



Building on Early Success: Next Steps in U.S.-Mexico Educational Cooperation

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In May 2013, the Wilson Center's Mexico Institute published a [short paper](#) calling on the governments of Mexico and the United States to form a high-level bilateral working group on educational exchange with government, private sector, and academic representation. Based on a recognition of the economic, public diplomacy, and business benefits of deepening educational cooperation, the paper argued for a focus on STEM subjects and emphasized the importance of language training, public-private funding partnerships, and the creation of binational joint-degree programs.

Later that year, the U.S.-Mexico Bilateral Forum on Higher Education, Innovation, and Research (known by its Spanish acronym FOBESII) was created by Presidents Obama and Peña Nieto as part of the U.S.-Mexico High-Level Economic Dialogue. Launched in 2014, FOBESII seeks to “expand opportunities for educational exchanges, scientific research partnerships, and cross-border innovation to help both countries develop a 21st century workforce for both our mutual economic prosperity and sustainable social development.”¹ It aims to promote binational cooperation in higher education and research, especially regarding important areas for innovation in the United States and Mexico, by promoting programs for student mobility, academic exchange, research, and innovation in areas of common interest to contribute to the competitiveness of the region.

Of course, experts and government officials have long recognized the importance of educational cooperation in the U.S.-Mexico bilateral relationship. Cultural and educational exchanges help to create connections between the people and institutions of the United States and Mexico via exchange programs, scholarships, grants, and joint research.

FOBESII has attempted to achieve this since 2014 by strengthening ties and cooperation between the U.S. and Mexican governments, higher education institutions, the private sector, and civil society to “promote educational and research cooperation and encourage broader access to quality post-secondary education especially for traditionally underserved demographic groups, and in the science, technology, engineering, and mathematics (STEM) fields.”² Central to this effort is the belief that STEM fields, paired with entrepreneurship, innovation, and language acquisition, are key to improving regional competitiveness.

This short paper argues that, while FOBESII has done much to expand educational exchanges, increase joint research, and promote innovation, it has yet to achieve its stated goals and continues to face serious challenges. We argue that to overcome these challenges, future initiatives must focus on advancing private sector engagement,

¹ U.S. Embassy in Mexico website, 2017, <https://mx.usembassy.gov/education-culture/education/the-u-s-mexico-bilateral-forum-on-higher-education-innovation-and-research/>.

² *Ibid.*

workforce development, and improving public communication and outreach. FOBESII continues to be a relevant and important initiative, but it is in urgent need of restructuring and redirection if it is to make a significant contribution to bilateral affairs and regional competitiveness.

FOBESII's Achievements

The 2013 Wilson study noted that “Mexico ranks ninth (9th) among countries that send students to the United States for undergraduate education and tenth (10th) for graduate education, far below Turkey, Iran, and other smaller and more distant countries. The number of Mexicans studying in the United States today is surpassed by students from China, India, South Korea, Saudi Arabia, Canada, Taiwan, Japan and Vietnam.” Since that date, in the framework of FOBESII, U.S. and Mexican universities have signed more than 115 new cooperative agreements.³ Equally important has been the mapping of existing agreements that were either unknown to outside partners, underutilized, or dormant. The new map of bilateral educational exchange possibilities is dramatically different from a few years ago.

Increasing Student Mobility

Since 2014, at least in part thanks to FOBESII, educational exchanges between the United States and Mexico have increased. Today, Mexican students in the United States make up the largest segment of U.S.-Mexico mobility. In fact, the

United States ranks second as a country-destination for Mexican students abroad. According to the annual *Open Doors* report, the number of Mexican students studying in the United States has increased by 18 percent since 2014 with 16,733 Mexican students studying in the United States in 2015-2016, up from 14,199 in 2012-2013.

The University of Texas at El Paso (UTEP) is a successful example of increased educational cooperation and exchanges between the United States and Mexico. UTEP has the highest enrollment of Mexican students in the United States, and since the creation of FOBESII, UTEP students' travel mobility has increased 158 percent, from 43 students in 2014 to 111 in 2016. This travel mobility includes individual travel for research, conference participation, or academic experience specific to a student's major, faculty-led programs, and study abroad programs. In February of 2015, UTEP, in partnership with the U.S. Consulate in Ciudad Juárez and the Mexican Consulate in El Paso, hosted “Sí Mexico,” a U.S.-Mexico recruitment event where more than 20 Mexican universities promoted their programs for U.S. students. UTEP representatives have also participated in more than 25 recruitment events and visits to Mexico since the fall of 2015. These expanded recruitment efforts have led to an increase in Mexican students in the United States, educational exchanges, and joint research.

³ See the list of U.S.-Mexico collaboration agreements signed in the framework of FOBESII, <https://mex-eua.sre.gob.mx/images/stories/PDF/AcuerdosMEX-EUA2.pdf>.

Figure 1: International students enrolled in U.S. universities

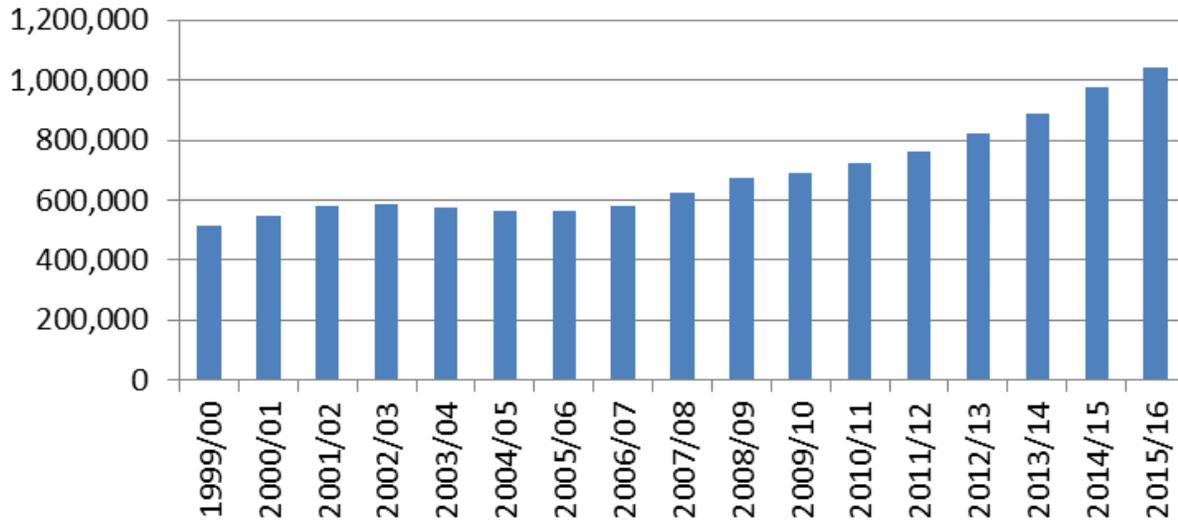
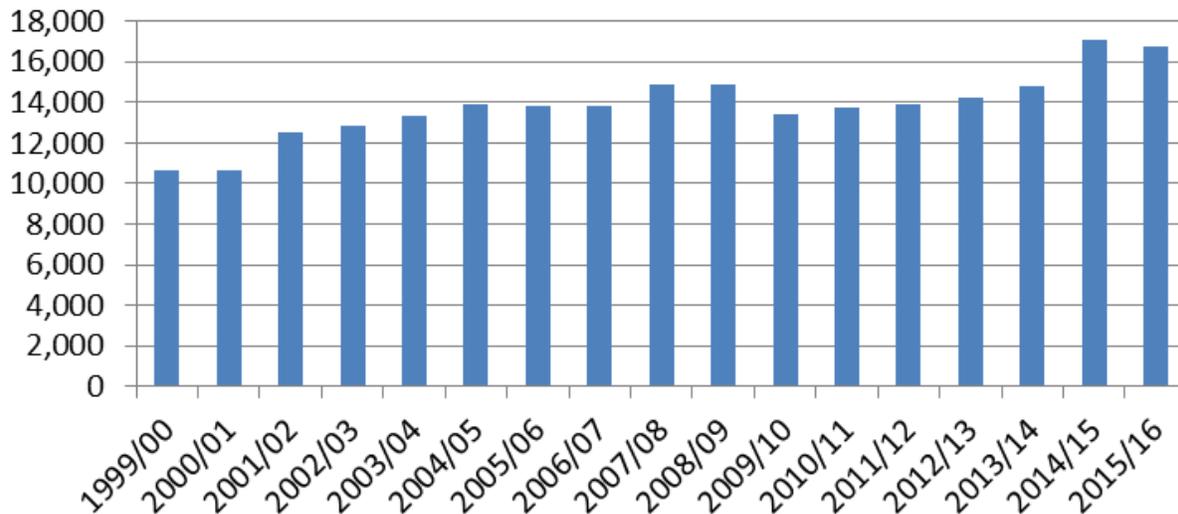


