Joint Degrees, Dual Degrees, and International Research Collaborations

A Report on the CGS Graduate International Collaborations Project

Council of Graduate Schools

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COUNCIL OF GRADUATE SCHOOLS

JOINT DEGREES, DUAL DEGREES, AND INTERNATIONAL RESEARCH COLLABORATIONS: A Report on the CGS Graduate International Collaborations Project

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PREFACE

International collaboration is an exciting new frontier for many North American universities. Greater international collaboration at the graduate level is indispensable to the advancement of scholarship and science. Participation in such collaborative work, whether through formal degree programs or through more informal research exchanges, also prepares students for a future in which research is destined to become truly global. There is extraordinary excitement surrounding the opportunities available to US and Canadian universities to partner with other institutions from around the world. This excitement is matched, however, by an equal amount of confusion. In order to help alleviate some of this confusion, the Council of Graduate Schools (CGS) has conducted research and hosted dialogues in recent years focused on advancing international collaboration. These activities have helped the North American graduate community to better orient itself in an area where some regions, such as Europe, have had the advantage of greater experience. Each event that CGS has facilitated, however, has also brought into the open serious questions upon which there is still no consensus and about which there has been a call for greater clarity: questions about definitions, values, and appropriate solutions to administrative challenges.

This publication is the result of an important CGS initiative to provide the graduate community with a clearer understanding of what is currently known about international collaborations at the graduate level, as well as what is valued, what the current gaps in our understanding are, and what areas call for greater clarification. Further dialogue is needed within the US and Canada to identify best practices in international collaboration appropriate to our own institutional contexts. This publication lays the groundwork for that subsequent work, but more remains to be done building upon this foundation to identify best practices. Further international dialogue is also needed to ensure that strategic institutional leaders of graduate education from around the world are apprised of trends and engaged in discussion about issues of mutual concern. CGS's development of the annual "Strategic Leaders Global Summit on Graduate Education" series is designed to help address that need. This publication and proceedings from last year's summit, now available as *Global Perspectives on Graduate International Collaborations (2010)*, may be seen as companion volumes that address similar issues from distinct geographical perspectives. CGS will continue to explore ways to

serve the graduate community through efforts in both of these regional and international domains.

Some of the most important findings from the NSF-funded project described in this publication center on the importance of leadership in developing and sustaining effective international collaborations. It is my hope that this resource proves useful to all those who provide leadership in advancing their institution's internationalization efforts, including: graduate deans and senior leaders in graduate education from all countries who seek to better understand the issues facing American institutions as they engage in international collaboration; staff members from international offices and other campus units who seek information on issues specific to graduate (as opposed to undergraduate) degrees; faculty researchers (principal investigators and collaborators) with active international partnerships; policymakers who seek to better understand the inhibitors and facilitators of expanded US efforts in this area; and program officers at various organizations responsible for funding and assisting in the development of collaborations to ensure their success.

Debra W. Stewart
President
Council of Graduate Schools

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Although we assured participants anonymity in the various activities associated with this project in order to encourage frank and open discussion, we thank each of the graduate deans and associate deans who contributed to a focus group on joint and dual degrees and a set of technical workshops on research collaborations. For their engaged participation in the latter, we especially thank the principal investigators and co-PIs from the NSF PIRE (Partnerships for International Research and Education) and IGERT (Integrative Graduate Education and Research Traineeship) programs who made special efforts to join us for the technical workshop discussions of international research collaborations described in Chapter Three.

Gregory J. Anderson, CGS/NSF Dean in Residence from September 2008 to August 2009, provided helpful input on the survey described in Chapter Two. A series of informal and exploratory semi-structured interviews that he conducted with many division directors and program directors throughout the NSF helped to inform this project's understanding of the challenges and concerns NSF has as it seeks to advance and support international collaboration. The authors thank all those NSF staff members who met with Dr. Anderson and provided such valuable input.

Other colleagues who deserve recognition for their contributions to this publication and the Graduate International Collaborations Project include: Sheila Kirby, Scott Naftel, and Nathan Bell for assistance in analyzing project data; Matthias Kuder and Ursula Lehmkuhl, who graciously shared extensive thoughts about Freie Universität Berlin's experience studying joint and dual degree phenomena in Europe and the US; Rajika Bhandari and Patricia Chow of the Institute of International Education (IIE), who offered helpful information about student mobility trends and data; Diana

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EXECUTIVE SUMMARY

Recent years have seen rapid growth in the number of international collaborative programs involving research and educational opportunities for graduate students. These opportunities include research collaborations between faculty as well as formal, dual or joint graduate degree programs between US institutions and international partners. Due to the interest in collaborations of both types, there have been many calls within the graduate community for national guidelines and best practices for their development and sustainability. The CGS Graduate International Collaborations Project, a first step in answering those calls, was designed to generate a clearer understanding of what is currently known and what is valued in international collaborations, what the current gaps in our understanding are, and what areas call for greater clarification.

