for Computing Machinery annual International Collegiate Programming Contest.7 It is worth summarizing several key points about the SU-KCUT collaboration and activities. First, this has been, at least until recently, an ongoing relationship with a total of fifteen exchanges of personnel between SU and KCUT. These exchanges have taken place in Syracuse, Pyongyang, and China. It is important to note, there has been, by mutual agreement, considerable consistency among the participants. Each team has members who have participated in all or all but one of the exchanges. This continuity of participants has played a central role in any successes the collaborators have enjoyed.

Second, the relationship has benefited from—indeed has been made possible by—high-level support at KCUT, SU, and initially TKS. The KCUT chancellor has visited Syracuse twice. SU has supported the relationship through two chancellors and three Maxwell School deans. In addition, members of the SU Board of Trustees have been actively involved in key aspects of the relationship throughout its development. Given the difficult and often fragile state of U.S.-DPRK political relationships, keeping senior administrators informed and actively involved has been extremely important. As evidence of this, during KCUT chancellor Hong So Hon’s 2010 visit, SU chancellor Nancy Cantor reiterated SU’s long-term commitment to its relationship with higher education in the DPRK generally and to KCUT in particular. Chancellor Hong responded by inviting Chancellor Cantor to visit KCUT. To date political relations between the two countries have precluded a visit
to the DPRK by Chancellor Cantor. This has been viewed quite negatively by KCUT as its chancellor has visited Syracuse twice. This illustrates one of the difficulties of harmonizing efforts between two very distinct political systems. Each has things it can do but the other cannot, and it is often difficult to interpret the other’s actions empathetically. Thus, failures of symmetric action become understandably, but incorrectly, viewed as evidence of bad faith or insincerity.

Third, there is a complex legal environment within which U.S.-DPRK relations must, at present, take place. All aspects of the work, of course, must be done in strict compliance with the laws of each of the countries. On the U.S. side this has, in particular, meant working closely with legal counsel to be certain that all activities fit within export control and Office of Foreign Assets Control (OFAC) regulations. U.S. participants have kept relevant stakeholders aware of their activities and we are aware that our DPRK counterparts have done the same. This is quite important given the many nuances of the U.S.-DPRK relationship. To visit the United States, DPRK scientists require exit visas from their government as well as entrance visas from the U.S. government. While U.S. citizens do not require U.S. government permission to travel to North Korea, it is prudent to keep the Department of State aware of their travel. The lack of formal diplomatic relations between the two countries affects the visa process. U.S. participants must travel to Beijing to formally apply for and receive their visas at the DPRK embassy there. DPRK participants similarly must apply and obtain visas at the U.S. embassy in Beijing. While the participants have always had excellent cooperation from the U.S. Department of State, the process is necessarily a slow one with a lot of uncertainty. This has budget implications since the least expensive airfares generally are nonrefundable and require tickets be purchased well in advance. Finally, SU has many students and alumni from South Korea, and it is important to SU that the South Korean government hears firsthand from SU about its activities. SU has not asked any of these governments to endorse its initiatives; it is simply sharing information. SU has found the relevant governments to be exceedingly helpful in all areas including issuance of visas and informal advice.

Fourth, there are important differences in the way in which science priorities are set and funded between the United States and DPRK. Under the U.S. model, academic science is largely driven by investigator-initiated proposals. Americans are quite used to the notion that support for research follows only after a carefully developed, generally peer-reviewed, proposal is selected for funding. The DPRK model is much more top down. Priorities are established centrally, and funding follows. Thus, the SU team has emphasized developing clear proposals and establishing an ongoing project, while the DPRK side has expected that research equipment would be a necessary precondition for establishing a research relationship. This, together with export control and OFAC regulations, which pretty much require ongoing monitoring as a necessary, though not sufficient, condition for export license approval, has greatly complicated joint research.
The U.S.-DPRK Scientific Engagement Consortium

A goal had always been to extend U.S.-North Korean science engagement beyond KCUT and SU. First, the transaction costs for a U.S. university to work with counterparts in North Korea, or those in any other country where political relations have been difficult, are high. These costs include legal compliance issues as well as logistical ones. Developing best practices and sharing some of these costs among more institutions should decrease the marginal cost of each institution’s participation. Second, given the programmatic goal of building trust with the DPRK and not simply a single institution within the country, it made sense to involve a wider range of U.S. institutions. In addition, an important aspect of U.S. higher education is the wide range of institutional forms that it takes. These range from private research institutions, such as Syracuse, to large land-grant universities and private liberal arts colleges. As the DPRK develops its higher education system, it seemed desirable to enable its academics to experience the variety of forms higher education has taken in the United States. The importance of this latter point was made very clear as a consequence of SU’s hosting young Russian academics as a part of the U.S. Department of State’s Junior Faculty Development Program. Finally, no single U.S. university is likely to have the necessary range of scientific expertise and motivated scientists to match up with the potential range of interests of North Korean academic scientists.