Figure 2: Mexican students enrolled in U.S. universities



Sources: *Open Doors*, Institute for International Education, 2017, <https://www.iie.org/Research-and-Insights/Open-Doors/Data/International-Students/Enrollment-Trends>; <https://www.iie.org/Research-and-Insights/Open-Doors/Data/International-Students/Academic-Level-and-Place-of-Origin/2015-16>

Figure 3: International undergraduate students in the U.S. by place of origin, 2015/16

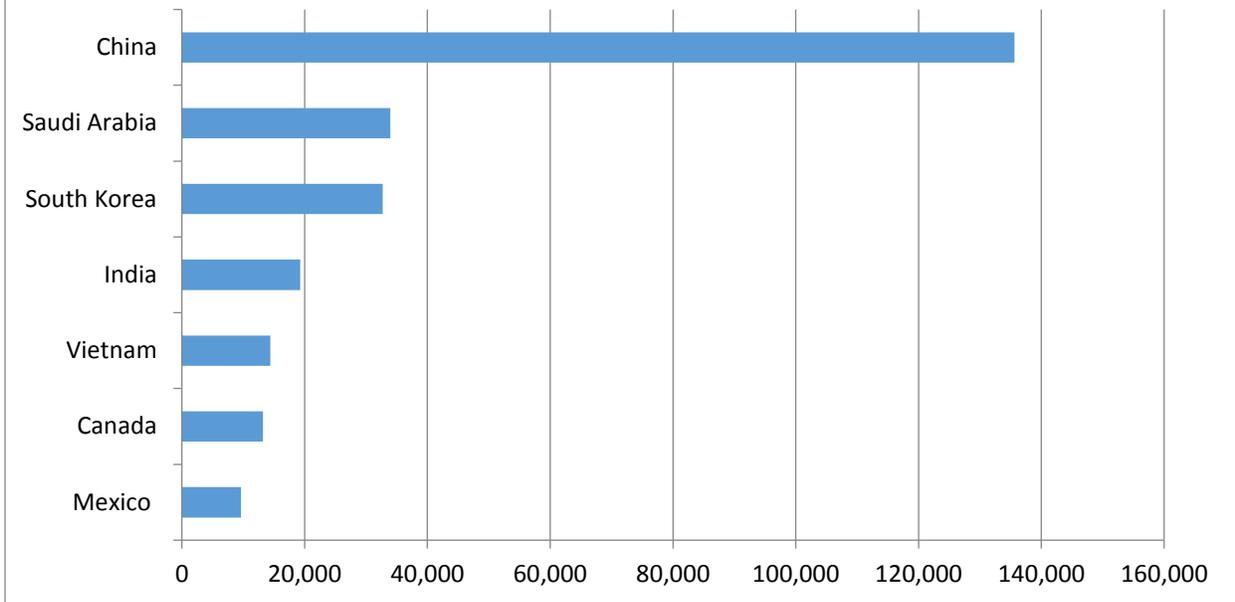
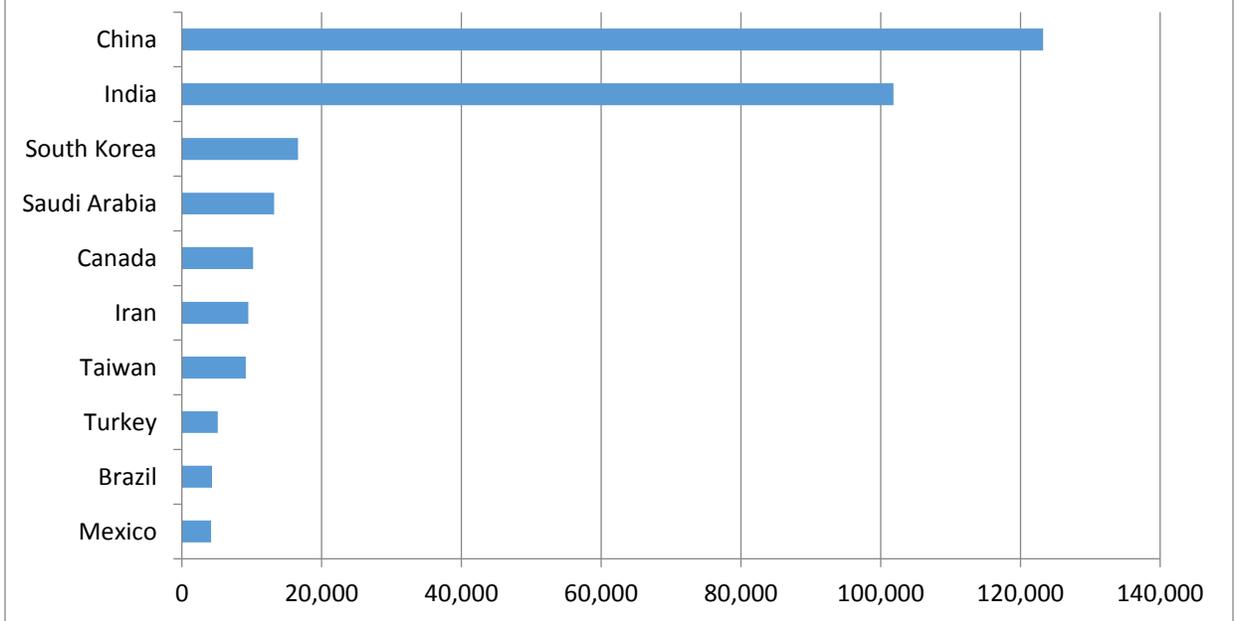


