

## Successful U.S.-Brazilian Research Collaborations Require Key U.S. Institutional Competencies<sup>1</sup>

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### Abstract

Through the years, many governments around the globe have invested in sending postsecondary students abroad through providing scholarships for university-level study – at both the undergraduate and graduate levels. Filling their country’s immediate and future demands for professional and academic development through offering grants, and then maximizing on the students’ educational experiences once they return home, is the major overarching objective of this activity.

What motivates a government to invest in a study abroad exchange program on a large scale? Darla K. Deardorff (2014) explored “the why” for global educational mobility. She found that when research partnerships are established between foreign universities, positive impacts on key global societal problems are created and enhanced. Therefore, these investments not only have a positive impact in meeting the needs of a country, but can have a constructive global influence, as well.

**Keywords:** Research collaborations; Academic exchange; Brazil-U.S. collaborations; Institutional competencies

In the last four to five years, Brazil has stepped into the international limelight of higher education mobility through its far-reaching Brazil Scientific Mobility Program (BSMP). The program’s aim, which is long-term in nature for the country, is in part to (a) address any areas of delay in global education exchange and scientific/technical development, (b) stimulate economic growth in Brazil, and (c) create academic and entrepreneurial partnerships. The program utilizes support from the government, along with private sector incentives, which can lead to partnerships for funding education abroad. Scholarship students are sent to the top universities in the world to study and train in specified fields, primarily in engineering, science and technology in an effort to equip and inspire them to increase entrepreneurship, innovation, research, academic scholarship and competitiveness throughout Brazil. The program encourages study and research for students at all levels of higher education, including undergraduates, professional master’s students, doctoral students, and postdoctoral researchers. Graduate Brazilian students

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conducting research abroad are commonly called “sandwich” students by Brazilian higher education and government agencies. Simultaneously, bringing international students and research scholars to Brazil for collaborative work is an important aspect of the plan, but not yet a big part.

Brazil represents an important market for U.S. colleges and universities because of its large population and strong, growing economy. The Brazilian government, under current (and re-elected) president Dilma Rousseff, has initiated an unprecedented commitment to higher education through its Scientific Mobility Program (and related offshoots) in which qualified Brazilian undergraduate students receive a year’s study at a foreign institution (*Economist*, 2012; Institute for International Education, 2014). The 100,000 Strong in the Americas initiative, which has a goal to reach 100,000 student exchanges annually between the U.S. and the other countries of the Americas, has further focused attention on partnerships with Brazil (100,000 Strong in the Americas, 2014). Brazil has historically focused on relationships with European universities, specifically those in France, Spain and Portugal, so for many U.S. institutions, there are many untapped opportunities to develop creative collaboration in Brazil.

One critical goal for Brazil’s investment in international education exchange is to encourage strong research collaborations with top universities and faculty abroad. For research institutions in the United States, this is good news. Applications for funding opportunities to bring researchers to Brazil and for Brazilians to meet with partners abroad are available on a competitive basis. Funding sources for two-way partnerships and mobility can include resources from, (a) the Brazilian federal government through CAPES (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – under the Ministry of Education) and CNPq (Conselho Nacional de Desenvolvimento Científico e Tecnológico – under the Ministry of Science & Technology), (b) state funding agencies, such as FAPESP (Fundação de Amparo à Pesquisa do Estado de São Paulo) in the State of Sao Paulo, and (c) individual university and institutional program grants.

In addition, Brazilian private industries are encouraged to support education, rendering further funding possibilities through the commercial sector. Without a doubt, providing match or reciprocal funding is key for successful partnership with Brazil’s higher education sector. In the last four years of the program, the Brazil Scientific Mobility Program (BSMP) students tend to be well-received in U.S. universities because of their keen academic preparation and work, as well as bringing in an overall positive cultural impact to the campus. Faculty members in U.S. research universities have found that their Brazilian counterparts, like their research scholars and students, are highly talented collaborators. This is not surprising, given the high level of accountability to which teaching and research institutions of higher education in Brazil must adhere. The Brazilian federal universities, for example, are well-known for their top research programs, which are strongly supported through the federal government (Institute of International Education, IAPP, 2014).