Several factors initially argued against involving additional universities. Perhaps most significant was the climate of distrust and even demonization that has permeated U.S.-DPRK relations. Overcoming the distrust at the outset required working very carefully and at a personal level to build relationships of trust between key players at SU and in the DPRK. This was a very time-intensive process, and given the circumstances, it needed to be done away from the glare of publicity. Institutions are critical to maintaining trust, but in the initial stages it is individuals who must build the personal relations that can then be used to catalyze larger institutional ones. Premature publicity can poison the development of these relations. In a similar vein, the establishment of interpersonal trust depends on making certain that commitments are clearly communicated and then honored. Here, again, fewer players make this easier to accomplish. The objective, though, was always to move from interpersonal trust to trusted institutional arrangements. This meant enlarging the scope beyond SU and KCUT.

The existence of a consortium offers the promise of several benefits. Most important, it greatly enlarges the number of scientists and universities who might work with counterparts in North Korea. Second, a consortium, if successful, could leverage economies of scale by developing best practices and shared standards for working with North Korea. Areas where this could be helpful range from keeping U.S. stakeholders informed about U.S.-DPRK science engagement to working with appropriate DPRK UN Mission diplomats to develop protocols for handling communications and exchanges of science delegations. This latter point
is important because the Mission has a quite limited bandwidth for dealing with requests from U.S. universities. Moreover, a lack of agreed-on standards for such things as travel and communications has, on occasion, led to higher than necessary transaction costs. Finally, given the currently difficult state of political relations between the United States and DPRK, a consortium can serve as a focal point for sharing information about the current situation and issues of which academics wishing to work with the DPRK should be aware.

After a series of workshops and consultations with representatives from universities as well as the policy and donor communities, the U.S.-DPRK Scientific Engagement Consortium was established, with the American Association for the Advancement of Science (publisher of Science & Diplomacy), CRDF Global, SU, and TKS (later replaced by the Pacific Century Institute) as founding members. Each organization made initial contributions to defray the cost of running the consortium. Foundations provided additional seed funding for specific activities. Such support has been critical to any success given that funding of activities with such inherent uncertainties is difficult and U.S. government financial support is not possible at this time.

SU’s relationship with KCUT was helpful in establishing the consortium as SU had a successful record of working with a North Korean university as well as considerable logistical and legal experience and, important to note, a trusted relationship with diplomats at the DPRK UN Mission in New York. Numerous meetings with the DPRK UN Mission helped explain how and why a science engagement consortium might make sense. First, there were beginning to be many initial requests coming to the Mission from universities. A consortium could help the Mission in vetting these requests when they dealt with possible science issues. At the same time it became clear that the Mission strongly preferred that the consortium be bilateral—that is, involve only the United States and DPRK. The reason for this was that the channels for the DPRK dealing with the United States were very specific and for most purposes distinct from those dealing with other countries. In addition, the DPRK had had some negative experiences working with some U.S. scientific organizations, feeling that initial promising relationships had turned into dead ends. So one task for the consortium was ensuring that agreements entered into were clear, in writing, and fulfilled to the extent possible.

The lessons learned in the SU-KCUT collaboration were very important. In particular, the consortium focused on negotiating written agreements with DPRK counterparts and working hard to be certain that potential points of failure, such as export control or issuance of visas, were discussed and written into the agreements. This latter point is especially important as it illustrates a spillover into higher politics. U.S. export control regulations (i.e., sanctions) have long been a sore point with the DPRK, and their diplomats, especially those from the Korea America Private Exchange Society, often push against these regulations during negotiations such as those between SU and KCUT. Thus, it is important to make
certain that scientists on both sides are aware of the implications of the export control regime and the need to obtain export licenses for most equipment so that there are not needless misunderstandings regarding timing or even what is possible.

The consortium has initiated a variety of activities that seek to develop a broader relationship beyond the group’s individual members, especially SU, with the DPRK. This initially included, critically, the conclusion of a memorandum of understanding between the consortium and the DPRK State Academy of Science that served as an important vehicle for codifying concrete projects in areas that SU had identified as priorities in interactions nearly a decade earlier. Activities now include English-language training for DPRK scientists and virtual science libraries.