Figure 4: International graduate students in U.S. by place of origin, 2015/16



Source: *Open Doors*, Institute for International Education, 2017, <https://www.iie.org/Research-and-Insights/Open-Doors/Data/International-Students/Academic-Level-and-Place-of-Origin/2015-16>

However, despite these achievements, Mexico is now the 10th country of origin of international students in the United States, making up 1.7 percent of the United States' total international student population. This is disappointing when compared with Mexico's ranking of 9th in 2012 and 2014. When one examines the rapid rise in the overall number of international students in U.S. universities (see Figure 1), Mexico's performance is even more disappointing. In 2012, Mexico was surpassed by China, India, South Korea, Saudi Arabia, Canada, Taiwan, Japan, and Vietnam; today Mexico has moved above Japan but still lags far behind the Asian leaders and Saudi Arabia. The picture for graduate study has been similarly disappointing: Mexico lags behind in 10th place, and the number of graduate students is actually lower than it was in 2012-13 (4,169 today compared to 4,237 in 2012-13).

However, there has been greater success in encouraging U.S. students to travel to Mexico for study. In fact, the number of U.S. students in Mexico has increased by 26 percent, rising from 3,730 U.S. students studying in Mexico in 2012-2013 to 4,712 in 2014-2015.⁴ The United States is the leading country of origin of international students in Mexico, making up 22.4 percent of the total international student population.⁵ Nonetheless, Mexico is still only the 12th most important destination country for U.S. students studying abroad.⁶

Part of the story here is the overall rise in U.S. study abroad, but the total number of U.S. students studying abroad has only risen by 8.3 percent in the same time frame, suggesting that other factors are at play. At the University of California alone, there has been a 37 percent increase in undergraduate exchanges between the United States and Mexico. The example of the UC system and others, such as the University of Texas, highlight the very real potential of FOBESII, but their successes have yet to be generalized.

FOBESII has also led to expanded student recruitment in the United States and Mexico. In 2015-2016, EducationUSA and the U.S.-Mexico Commission for Educational and Cultural Exchange (COMEXUS) organized four multi-city tours with representatives from more than 70 U.S. higher education institutions to reach over 15,000 potential Mexican applicants. In addition, with help from Mexican consulates in the United States, Mexican university student fairs were held in various cities across the United States, including El Paso, Austin, Minneapolis, and Northern California.

⁴ "Open Doors Fact Sheet: Mexico." Open Doors. Accessed April 6, 2017. <https://www.iie.org/Research-and-Insights/Open-Doors/Fact-Sheets-and-Infographics/Leading-Places-of-Origin-Fact-Sheets/2016>.

⁵ Farrugia, Christina, and Ola Mahmoud. Beyond Borders: Measuring Academic Mobility between the United States and Mexico. November 2016. Accessed April 6, 2017. <https://www.iie.org/en/Research-and-Insights/Publications/Beyond-Borders-Measuring-Academic-Mobility-US-Mexico>.

⁶ Farrugia, Christina, and Ola Mahmoud. Beyond Borders: Measuring Academic Mobility between the United States and Mexico. November 2016. Accessed April 6, 2017. <https://www.iie.org/en/Research-and-Insights/Publications/Beyond-Borders-Measuring-Academic-Mobility-US-Mexico>.

FOBESII has also worked with a number of complementary programs to increase academic exchanges and strengthen bilateral educational cooperation and workforce development.

- *100,000 Strong in the Americas Initiative and Innovation Fund*

FOBESII complements the U.S. Department of State's *100,000 Strong in the Americas* program, and the two have contributed greatly to increased academic exchanges. The goal of *100,000 Strong in the Americas* is to increase the annual number of U.S. students studying in Latin America and the Caribbean to 100,000 and bring 100,000 students to the United States by 2020.⁷ The initiative aims to enhance competitiveness in the Western Hemisphere, increase economic prosperity, and to strengthen the workforce by providing study abroad opportunities to raise students' global awareness.

In 2016, University of Texas- El Paso (UTEP) received a grant from *100,000 Strong in the Americas* to develop a study abroad program on Smart Cities, organized with the University of Guadalajara. The participating students have since expressed interest in graduate studies, learned new tools and concepts in a short period of time, and had a positive experience working in multidisciplinary teams. The participants also expressed their new appreciation of the diverse culture they experienced while studying abroad, making them more culturally aware.⁸

The central mechanism to support this initiative is the Innovation Fund—the public-private sector collaboration between the U.S. Department of State, Partners of the Americas, NAFSA: Association of International Educators, corporations, foundations, and regional governments—working together to inspire U.S. universities and colleges to team up with universities and technical education institutions in the rest of the Western Hemisphere to create new student exchange and training program opportunities. Innovation Fund grants fuel partnerships between higher education institutions, build institutional capacity, increase student mobility, facilitate more student exchange opportunities, and strengthen regional education cooperation and competitiveness in the Americas.

Since its inception in January 2014, the Innovation Fund has awarded 118 grants to teams of 235 higher education institutions from 25 countries in the Western Hemisphere region. Grant-winning partnerships strengthen connectivity between higher education networks throughout the Americas and increase student mobility to/from the region. Mexican and U.S. universities represent account for 35 percent of total the Innovation Fund grants awarded to date. As of March 2017, a total of 32 Innovation Fund grant-winning partnerships between Mexican and U.S. higher education institutions have participated in participated in 12 sets of Innovation Fund grant competitions. These grants helped strengthen workforce development by providing students with opportunities to creating a workforce that is become more culturally competent, innovative, and globally aware.

⁷ 100,000 Strong in the Americas website, 2017, <https://www.100kstrongamericas.org/>.

⁸ "UTEP's Projects Related to U.S.-Mexico Education, Innovation, and Research." The University of Texas at El Paso. April 2017.

- *Proyecta 100,000*

Since 2014, more than 101,000 Mexicans have participated in undergraduate and graduate programs in the United States via the Mexican initiative *Proyecta 100,000*. Mexico's *Proyecta 100,000* initiative complements the United States' initiative *100,000 Strong in the Americas*, with the goal of sending 100,000 Mexican students to study in the United States and 50,000 U.S. students to study in Mexico by 2018. The initiative is funded by the Mexican government in collaboration with the private and academic sectors, and it also aims to increase the number of binational research and innovation centers, along with U.S.-Mexico educational exchanges. *Proyecta 100,000* has increased bilateral academic and student mobility through grants for students from indigenous groups and marginalized communities, English-language immersion courses, professional development courses for teachers, summer engineering programs, GRE preparation courses, semesters abroad for law students, and science clubs.⁹

- *Fulbright-García Robles Exchanges*

The binational Fulbright-García Robles Program, administered by the U.S.-Mexico Commission for Educational and Cultural Exchange (COMEXUS), is among the largest Fulbright programs in the world. The Fulbright-García Robles program and COMEXUS help develop mutual understanding among Mexico and the United States through academic exchanges and professional development courses, growing cross-cultural communication, binational education cooperation, and better understanding in the workforce. The program receives funding from the Mexican and U.S. governments, along with a small percentage of corporate resources and donations from private foundations. Through the Fulbright-García Robles fellowships, COMEXUS supports students, researchers, and teachers by giving opportunities to pursue postgraduate studies, research exchanges, and teaching and professional development programs in the United States and Mexico. Since COMEXUS was established, over 4,000 Mexican and American students, professors, and English-language teachers have benefited from Fulbright-García Robles grants.¹⁰ In the fall of 2016, 113 U.S. grantees and 75 Mexican grantees began their programs, experiencing an educational and cultural exchange between Mexico and the United States.¹¹ Sixty U.S.-grantee English Teaching Assistants are strengthening their teaching skills in Mexican classrooms, while also improving their intercultural competence and Spanish language abilities.