While U.S. universities and colleges welcome the opportunity to participate in Brazil’s quest for accelerated professional and academic enhancement, there is a need for critical

infrastructure; close collaborations with any institution abroad require special care and critical competencies, in order to develop a sustainable relationship.

### **An Example of Institutional Commitment and Infrastructure Development**

Just prior to the Brazilian government's expansive step into the global arena through their higher education scholarship programs, Rice University had begun to forge meaningful relationships with key Brazilian academic partners. Rice University is a private, Tier 1, highly-selective, comprehensive research university in the museum district of Houston, Texas (the fourth largest city in the USA). It is located near, and a member of, the Texas Medical Center (largest medical center in the world). Founded in 1912, Rice has an undergraduate residential college-system, and a strong collaboratively rich research environment for graduate and all students.

Attracting new, and supporting current, elite faculty members who already enjoy partnerships and emerging academic collaborations in Brazil is part of Rice's strategy and development with Brazil. The vision for a long-term relationship with Brazilian higher education partners came from the top Administration - the President's and Provost's Offices. However, simultaneously and fortuitously, Rice-Brazilian academic partnerships were already budding organically across campus. Creating opportunities to actively explore possible collaborative partnerships has proven to be fruitful for Rice's faculty and academic programs.

Without strong faculty members supporting the areas of importance for a university, academic priorities are difficult to achieve. A strategic infrastructure framework for Rice-Brazilian partnerships has been to recruit and hire faculty members who are top in their academic fields, yet have some Brazilian background. This included either being originally from Brazil or having strong academic involvement and / or research ties with Brazil. As the faculty members build their research networks, contacts with top Brazilian faculty in their fields have grown. Further, the faculty's enthusiasm and collaboration across disciplines has helped Rice multiply partnerships with top researchers in Brazil. Currently, Rice enjoys well over 50 faculty members, across all disciplines, who are actively engaged in Rice-Brazilian collaborations.

Another aspect of Rice University's strategy for furthering stronger academic relationships with top institutions in Brazil included creating the Office of Brasil@Rice. Its purpose is to maximize natural synergies through Rice's strengths, alongside the assets of the city of Houston, whereby leading Brazilian universities would be offered academic professional training and research collaborations in energy, engineering, and science. When successfully matched with Brazil's growing needs in these expanding industries, all of the groups are automatically benefited. Brasil@Rice's efforts maintain a forefront priority of creating long-term, meaningful academic and research collaborations with top universities and institutions in Brazil. Expectations for engaging with Brazil for Rice departments and faculty require the goal of embarking on collaborations that provide two-way beneficially equal partnerships. This critical motivation has been articulated multiple ways, and at all levels of the campus.

The Brasil@Rice Office has an Advisory Board to help develop strategic priorities and make key decisions on how to best utilize funding. Brazilian visiting students and scholars' needs are also discussed and supported through the office and its Board. Members of the Brasil@Rice Board include the Vice Provost for Academic Affairs, the Vice Provost for Research, the Dean of Graduate & Postdoctoral Studies, top faculty members with strong Brazilian ties, and Administration from the Office of the President and Office of the Provost. Input from other Deans and faculty members is frequently sought, in order to gain insight from multiple disciplines and echelons of the university, including departmental, school, and university levels.

In an effort to insure that Rice-Brazilian efforts support two-way advancement, the Brasil@Rice Office provides a) specialized assistance for the incoming Brazilian faculty, researchers, and students, b) incentive travel grants to send Rice faculty to Brazil to meet with research collaborators, and invites Brazilian counterparts to Rice to expand bilateral collaborations, c) networking opportunities among Rice faculty to create internal synergies for expanding research collaboration and possible interdisciplinary activities with Brazil, and d) encouraging opportunities for Rice students to go to Brazil.