A Path Forward

There is a set of issues that arises in conducting science engagement between countries when there is considerable political distrust such as is the case at present between the United States and the DPRK. First, as discussed above, is the complex legal climate. University activities require close consultation with internal compliance officers and often with external counsel to be certain that activities remain in conformance with regulations. At minimum this adds overhead to engagement and may discourage some scientists from participating. These regulations are quite technical, and it is not surprising that DPRK counterparts find them difficult to understand. Moreover, at least in the case of the DPRK, export licenses have been granted for computing-related equipment in areas of humanitarian (including some medical) assistance. This leads Korea America Private Exchange Society representatives (who manage most of these U.S.-based programs) to question why we have thus far not obtained export licenses for our initiatives.

Second, science engagements sometimes get tightly linked to high politics. This potentially can have unanticipated consequences for everything from issuance of invitations and visas to willingness of scientists to participate. Even the term science diplomacy should be carefully used. The concept of diplomacy has been undergoing shape shifting in the West from its traditional sense involving official actions of states with other states to the inclusion of activities undertaken by governments but directed at the citizens of other countries, by citizens directed toward citizens of another country, or by citizens directed toward governments of another country (or countries). However, within North Korea the responsibility for diplomacy remains with formal government officials explicitly tasked with traditional diplomatic responsibilities. Many observers of North Korea have commented on the strict stovepiping of DPRK bureaucracies. Indeed, referring to science collaborations as science diplomacy risks making it impossible for North Korean scientists who, like their U.S. counterparts, are not formal policy representatives of their government.
Areas that have presented challenges range from issues of human rights to identifying funders able to provide financial support. Sometimes the political linkage becomes a positive factor. SU recently was one of the hosts of a Track II meeting. A senior DPRK participant (not a scientist) commented to me that he was reassured by the fact that SU was one of the organizers. Similarly, I believe both SU and the consortium have earned considerable trust with the U.S. government that we will conduct their science engagements in a responsible manner. On the DPRK side, Ministry of Foreign Affairs diplomats who have been involved in the initiatives have generally been promoted. Several have since become ambassadors or been promoted within their departments.

In addition to the political relations between the United States and DPRK, there is, of course, the issue of the political leadership of each country. North Koreans have long commented on the impact of U.S. leadership changes on their relations with the United States. Democracies can be messy when policy directions shift as a consequence of electoral outcomes. Most recently there was a leadership change in the DPRK. While it is far too early to have any confidence regarding the implications of Kim Jong Un’s leadership on consortium activities, the consortium was able to have a visit to Pyongyang this past March, and North Koreans traveled to Bellagio, Italy, to participate in the consortium conference there this past April.

A fourth issue is communications. Modern science works at high speed. Easy email communications and data sharing are standard practice. Still, though, no such communications are yet available between DPRK and U.S. scientists due to political constraints on the DPRK side. This greatly slows down collaboration and also, on occasion, leads to misunderstandings that could have been avoided had communications been more immediate.

Finally, there is the challenge of funding. In the present legislative environment most sources of U.S. government funding are not available to support work with North Korea. U.S. corporations generally do not see the DPRK as a viable market in the near term and are understandably cautious about supporting work there. We have been fortunate that several foundations have been willing to support aspects of engagement work. Moreover, SU has been generous in providing both support and access to legal counsel. Private individuals have also been helpful in selected instances.

A theme throughout this article has been the interplay between the geopolitical environment and academic science engagement. Science engagement efforts must work within that larger environment. While in the near term high politics is mostly exogenous to science collaborations, examples such as those provided by U.S.-USSR science exchanges demonstrate that, over the longer run, such exchanges and collaborations can build trust and provide basic scientific knowledge that can help to inform significant policy questions.

DPRK scientists give every indication of wanting to collaborate with their U.S. counterparts. Similarly, there are senior U.S. scientists eager to work with DPRK
scientists. Science is global, and there are opportunities to share both data and approaches. The United States prides itself on having no permanent enemies, and the time will come when it will be able to fully engage the entire Korean Peninsula. It is important that U.S. civilians interact with North Koreans, in activities ranging from humanitarian assistance to science engagement, to build the reservoir of trust and experience necessary for a harmonious normalization of ties when the time comes.

Endnotes

6. Of great help has been the relationship developed between Frederick Carriere, then of The Korea Society and now a Pacific Century Institute senior fellow and research professor at Syracuse University, and diplomats at the Democratic People’s Republic of Korea (DPRK) Mission.
8. Initially U.S.-DPRK humanitarian assistance was, on the DPRK side, handled by the Flood Damage Rehabilitation Committee (FDRC). FDRC was a standing committee of the DPRK Ministry of Foreign Affairs. FDRC later morphed into the Korea America Private Exchange Society, also affiliated with the Ministry of Foreign Affairs. The Korea America Private Exchange Society describes itself as an NGO and is responsible for much of the nongovernmental activity occurring between the United States and North Korea.

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