⁹ "Achievements: U.S.-Mexico Bilateral Forum on Higher Education, Innovation, and Research," U.S. Embassy in Mexico website, March 2017, <https://mx.usembassy.gov/wp-content/uploads/sites/25/2017/03/FOBESII-Achievements-March-2017.pdf>.

¹⁰ U.S.-Mexico Commission for Educational and Cultural Exchange website, 2017, <https://www.comexus.org.mx/index.php>.

¹¹ "Achievements: U.S.-Mexico Bilateral Forum on Higher Education, Innovation, and Research," U.S. Embassy in Mexico website, March 2017, <https://mx.usembassy.gov/wp-content/uploads/sites/25/2017/03/FOBESII-Achievements-March-2017.pdf>.

Workforce Development: Expanding Access to Internships

FOBESII has helped to expand access to binational internships for U.S. and Mexican citizens. Since FOBESII's launch, 57 U.S. undergraduate students, of limited financial means, have pursued academic studies or internships in Mexico through the Benjamin A. Gilman International Scholarship Program. Additionally, 780 Mexican students from bilingual, international, and sustainable technological universities (BIS) have studied at community colleges in the United States, many increasing their English-language and technical skills by means of internships.¹²

COMEXUS also administers the Fulbright-García Robles Binational Internship Program, created to promote mutual understanding between the business communities in Mexico and the United States. Fourteen U.S. grantees are participating in the program, which increases managerial skills, through which they are learning to work and do business in Mexico.

Each grantee interns for 10 months at a company or organization in Mexico, while taking graduate classes with a focus on international business at the Instituto Tecnológico Autónomo de México (ITAM).¹³ The combination of professional and academic opportunities provides insight into the bilateral relationship.

The Consortium for North American Higher Education Collaboration (CONAHEC) and its member institutions created a collaborative project-based practical professional experiences and internships for students at member institutions. The network leverages CONAHEC's networks in Mexico, the United States, and Canada, using their relationships with local industry to offer internship opportunities for students in many disciplines. The program allows students to complement their studies by applying their knowledge in a practical professional experience in the private sector, through a research apprenticeship at a university or research center, or through a service learning program at a non-profit or community abroad.¹⁴

Furthermore, in March 2015, Assistant Secretary for Educational and Cultural Affairs Evan Ryan and Under Secretary for North American Affairs for the Government of Mexico Sergio Alcocer signed a Memorandum of Understanding (MOU) to officially establish the J-1 U.S.-Mexico Internship Exchange Program. Through the program, Mexican students and recent graduates will work in U.S. companies and communities for up to one year, gaining valuable skills to help them in the workforce. The initiative seeks to expand two-way internships, in part by increasing the number of exchange-visitor "J" visas available to Mexican interns participating in programs internships managed by approved partner organizations. It thereby develops a strong regional workforce and furthering the bilateral economic partnership. According to the U.S. Department of State, 160 Mexicans have

¹² *Ibid.*

¹³ U.S.-Mexico Commission for Educational and Cultural Exchange website, 2017, https://www.comexus.org.mx/binational_internship_program.html.

¹⁴ Consortium for North American Higher Education website, 2017, <https://www.conahec.org>

participated in professional internship programs in 2016 under the FOBESII-inspired MOU.¹⁵

Although these achievements are important, it is fair to say that they are still a long way from reaching the goal of moving large numbers of students and interns between the two countries. What's more, although there are success stories, there is no clear strategy for internships that takes into consideration the needs of the private sector or those of the regional economy. This is a critical weakness in the FOBESII internship program that must be corrected if it is to be a success.

Accelerated Joint Research and Innovation

Over the past four years, the themes of innovation and competitiveness have become central to the bilateral relationship. The U.S.-Mexico High Level Economic Dialogue (HLED) and the Mexico-U.S. Entrepreneurship and Innovation Council (MUSEIC) have both focused on innovation, and FOBESII has worked with partners to create the conditions for accelerated joint research and innovation between the United States and Mexico.

A key example of FOBESII's potential for driving joint research and innovation is the collaboration between the National Science Foundation (NSF) and Mexico's National Science and Technology Council (CONACYT). The two organizations are fostering high-quality and industry-relevant collaboration among universities, research centers, and industry in both countries. One such joint research and innovation project, through NSF's Partnership for International Research and Education (PIRE), is the work being done by U.S. and Mexican researchers to develop a transparent cranial implant, known as "Window to the Brain," to replace portions of the skull. The implant

UTEP's Hunt Institute for Global Competitiveness is a multidisciplinary research platform that works to produce, curate, and disseminate high-quality research on cross-border economic and social development. Through partnerships with regional stakeholders, from academia and the public and private sectors in both countries, the Hunt Institute applies theoretical and practical mechanisms to strengthen the Paso del Norte region's global competitiveness.

The Hunt Institute has created several holistic GIS sector cluster maps that identify the industrial, research, and academic assets related to the aerospace, energy, and mining industries, allowing the public and private sectors to understand the type of facilities and capacities the Paso del Norte region possesses in order to foster investment and workforce development. The institute has also created a cross-border impact model to estimate the complementarities across economic sectors for border communities in the Paso del Norte region, as well as a series of legal and economic analyses of the energy, water, and banking industries in Chihuahua, Texas, and New Mexico. These research initiatives present data and comparative regulatory, infrastructure, and economic tools to help elucidate and further develop the U.S.-Mexico relationship. Recently, the Hunt Institute was named as the home for the MUSEIC for the next few years.

¹⁵ J-1 Visa Exchange Visitor Program website, 2017, <https://j1visa.state.gov/>.

would allow for non-invasive neuro procedures and improve the ability to diagnose and treat neurological disorders.¹⁶

“Window to the Brain”

“Window to the Brain” is a multi-institution and cross disciplinary project led by Guillermo Aguilar (University of California, Riverside) and Santiago Camacho-López (Centro de Investigación Científica y de Educación Superior de Ensenada CICESE in Mexico). This innovative idea of a transparent skull implant will allow doctors to deliver minimally invasive, laser-based treatments to patients with life-threatening neurological disorders, such as brain cancer, traumatic brain injuries, neurodegenerative diseases and stroke. The ultimate goal is that this technology becomes the standard of care for patients carrying these disorders.