Without careful and personal attention, as well as joint efforts between individuals of U.S. and Brazilian student and research exchanges, US-Brazilian higher education partnerships tend to stagnate at a superficial level. The Brasil@Rice Office creates a “go to” area for the government-sponsored visiting and degree-seeking students, junior and senior researchers, higher education delegations from Brazilian universities and colleges, as well as academic partners from Brazil. Special support services the office provides specifically for the Brazilian students and scholars who are on-campus include: a) specialized communication networks, b) office hours to respond to academic, logistical and visa issues, c) English and Portuguese language and friendship exchange programs, and d) social gatherings to build a sense of community.

Building trust is a critical component for Brazilian visitors, just as it is with all international relationships. However it is an especially evident factor of the Brazilian culture. Providing available staff members (and a faculty member as needed) to answer inquiries and navigate the campus protocols, has been extremely beneficial in developing confident personal relationships. While it has been helpful for the communication with Brazilian students and scholars to be in Portuguese, it is not required. What is most important is communicating genuine concern for the individual. When the visitor returns to Brazil, it is anticipated the personal-touch will surely be communicated back to one's university and faculty members in Brazil, as well as to potential future students and researchers.

The Brasil@Rice Office is aware that dedicated office alone cannot accomplish trust with the Brazilian international students and scholars. This must be accomplished, also, at the broader institutional level, with a commitment to supporting the Brazilian internationals at all levels through positive departmental, academic, campus life, and personal interactions.

In order to begin building consensus for Rice-Brazilian cooperation at a broad level, communication efforts included instituting a series of “Brazil Briefs,” meetings at which faculty and staff were informed about: a) Rice’s vision for bi-lateral collaborations, b) existing academic relationships, c) funding opportunities, d) opportunities to support invited Brazilian students, research scholars, visiting faculty and other Brazilian visitors, and e) logistical infrastructure to insure activities were efficiently realized. The briefings encompassed an array of topics including high-level research successes, possible academic opportunities, and even humorous cultural tips.

Rice routinely publicizes the accomplishments of extraordinary international partnerships. Such was the case when Rice University signed the University of Sao Paulo (USP) as their first partner to utilize and co-administrate the use of the IBM Blue Gene supercomputer. Rice also widely communicated its first dual degree program, which happened to be with another partner university, Universidade Estadual de Campinas (UNICAMP), in Campinas, Brazil. As other academic departments and research labs learn about ground-breaking accomplishments within the Rice university community, and beyond, they tend to become more inspired to replicate, adapt and further their own innovation and meaningful collaboration. Rice routinely enacts a cycle of accomplishment, recognition, and inspiration concerning our Brazilian endeavors.

An important building-block for outbound student mobility to Brazil is Portuguese language teaching. Without it, sought for two-way student mobility is greatly hindered. Rice offers its students Portuguese classes, as well as outside-the-classroom opportunities for practicing Portuguese. On a weekly basis, one of the faculty members creates a social hour when students and staff, who are studying or practicing Portuguese, can meet as a group with Brazilian students and scholars either over lunch or for a coffee hour just to practice language skills. The group has become very popular on campus and is a helpful tool to build U.S.-Brazilian connections on a personal, yet informal level. A more formalized language exchange partnership program has also been implemented between U.S. and Brazilian students, who have specific goals they seek to accomplish in the weekly hour when they meet.

As the Rice-Brazilian collaborations grow, bi-national partnerships to other areas of the campus have begun to develop. Rice has begun to enjoy opportunities for staff exchange, where Rice staff members have the opportunity to participate in the Institute of International Education’s (IIE) International Academic Partnership Program (IIE, 2014). The program creates delegation meetings to learn about various programs in Brazilian higher education, as well as opportunities to tour and meet with leaders of various kinds of universities, colleges, and institutes in Brazil. Opportunities to meet leaders in Brazilian higher education oversight bodies, such as the Ministry of Education and CAPES, were also a highlight. Rice has received visits from higher education delegations from Brazil, during which key faculty and administration members dialogued with the delegation members to share academic and administrative expertise, as well as to initiate conversations about continued partnerships.