The five-year project, known as Synthesis of Optical Materials for Bio applications: Research, Education, Recruitment and Outreach (SOMBRERO) program, aligns with current education policy initiatives in the U.S. and Mexico. The partnership seeks to advance cooperation and knowledge exchange between US and Mexican academic institutions, including universities UC Riverside and UC San Diego, as well as three Mexican universities (CICESE, UNAM and INAOE). Funding for the SOMBRERO program has come from the National Science Foundation’s Partnership in International Research and Education (PIRE) and the Consejo Nacional de Ciencia y Tecnología (CONACYT)—totaling almost \$5 million dollars.

Furthermore, Mexico is a partner in NSF’s Graduate Research Opportunities Worldwide (GROW) program, which allows U.S. students to work at host institutions in Mexico that develop scientific and technological research, including Mexican public and private institutions, research centers, higher education institutions, and companies. At these host institutions, U.S. students have the opportunity to engage in international research collaboration in Mexico and expand their professional development abroad.¹⁷

NSF and CONACYT also foster high-quality public-private partnerships between universities, research centers,

and industry via NSF’s Industry/University Cooperative Research Centers (I/UCRC) and CONACYT’s Consorcios Binacionales de Innovación (CoBI). This bilateral collaboration offers opportunities for U.S. and Mexican research centers to work together with counterpart centers in the other country, allowing for sustained industry and academic partnerships to perform cutting-edge research in science, engineering, and technology fields of industry. These partnerships have the ability to drive innovation and benefit both economies. CONACYT also provides entrepreneurial training to their research community similar to NSF’s Innovation Corps (I-Corps) training for U.S. researchers. In 2015 and 2016, CONACYT’s Nodos Binacionales de Innovación (NoBI) program and NSF’s Innovation Corps program collaborated with 60 Mexican scientists, PhD students,

¹⁶ “Achievements: U.S.-Mexico Bilateral Forum on Higher Education, Innovation, and Research,” U.S. Embassy in Mexico website, March 2017, <https://mx.usembassy.gov/wp-content/uploads/sites/25/2017/03/FOBESII-Achievements-March-2017.pdf>.

¹⁷ Graduate Research Opportunities Worldwide, National Science Foundation website, 2017, https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504876.

and engineers and encouraged them to apply their skills in entrepreneurial and business ventures to build a culture of innovation in the science communities.¹⁸

Supporting Binational Economic Competitiveness

FOBESII's efforts work to increase economic competitiveness in the region through closer U.S.-Mexico cooperation in education and research.

The new cooperative agreements signed between Mexican and U.S. universities matter because they enrich the participants' lives, strengthening their professional development and increasing understanding, and establish cross-border links and cooperation. Since 2014, UTEP alone has signed more than 15 collaboration agreements with Mexican institutions to promote educational and institutional partnerships.¹⁹ Additionally, there has been an increase in new U.S. university offices and campuses established in Mexico to attract Mexican students to the U.S. university market, encourage cross-border research, and increase U.S. students' knowledge of international business relations.

Increased educational exchanges have also brought economic benefits. Last year, Mexican students in U.S. colleges and universities contributed \$473 million to the U.S. economy.²⁰ Various exchange programs also strive to stimulate economic growth in the region. For example, through a grant received by *100,000 Strong in the Americas*, UTEP developed a study abroad program with CETYS University in Ensenada Baja California called the "Engineering Together

The CaliBaja Center for Resilient Materials and Systems is yet another example of how FOBESII has accelerated joint research and innovation between the United States and Mexico. The Center brings together multidisciplinary teams of researchers from the University of California in San Diego, the Baja California Center for Nanoscience and Nanotechnology of UNAM, and the Center for Scientific Research and Higher Education of Ensenada to design materials and systems for extreme environments to create innovations in technologies for aerospace, energy, nuclear, biomedical, and national security applications. One of the Center's major objectives is to build research and education collaborations with Mexican partners in the areas of extreme materials and devices, medical device manufacturing, and environmental technologies. The CaliBaja Center works to promote collaboration with students from both sides of the border and involve them in technology development, writing programs, and visual projects that engage them in the production of binational narratives. Through its collaborations, the Center aims to grow 21st century scientists and entrepreneurs who have the cultural understanding to form binational educational, social, and business links across the border in CaliBaja.

¹⁸ "Achievements: U.S.-Mexico Bilateral Forum on Higher Education, Innovation, and Research," U.S. Embassy in Mexico website, March 2017, <https://mx.usembassy.gov/wp-content/uploads/sites/25/2017/03/FOBESII-Achievements-March-2017.pdf>.

¹⁹ "UTEP's Projects Related to U.S.-Mexico Education, Innovation, and Research." The University of Texas at El Paso. April 2017.

²⁰ U.S. Department of Commerce; Open Doors Fact Sheet: Mexico.

Sustainable Communities” program, which enabled UTEP to contribute to capacity building for enhanced competitiveness, economic growth, and regional prosperity.²¹

Remaining Challenges Facing FOBESII

While FOBESII has done much to expand educational exchanges, increase joint research, and promote innovation, the Forum continues to face serious challenges if it is to acquire long-term sustainability and maximize success. The six most important of these concern increasing access, overcoming language barriers, developing a sustainable long-term funding model, private sector engagement, addressing workforce development issues, and public outreach.

Access: The Twin Problems of Geography and Cost

In order to greatly expand the university exchange experience, two other fundamental obstacles need to be overcome. First, while there are many educational exchange opportunities in border communities, opportunities in other areas of the United States are limited. There are many areas in the United States that feel left behind by globalization, which has led to a fear of foreigners and misconceptions about Mexico. In some of these places, it is not just that programs are not abundant; rather they are not part of the culture of higher education. Exchanges are important to help change these perceptions. Mexican students can easily study at some U.S. institutions in Border States where binational partnerships often already exist, but this should be increased in other regions of the United States. However, some schools in rural and less affluent areas, such as West Virginia, have challenges to sending students abroad.

Second, not all students and colleges have the means to have strong exchange programs or the capacity to receive students from abroad. The cost of an exchange can also be prohibitive for many students, even if there is an agreement covering tuition fee differences and/or substantial subsidies for travel. Students who work to cover their college/university expenses or who have families to support will be much less likely to travel abroad for a semester or a year. In fact, according to the IIE, 63 percent of all U.S. study abroad is less than 8 weeks in length.

Both of these obstacles are particularly relevant for community college students. For example, during the 2014-2015 academic year, only 7,105 students at two-year colleges studied abroad, out of approximately 7.3 million students enrolled in for-credit courses at community colleges, according to the *Open Doors* report.

²¹ "UTEP's Projects Related to U.S.-Mexico Education, Innovation, and Research." The University of Texas at El Paso. April 2017.

The Mission Foods Texas-Mexico Center at Southern Methodist University, inaugurated in April 2016, is a new research policy center that is dedicated to improving relations between Texas and Mexico through dialogue and research. The Center encourages greater cross-border integration and cross-sector collaboration in academia, government, NGOs, and business. Its research hopes to produce policy recommendations that address current issues in the bilateral relationship, such as trade, economic competitiveness, migration, energy, border issues, education, and human capital. The Center aims to bring together students and scholars from both sides of the border to help research and shape policies that affect the United States and Mexico, as well as to create new education programs and training to shape the young Mexican workforce.

But the problem is not just about American students studying abroad. To date, programs have more of an emphasis on opportunities for undergraduate students and graduate students. There needs to be a greater focus on community colleges and technical schools as areas for growth. U.S. community colleges provide an excellent educational resource for Mexican students who would not normally be able to experience study abroad. The greater focus on vocational education and skills in community colleges is ideal for the specific challenges facing the Mexican workforce today. However, the cost factor provides a strong disincentive for Mexican students.

Lastly, there should be an increase in opportunities and outreach for not only undergraduate students, but high school students as well. Short-term exchange programs or summer camps for high school students could help plant interest in studying abroad early on.

English-Language Barriers

A third challenge FOBESII faces is the lack of language skills in many Mexican and U.S. students. A major impediment to Mexicans studying abroad in the United States is weak English-language abilities. English as a second language is not a strong priority in many Mexican public primary and Junior High schools. Not only does this hinder opportunities for educational exchanges, it also undercuts the students' ability to take highly-skilled jobs in the U.S. labor market after graduation. A similar problem affects U.S. students; although Spanish language studies are growing, many students still lack the fluency they require to be able to succeed in a Mexican university.

To prepare Mexican students for study in the United States, intensive language training is needed. Through *Proyecta 100,000*, more than 240 Mexican students have participated in UTEP's English Language Institute. These students traveled to study in the United States from Sonora, Jalisco, Guerrero, Mexico City, Mexico State, Nuevo León, Tamaulipas, and Chihuahua.²²

Although Mexican President Peña Nieto's new education plan will require English to be taught at all levels, which could decrease the language barrier issue for Mexican students, past experience with such initiatives suggests that progress will be slow and patchy. It is vital to help Mexican students reach the minimum TOEFL requirements to earn

²² "UTEP's Projects Related to U.S.-Mexico Education, Innovation, and Research." The University of Texas at El Paso. April 2017.

scholarships and admission to exchange programs through FOBESII. The two governments should work together to encourage more U.S. and Mexican high school students to spend a short period of time in Mexico and the United States, respectively and learning both languages and becoming accustomed to the cultural differences. More importantly, the use of communications technologies should be encouraged to allow for virtual exchanges to take place between high schools in the two countries. Such familiarity at an earlier age will motivate greater interest during college years and will improve language skills.

Developing a Sustainable Long-Term Funding Model

The issue of funding goes hand in hand with the challenge of private sector engagement. FOBESII has a weak funding structure—it relies heavily on private contributions to reach its full potential but response from the business community has been weak, and there is more government funding than private funding. Although the Mexican government has contributed funds to move FOBESII's projects forward, and Santander bank and Televisa Foundation have provided generous funding from the Mexican private sector, in the United States, there has been limited success in attracting either public or private funding. While companies like Coca-Cola have funded initiatives such as *100,000 Strong in the Americas*, there has been difficulty attracting funding from new private sector donors and investors. There is an urgent need for businesses to engage with FOBESII to jointly fund student exchanges and collaborative research between U.S. and Mexican universities, and the strategies mentioned below with regard to private sector engagement and workforce development could also aid in increasing funding.

Private Sector Engagement

Private sector engagement is a challenge that FOBESII desperately needs to overcome. Since its creation, FOBESII has had a much easier time engaging the public sector and academia, but not so much the private sector. While some companies, such as Coca-Cola and ExxonMobil, consistently contribute to education cooperation programs such as *100,000 Strong in the Americas*, there is a lack of engagement with new and diverse businesses and corporations. In fact, the major private sector support for FOBESII has come from Spanish-Mexican bank Santander and Televisa Foundation.

In order to enhance private sector engagement, programs need to better articulate how the private sector benefits from supporting these projects and exchanges. Initiatives and institutions should link their programs to the private sector's strategic and philanthropic interests, making the programs beneficial for all involved. One company might have an interest in the environment and water, where another might have a more vested interest in building economic development. Taking a targeted approach and linking UTEP and UNAM's study abroad program on environmental and water management issues in Mexico City and the El Paso del Norte region may make more sense than trying to link the program with the company interested in cross-border economic development. Taking

strategic approaches by looking for synergies with companies has the potential to be much more successful than a general call for private funding.

Workforce Development

The United States-Mexico Foundation for Science (FUMEC) “promotes collaboration between stakeholders in Mexico and the United States to foster competitiveness based on innovation in science, technology, and education in key sectors of mutual interest.”¹ FUMEC aims to promote development of science and technology policies in order to expand and strengthen binational cooperation. FUMEC gives young researchers the opportunity to conduct research projects in the United States. Past collaborations include a partnership with SRI International in California to develop a strategy for capturing the opportunities offered by the growing micro-electromechanical systems (MEMS) market and the MEMS research and development capabilities in Puebla, Mexico. FUMEC’s programs seek to strengthen bilateral cooperation in areas such as economic development, border issues, health, safety, education, and the environment. In these areas, it focuses on the development of specialized human resources in science and technology. Mexico and the United States face a growing demand of technological and scientific skillsets to drive innovation, and FUMEC has several programs that strive to develop these skills in young Mexican students. FUMEC’s Innovation in STEM Program encourages high school students to pursue careers in science, technology, engineering, and mathematics, and allows students to experience real STEM companies’ work environments. The Innovation in Science Education (INNOVEC) program is a science education program that promotes the use of Experiential Education Systems and Investigative Science (SEVIC) in public elementary schools in Mexico. FUMEC’s goal with INNOVEC, based on the model used by the National Science Resources Center of the United States, is to improve the quality of education at the basic level to contribute to the development of new generations.

One of the major challenges in persuading companies to support the FOBESII has been the question of adding value to the private sector. While FOBESII has done much to strengthen workforce development through internships, there is ample room for improvement. With the demand for highly-skilled workers increasing, programs need to continue to teach more vocational skills. Increasing opportunities for student research and exchanges in specialized areas, such as the aerospace and health industries, would go a long way in strengthening a workforce with high-quality and specific skill sets.

To date, there has been an emphasis on the STEM areas, but it is vital to go beyond this. A recent report by the World Economic Forum highlighted the top 10 skills that will be required by the global economy in 2020. These skills include Complex Problem Solving, Critical Thinking, Creativity, People Management, Coordinating with Others, and Emotional Intelligence. Already educational institutions

across the United States and Mexico are beginning to reorient their programs to reflect these priorities, and the FOBESII must adapt in a similar fashion.

Public Outreach

Although FOBESII is making important contributions to the educational relationship between the United States and Mexico, few people have heard of it. Bringing attention to not just FOBESII, but to education and research cooperation as a whole enhances U.S.-Mexico relations and shines a positive light on the bilateral relationship. Not only does

FOBESII expand educational exchanges and joint research, but it also builds trust between the United States and Mexico, especially in the science and innovation sectors. Programs and initiatives should make an increased effort to share success stories and narratives from student participants.