Happily, Rice University was honored to be a recipient of the 2015 Paul Simon Campus Internationalization Spotlight Award for our work in Rice-Brazilian initiatives.

### **Case Study from a U.S. Institution: Leveraging Research Partnerships for Institutional Collaboration**

In this section, the University of Tulsa (TU), a small, private, Research I university, presents a case for how they have developed a strategy to leverage research collaborations for establishing partnerships with Brazilian universities. TU describes the context for its Brazilian initiatives, strategies to prepare the university for collaborating, and useful lessons for other institutions.

For TU, Brazil represents a key region of geographic interest. When TU adopted its Strategic Plan for Comprehensive Internationalization in 2011, it identified the Americas in general, and Brazil in particular, as a region in which we would leverage existing academic and research programs to support our goals for campus internationalization, such as diversification of student recruitment and expansion of international partnerships. TU has offered classes in the Portuguese language since 2006, and were keen to expand this academic program to include robust study abroad opportunities. Perhaps more importantly, TU recognized how relationships with Brazilian institutions were related to another area in our strategic plan, to advance international activities that support TU's leadership with interdisciplinary initiatives, specifically energy. TU's School of Petroleum Engineering has had relationships with collaborators in Brazil for more than 20 years; and Petrobras, the national oil company of Brazil, has supported graduate students and departmental research. Moreover, both the Collins College of Business and the College of Law were eager to tie their programs to collaborations focused on energy and natural resources in Brazil. The faculty directors of both the International Business and Language, and the Energy Management programs, in particular, saw Brazil, with the second-largest oil reserves in South America after Venezuela, as an obvious focus for both undergraduate curricular and research collaborations.

Despite this history, the depth and breadth of knowledge among TU staff and faculty in how to go about building research collaborations in Brazil was not deep. TU decided to apply to the Institute for International Academic Partnerships Program (IAPP) - Brazil, a program designed to help U.S. institutions navigate the Brazilian higher education system, think critically about a strategic partnership plan, and access the tools and resources necessary to make decisions about collaborative activities. The IIE staff, through the IAPP, assisted with developing guidelines for assessing on-campus international partnership capacity and developing practical strategic plans for partnership activities in Brazil; provided a series of training webinars, focused on topics such as implementing strategic partnerships, faculty engagement, developing a consolidated partnership strategy, and higher education in Brazil; made available information resources about the higher education system in Brazil and IIE publications and policy research reports related to higher education, student mobility, and international partnership-building; and organized a study tour to Brazil that included visits to select higher education institutions and other educational exchange organizations. TU created a cross-campus Brazil Working Group, with faculty from key areas in each of the four colleges who participated in the webinars and assisted with developing a specific TU plan.

The emerging strategy attempted to do two things: leverage the extensive research collaborations cultivated by the faculty in petroleum engineering, and broaden the base of knowledge and engagement with faculty in energy-related programs in other colleges. The Working Group recommended several initiatives that would prepare us for engaging in productive partnerships:

- Support reciprocal faculty visits: To build familiarity among faculty with the scholarship at Brazilian institutions, short-term faculty exchanges were recommended, beginning with the institutions in Rio de Janeiro and in Sao Paulo that have historically collaborated with the petroleum engineering faculty.
- Sustain contact with TU alumni in Brazil: Because of our long history with the Brazilian petroleum engineering industry, we have many alumni living in the Rio de Janeiro area, most of whom work for Petrobras or affiliated companies. Since many of these alumni completed graduate degrees at TU, they maintain a positive relationship with their departments and advisors, making it possible to affirm connections. TU recognized that this group may be influential with student recruitment and other partnership strategies in Brazil.
- Strengthen existing relations with Brazilian students: TU already has a presence among two groups of highly desirable Brazilian students who come to the university because of the energy programs: a) Brazilian Scientific Mobility students who spend a year here, including an internship, and return to their home universities and cities with a good impression of their experiences, and b) Brazilian Youth Ambassadors/Jovens Embaixadores, competitively selected high school students from all over Brazil, who are hosted in Tulsa and TU for two weeks every January. In both cases, TU capitalized on the students' familiarity with the university and their favorable experience by attracting them to the next level (from high school to college, from college to graduate school). Such an initiative, however, would need scholarship funding in order to compete with the best Brazilian universities, which are free.
- Develop an International Business and Portuguese program: TU's already successful International Business/Language (IBL) program has the potential to be expanded to include a Portuguese track, with the idea that TU students would complete beginning and intermediate Portuguese at TU before participating in a program component at a Brazilian partner university. The component in Brazil could last for one semester, or perhaps for three or four if it were to be a dual degree program. Such a program would capitalize on current interest in Brazilian economic growth and cultural presence, as well as Brazil's large impact in the energy market.

- Continue the Brazil Working Group: This group of TU faculty and staff with interest and experience in Brazil has been effective at bringing together the expertise to advance these initiatives.

The TU experience, while still a work-in-progress, is instructive as a case study for the many U.S. institutions starting to build collaborations in Brazil. As a first step, it is important for institutions seeking to work with Brazil to assess their readiness to build partnerships. Readiness can be defined in many ways: depth of campus interest in Brazil; breadth of faculty engagement with Brazil; previous experience with research collaborations; availability of necessary personnel and financial resources; or campus leadership. In short, readiness refers to an institution's preparedness to develop and execute a plan for engaging with Brazilian institutions.

As a second step, it is valuable to inventory and audit existing partnerships, especially to leverage grassroots partnerships. It is not uncommon for research faculty to have collaborations that exist around a specific project, such as drilling technology, that have not risen to the level of requiring institutional agreements. These collaborations are often deep and rooted in fundamental areas for institutional collaborations, such as the exchange of graduate students. These existing projects can be key for cultivating new or broader relationships with Brazilian partners, and with identifying new leaders on-campus to expand collaborations.

Third, for institutions new to working in Brazil, it is important to cultivate in key faculty and staff a deep knowledge about issues in higher education in the region. This will help the institution set appropriate campus expectations for institutional collaborations, such as timelines or necessary resources, and prepare institutional leadership for evaluating potential partner institutions. At TU, the faculty and staff expertise came from diverse areas, so drawing on the experience of the faculty who had been involved with establishing the Portuguese language program and with the petroleum engineering research activities was natural. But, it also relied heavily on resources from IIE to prepare additional campus experts who would play a role in the proposed initiatives.

Finally, TU is cognizant of the importance of remaining flexible. The strategy was based on expanding opportunities in the Brazilian energy sector. This expansion has not met expectations. Despite setbacks to the government's estimates for oil production, TU is convinced that Brazil continues to be strategically important to the United States. Brazil has attracted businesses such as the U.S. drilling giants Halliburton and Baker Hughes, has gained partnerships with oil companies from India and China, and has drawn investment dollars from American pension funds in Florida, South Carolina, and California (Sreeharsha, 2014). The opportunities for partnerships remain extensive, but TU recognizes that, as with most partnerships, there must be preparations for a long-term investment in maintaining networks of collaborators.