One way to do this is to establish a type of FOBESII alumni network—students who have participated in FOBESII-inspired exchanges could travel to university fairs and recruitment efforts to give their stories to encourage students to consider studying abroad. Having a structured network would also make it easier to gather narratives and volunteers when needed. Additionally, these students who have participated in exchanges will join the workforce in the United States and Mexico, many in the private sector. Thus, keeping in touch with FOBESII alumni increases the number of contacts and the network for future collaboration and funding requests.

Another outreach tool is to increase the use of consulates. There is a strong network of Mexican consulates in the United States that each have their own network they have built in different regions of the United States. FOBESII should use these preexisting networks and build on them to enhance outreach. Many consulates already work to help Mexican universities hold recruitment fairs in the United States, but the creation of factsheets, videos with narratives, and informative events on studying abroad and interning in Mexico would also boost public outreach. Cooperation between consular staff and universities would also greatly assist in explaining the reality of Mexico's security situation, and the options for study.

To build upon this, programs, initiatives, and consulates need to utilize the new technologies available to advertise their resources. The use of social media networks is an affordable and relatively easy way to increase outreach. While there needs to be a strategic communication plan, social media like Facebook, Twitter, YouTube, Instagram, and LinkedIn are great resources for public outreach, especially to reach out to civil society. Spreading the message of FOBESII via these fora would improve communication on FOBESII's efforts to the general public, especially to younger generations who are contemplating studying abroad and interning. Video is also an increasingly popular outreach tool—creative videos on YouTube and Twitter's Periscope and Facebook Live can be used to spread positive testimonials and interviews with current FOBESII participants. There are many tools that can help reach out to society at large to make them aware of the great things happening in U.S.-Mexico educational cooperation, FOBESII just needs to use them in the framework of a strategic marketing campaign.

Finally, to ensure and optimize the value of FOBESII, there is also a need for more in-depth research on an ongoing basis. Metrics are one of the best ways to show success. However, without the proper data and uniform measurements, this is difficult to do. Nonetheless, strong metrics matter, so FOBESII programs need to establish a uniform definition of metrics and a measurement system. A possible measure of success discussed is to record the number of students and faculty crossing the border and multiply this by a dollar amount to see an estimated dollar measure for economic development.

There also needs to be a more robust count of short-term exchanges. Measuring these metrics and presenting them to the public would help spread positive aspects of the bilateral relationship and could help attract funding.

Policy Opportunities

Policy Recommendations

- Diversify and increase funding sources
 - Undertake meaningful and strategic consultation with leading U.S. and Mexican companies.
 - Engage the private sector at the subnational level by identifying local businesses interested in funding programs or offering internships to international students.
 - Strategically use public funding as a form of “seed capital.”
- Adapt FOBESII programs to address workforce challenges
 - Adapt training and invest in skills development to meet the needs of the 21st century workforce.
 - Match the demand for workforce development efforts with existing resources and institutions.
 - Create short-term exchanges that tie into needs of industry partners, possibly through internship programs tied to exchanges.
- Implement virtual educational exchange programs for distance learning
 - Create collaborative online international learning (COIL) courses between U.S. and Mexican schools.
- Increase community college involvement in U.S.-Mexico exchanges and educational cooperation
- Engage in effective and compelling public outreach and communication campaigns
 - Engage available resources such as consular networks, university/community college ties, and private sector partners.
- Improve access to language education
 - Utilize online learning resources in public-private partnerships.
- Continue outreach to FOBESII alumni and maintain existing relationships to increase sustainability.

Funding

Thus far, FOBESII has suffered from inadequate financing of exchanges and research collaboration. Although a number of U.S. universities and university systems have contributed funds to promoting exchange with Mexico, in order to significantly expand the impact of these efforts, major new sources of funding are required. It is difficult to see how new monies could come from the public purse, given fiscally conservative attitudes

in both Washington, D.C. and in Mexico City, but three ideas for attracting new funding are presented below.

- Consultation with private sector: Although Santander and Televisa Foundation have provided valuable support to FOBESII over the past few years, it is essential to diversify and increase funding sources. In order to attract private funding for FOBESII's programs, it is vital to undertake a meaningful and strategic consultation with leading companies in both countries. First, the target companies must be approached with an eye to their business interests, both in terms of the U.S.-Mexico relationship and the sector in which they operate. To date this has been inadequately explored by the governments of both countries and more time and effort must be devoted to designing the "value-proposition" to be presented to potential funders. One of the corporate donors to the *100,000 Strong in the Americas* program has argued that their support is justified by the fact that the program focuses on key disciplines in the countries where the corporation operates.
- FOBESII also needs to explore new ways to engage the private sector at the subnational level by identifying local businesses that could be interested in funding programs or offering internships to international students. Not every private sector funder needs to be a large, multinational corporation. Smaller local business have their value as well and are oftentimes more embedded in the communities, allowing for students to be involved in deeper community engagement and to establish local partnerships and understanding of these communities.
- Another approach to increasing private sector funding would be to more strategically use public funding as a form of "seed capital." When a new, untested program or initiative is created, such as virtual international exchanges, programs could first use public funding to build the pilot program. In the program's initial run, carefully recorded metrics and narratives can help prove the program's success. Once this success is proven and benefits can be seen, the private sector will be more inclined to fund it, knowing that the program is practical, fruitful, and mutually beneficial. Because new ideas have risks, the pilot program can be built with public funds, but once the concept is proven, then the program or initiative can scale up and enhance with private funding. An already successful program is more attractive to private investors.

Workforce Development

- Meeting the needs of the 21st century workforce: in order to prepare U.S. and Mexican workers for the demands of advanced manufacturing, the internet economy, and the dominance of the services sector, FOBESII must take the question of workers' skills more seriously. Although originally conceived primarily as a tool for public diplomacy and bilateral mutual understanding, there is an enormous opportunity to use FOBESII to address the workforce challenges of the fourth industrial revolution. Companies are increasingly reporting skills shortages

and the need to invest in worker training. Given the current review of the NAFTA agreement and the prospect of an important renegotiation of the agreement's terms, it makes sense to adapt FOBESII to this new reality. Again, consultation with the private sector will allow for a targeted approach to this issue.

- Matching workers with programs: in order to match the demand for workforce development efforts with existing resources and institutions, the governments of the two countries should work together to produce a map of their educational establishments that highlights their programs and centers of excellence. This map would then need to be used by companies and governments to satisfy the demand for skills training. A modification to the MOU establishing the J-1 U.S.-Mexico Internship Exchange Program would be a potential way to allow workers to take advantage of these opportunities. Alternatively, the existing B1 visa allows workers to participate in training programs for up to 30 days.
- Internships: creating short-term exchanges that tie into needs of industry partners is one approach, possibly through internship programs tied to exchanges. As previously mentioned in this paper, FOBESII has expanded access to international internships. Linking these internships with private sector companies is beneficial because it could increase private sector engagement while giving the students practical professional experience. Another approach is to stress to the private sector that filling already existing internship positions with international students is a useful way to meet diversity goals, an objective that many companies have. Some Mexican universities and institutions already participate in the Mitacs Globalink program, sending students to Canada to do practical professional internships, which benefit both the students and the companies they work with. The Mitacs program should be studied in depth and expanded or replicated to work at the trilateral level, bringing students from all three North American countries to work abroad in Mexico, Canada, or the United States. This trilateral cooperation in education and internship exchanges would strengthen the North American workforce and the economic competitiveness of the region.