### **The Brazilian Faculty Point of View: A Reality Check for Successful International Collaborations**

While colleges and universities in the U.S. develop their strategies and build frameworks to cultivate relationships with Brazilian institutions, their development can become one-sided, with potentially detrimental blind spots from the U.S. perspective. Without the mutual cooperation of Brazilian and U.S. partners, such an effort may be short-lived. This section provides insight on how to achieve the greatest success in the midst of binational research collaborative interactions, as well as identify some motivational factors that can affect it - positively or negatively - from a Brazilian faculty member's perspective. Dr. Vitor Leite, faculty member from Universidade Estadual Paulista (UNESP), has had substantial experience with working with U.S. and Brazilian research groups, both in the USA and in Brazil. His experiences include leading and partnering bi-national research groups.

According to Dr. Leite, a critical aspect for successful collaborations is the willingness to learn from one another. Not only does the open attitude refer to technical and practical aspects of the research being shared and performed, but also with the relationships of the foreign partners. The learning process requires forging personal, cultural, and institutional connections, that must be respectful for all parties to enjoy equally-invested learning opportunities. If all participants in partner research groups maintain those key points, success will be a natural outcome. These ideas should be applicable not only to the specific U.S.-Brazilian research collaboration, but for collaborative academic partnerships between all countries.

However, this process is not easy. When one goes to live abroad for a while, there are so many unknowns, that sojourners are most likely to be intimidated by the situations in which they may find themselves. It is such a challenging situation, in fact, that if a person does not first live abroad at relatively young age, it is unlikely that, later, he or she will do it at all. As people get older, they tend to become more conservative and wary of the risks involved in new experiences such as living abroad.

Those who have been abroad before have already experienced numerous valuable lessons, be they pleasant or not. Their need for assistance is generally much less than first-timers, who often find time spent abroad risky and full of challenging new experiences. Therefore, it is important to keep in mind that the students and scholars who are coming to the U.S.A. from abroad to conduct research are under a great amount of stress. Assisting them with the sometimes precarious transitions to a new culture's lifestyle is a key ingredient for a successful collaboration between research groups. As the foreign visitor takes more risks in accepting these experiences, visiting students and scholars are also more likely than their native collaborators to get into trouble, due to an intrinsic lack of understanding the protocols and unspoken expectations. It is the responsibility of both the hosting research group and foreign sending collaborators, under the direction of partner supervisors, to proactively work together to identify potential issues, and seek solutions, as situations arise.

Those who have experience foreign study or research situations will be able to identify with this depiction of challenges. Everything looks so different to a newcomer to a land and culture. Social and behavior standards vary and can be interpreted in many different ways. Even routine activities, like shopping or interacting with people, may require intense evaluation and observation. There are always novelties and opportunities to learn in international research collaborations, but the cross-cultural nature of this kind of endeavor creates unique and challenging situations. Both psychologically and practically, there is a type of "magnification effect", whereby everyday experiences are intensified. Individuals who are working in the host institution have to be keenly aware of cultural differences. Even the most subtle cultural values, patterns and behaviors can seem very confusing to the visiting international collaborator. That said, the intrinsic development of cross-cultural understanding and awareness motivates the transnational partners to expand beyond their comfort zone, and in turn, expand their two-way learning base – academically, culturally and relationally.

However, even a partner with a very positive and open attitude may struggle in coping with new problems when they arise. Willingness alone is not sufficient to guarantee that one will have a successful experience. Hard work on all practical aspects of living and working in a new culture is assured, so the results maintain on a positive trajectory.

While surprises are probable it is important to avoid or minimize problems intrinsic to aspects of the U.S.-Brazilian research collaboration experience. Many problems can be prevented in a well-planned project. The main players involve, and their important tasks include:

- 1) **Institutions** play a key role in legal, health, and financial issues. The institutions through their supervisor/principal investigators (PIs) can make the theoretical, practical and cultural adjustment process easier and with minimal stress. For example, not all students can count on financial support from their families, and financial instability leads to an immense insecurity, which can be prevented by advanced planning with the home and host institutions. As they arrive in a new country, students will not know the local systems well or have friends to help, so support from the research groups, and local host friendship families can make a huge difference.
- 2) **Home group**, or the research group that is the “champion” or leader of a particular program or project, is keenly important in planning and arranging the right connections for a strong framework under which the groups will work. Contacts and research are essential, as well as an explicit and well-defined project, with clear goals and objectives. In fact, if the collaborations are to last shorter than one year, it is even more important that the scope is well-defined, and time is not wasted on exploratory problem discovery, but on achieving results.
- 3) The **host group** and **students** are directly involved in collaborations and are major players in the initiative, as well as in successful results. Examples of their engagement is critical, and they include:
  - If the host lab behaves with indifference, the effects are devastating for results. Material conditions alone are not enough for a successful collaboration.

- Empathy between the home group and visiting student or scholar involved is *the most* important aspect in collaboration. Technical competence is not enough. If a partner in collaboration has a serious character flaw, there is nothing that will make the experience work out. When working with a congenial person, it does not matter what the topic is: it is going to be fun, the partners will like it, and eventually it will turn out to be a great piece of work. *Note:* This is why the initial contacts made by the home group are so crucial.
- Sometimes a visiting student or researcher can be lost, wandering around without goals, and yet can be mistakenly interpreted as being too independent. The host PI/supervisor and the scholar's home supervisor need to be in close communication and keenly aware of individual student motivations, in order to understand what the visitor is capable of, and assign his or her project accordingly. Clear prioritization and coordination between the projects PIs also are essential for providing the best guidance for the visiting student/scholar. However, awareness of what is considered productive can be affected by cultural and individual bias of the host supervisor.
- Arrival and proper on-boarding, orientation, and articulating clear expectations can set the tone for the entire experience.

Collaborations are expected to unfold naturally. An appropriate analogy is getting married. It is not usual to meet a person and get married blindly or immediately. One can do so, but it quite likely will not work out well. Instead, a couple should first get to know each other, date for a while, get engaged, and finally get married. Likewise, if partner collaborators get to know each other, explore their common ground, make a commitment to a project, and then engage in the project together, there is a good chance that the collaboration will be a success. Through such measures, a working relationship will be strengthened, sustained, grown, and tend to lead to positive results that might even reach far beyond the initial expectations. This is what happened in the interaction between Rice University and the University of Sao Paulo (Symposium on Current Topics in Molecular Biophysics, 2014). In this case, preeminent researchers that have known and conducted research together for a long time are today able to envision more ambitious plans than they would ever have thought possible when the collaboration began.

Overall, both the hosting institution and the partnering collaborator should not expect to embark on this endeavor and expect it to work the same as if they were working with someone from their home country, culture, and educational system. There will be many differences, and this is a positive thing that all participating parties can learn from.

In sum, Dr. Leite's advice - a Brazilian faculty member's perspective to U.S. higher education leaders who are embarking on collaborative research partnerships with Brazilian universities and colleges - echoes the advice that a great sage gave to his disciple when commenting the large contrasts between eastern and western cultures: "Everything on earth is of mixed character, like a mingling of sand and sugar. Be like the wise ant which seizes only the sugar, and leaves the sand untouched" (Yogananda, 1946).

### Conclusions

What is necessary to create successful U.S.-Brazilian collaborative research partnership? The first step in a successful partnership is developing an institutional strategy statement that obligates the U.S. university to seek out and commit to long-term relationships with partner institutions in Brazil. Commitment is actualized through: a) strategic faculty hires, b) supporting and expanding current Brazilian collaborations, c) creating effective avenues of communication among active and potential faculty for cross-disciplinary work, d) insuring that a priority of creating mutually beneficial bi-national relationships is adhered to, e) maintaining continuous communication with Brazilian partners, f) insuring that the U.S. collaborative partners - faculty and students/scholars – travel to Brazil, as well as inviting collaborators to one's own institution on a regular basis, g) exercising flexibility in using different prototypes of partnerships beyond traditional models, and h) most importantly, insuring that trust and shared purpose of goals benefits all partner.

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