Mitacs, a national, not-for-profit organization in Canada is a successful example of private sector engagement. Working with 60 universities, thousands of companies, and both federal and provincial governments, Mitacs designs and delivers research and training programs in Canada that build partnerships to support industrial and social innovation. In 2003, Mitacs launched a research internship program designed to increase deployment of highly educated graduates into the private sector. Mitacs takes into account both industrial and university needs, including research & development management, professional skills development, and international research training, to make sure both parties mutually benefit. Over the past 15 years, Mitacs has supported more than 10,000 research internships, trained more than 19,000 students and post-doctorate career-skills participants, and supported more than 1,300 international research collaborations. Mitacs' programs and research help to strengthen connections, improve economic performance, and create jobs.

Expanding Access: Distance Learning

One way for more financially challenged areas, regions that are traditionally less “Mexico-friendly,” and universities that do not have the infrastructure to house international students to still participate in educational exchanges with Mexico is the implementation of virtual exchange programs. Recent advances in low-cost video conferencing technologies and much wider internet access are revolutionizing higher education. The combination of MOOCs (Massive Online Open Courses), social media networks, and targeted short-term travel by students and instructors would be a low-cost way of engaging tens of thousands more students in the exchange experience. Through virtual educational exchanges, students could engage in collaborative online international courses (COILs) with a partner school in the United States and Mexico. A virtual classroom, combined with a common reader and curriculum for the course, would allow students from both universities to receive the same level of education and technical training. This could be complemented with the opportunity to have a week-long visit or lab with the school with which they interact virtually. The combination of in-person and virtual exchanges would be a powerful tool to increase impact of the FOBESII over time.

Collaborative Online International Learning (COIL), is a virtual teaching and learning methodology which provides innovative cost-effective internationalization strategies. COIL programs foster faculty and student interaction with peers abroad through co-taught multicultural online and blended learning environments and a shared syllabus, while emphasizing experiential student collaboration. COIL was founded by the SUNY Learning Network to encourage and support cross-cultural learning. Through this initiative, students are sensitized to the world by gaining global awareness, understanding, and cultural sensitivity.¹

The SUNY COIL Center also created the U.S.-Mexico Multistate COIL Program (MCP) workshop, designed to give collaborative online international learning experiences to students in the United States and Mexico. The MCP provides curricular internationalization for up to 1,500 students at U.S. and Mexican institutions. Students enrolled in a COIL class work jointly with students enrolled in a partner class at another college or university on a syllabus created jointly by their two professors. The program offers the opportunity for reciprocal visits by COIL professors to the United States and Mexico to strengthen teaching connections and internationalization between institutions.

Access: Community Colleges

In order to increase community college involvement in U.S.-Mexico exchanges and educational cooperation, it may be worth examining the experience of the Community College Initiative program (CCI). Open to students from 13 countries (but not including Mexico), government funding is available to allow participants to spend one academic year in U.S. community colleges and earn certificates in their fields of study. Since 2007, more than 75 community colleges have participated in the initiative, with more than 2,740 participants from 21 countries. As the CCI website states “After completing the program, participants return home with new skills and expertise to help them contribute to the economic growth and development of their country.”²³ A side benefit of this kind of

²³ <https://exchanges.state.gov/non-us/program/community-college-initiative-program>

program would be attracting significant attention from Mexican and U.S. businesses and would also address many of their concerns over current and future skills gaps.

Outreach and Public Communication

To date, FOBESII has yet to engage in an effective and compelling public outreach and communication campaign. The two governments should engage the resources available at their extensive consular networks in each country and work more closely with university, community college, and private sector partners to grow interest and support. To make an impact on corporate audiences, FOBESII proponents must stress that educational mobility is highly beneficial for companies in that these exchanges will bring adaptability in students, increase their cultural awareness, and give access to service learning and new technical, practical skills, all of which will help strengthen the forthcoming workforce and are important when dealing with future clients.

Language Skills: Harnessing Technology

The continuing deficit in English- and Spanish-language skills remains a serious obstacle to expanding U.S.-Mexico educational cooperation under the FOBESII. While the existing efforts to address the deficit are laudable, it is clear that more is needed. Increased movement of language teachers between the two countries is one way to address this challenge at a lower cost, but the most compelling opportunity lies with online learning resources. A wide array of apps and websites already exist, some of which are free, which should be harnessed in public-private partnerships to improve access to language education.

Conclusion

The U.S.-Mexico Bilateral Forum on Higher Education, Innovation, and Research has the potential to build a more prosperous future for both the United States and Mexico. Increasing educational exchanges and strengthening workforce development and innovation, particularly in STEM areas, will allow the United States and Mexico, and North America as a whole, to compete in global markets.

Educational exchanges create basic fibers that bind the United States and Mexico together and shape the bilateral relationship. For U.S. students, exchanges and internships in Mexico have great benefits, including gaining stronger Spanish-language skills, greater sensitivity to and understanding of Mexican culture in general and Mexican business culture, and increased global awareness, all of which are useful in both the domestic and international spheres. U.S. students studying abroad will bring back with them an understanding of other cultures that aids in changing U.S. perceptions of Mexico and increasing tolerance. Mexican students also have the opportunity to gain cultural understanding, as well as increased English-language and technical skills, creating a higher skilled workforce. This improvement of skills and understanding will increase cross-border partnerships and create a 21st century globally-minded workforce, to the mutual benefit of the U.S. and Mexican economies.

FOBESII has also been important as a framework for the formalization and expansion of STEM projects. Binational research collaboration, especially in the areas of science, technology, engineering, and mathematics, will drive innovation and regional competitiveness. Successful pilot programs for research collaboration and education cooperation in these areas should be replicated to continue to accelerate joint research.

FOBESII has created a well-established network of active partners on projects that did not exist prior to its inception. Through innovation and education cooperation, FOBESII brought forth a new framework and perspective for establishing U.S.-Mexico partnerships. Partnerships with subnational governments, civil society, and the private sector are vital to the future of FOBESII's success and should continue to actively be expanded. The collaborations between education, research institutions, and the private sector should be maintained and enhanced. Public outreach should also be increased to spread the word of FOBESII's efforts and successes. This outreach would shine a positive light on the U.S.-Mexico relationship at a time when there are negative perceptions on both sides of the border. Outreach and maintenance of existing relationships will also help FOBESII be sustainable as it will grow the Forum's network and cultivate new interest, while also preserving existing contacts, making FOBESII alumni feel as if they are still relevant to the educational cooperation effort. Sustainability is key for FOBESII's continued progress, as it takes government, civil society, academia, and the private sector each working together to solve problems and address issues to increase innovation and regional competitiveness.