The two major outcomes of this project are enhanced understanding of how graduate schools, faculty researchers, and other campus units work together throughout the process of international collaboration, and the identification of a number of specific national needs that can support the effectiveness of universities engaged in such collaborations. Below is a summary of key findings from the key research activities of this project, which included a survey, a set of focus group and technical workshop discussions, and related activities described in the introduction to this volume.

Benefits

Graduate international collaborations yield important benefits to US students, institutions, and state and local communities:

- ***Impacts for Students*** include more training and research opportunities, cultural perspective and skills required for international research projects.
- ***Benefits for Faculty*** include broader research networks and access to new knowledge, skills, and resources.
- ***Impacts for Institutions*** include broadened research capacities, enhanced powers to recruit talented international students and faculty, and a more visible and global research profile.

- ***Broader Impacts for State and Local Communities***. When aligned with local and state priorities, international collaborations involving graduate research and/or education directly benefit state and local communities and economies.

Trends

Survey data and focus group discussions indicated trends in the following areas:

- ***Institutional Leadership***
  The role of the graduate school and the graduate dean is changing: whereas in the past, graduate schools have primarily provided administrative support and "institutional good will," graduate deans now describe themselves as also playing increasingly strategic roles.
- ***Motivations***
  The primary driver behind international collaborations at the graduate level is not revenue but rather academic and research motivations. These include attracting international students, responding to faculty interest, and strengthening academic research quality.
- ***Key Challenges***
  The primary challenges to graduate international collaborations are: sustainability, securing adequate funding, recruiting students, negotiating an MOU, and deciding on fee structure. In the development of dual degrees, awarding students double credit for a single body of work is a key challenge. In the development of joint degrees, accreditation and approval processes pose a key challenge.
- ***Funding Sources***
  - Primary funding sources for collaborative degree programs come from student fees, internal university budgets, and international sources.
  - There is strong evidence that US universities receive less funding for international research collaborations from the US federal government than they do from foreign sources.

- ***Mobility***
  In general, more international students travel to US institutions to participate in international collaborative programs than domestic students travel to international institutions. However, a significant proportion of faculty travel for research or educational (i.e. non administrative) purposes.

Future Needs

US universities face significant barriers when pursuing sustainable international research and educational collaborations at the graduate level, including: limited federal and state resources that would support international collaboration, a lack of national guidance about how to measure and assess outcomes, and, where federal or state resources are available, limited guidance that would minimize costs, start-up time, and risk. Given their strong role in supporting and fostering sustainable international collaborations, graduate deans seek

- ***Tools for Assessing Outcomes***
  Stronger evidence is needed of the extent to which, and in what ways, international collaborations benefit US domestic institutions, faculty researchers, graduate students, society and the economy. Tools and metrics can help institutions assess the broader impact of and quality of collaborations.
- ***National Guidelines and Resources***.
  More resources are needed to support researchers who are pursuing, or who have obtained federal funds to create, international research and educational collaborations. Resources called for include: case studies, a database of international graduate degree collaborations, evidence-based best practices, and national guidelines.

I. International Collaboration in Graduate Education

The internationalization of higher education is a fast growing phenomenon. Evidence of this growth abounds. Over the past decade, the number of students who study outside their home country has been increasing dramatically, as has global competition for those students. Across Europe, massive reforms such as the Bologna Process are underway to promote greater comparability among European higher educational systems and greater mobility of talent. Meanwhile, universities around the world, including many in the United States, are moving quickly to develop new international collaborative degree programs such as joint and dual degrees at the graduate and undergraduate levels. Less highly structured research and educational exchanges between partnering institutions from different countries and regions are also becoming more common, especially as research networks become increasingly global in nature. And some institutions are building "brick and mortar" campuses abroad, which may help establish an institution's global identity and generate future revenue, but which may also involve greater initial investment and risk. The internationalization of graduate education comes in many different forms, and each of these forms brings opportunities as well as challenges for researchers and university leaders who strive to remain abreast of developments in other parts of the world and make strategic choices for their current students as well as those they seek to recruit.

In ensuring that international collaborations are successful, decision-makers and researchers alike require reliable and timely information about the scope and structure of collaborations between their home country's institutions and their international partners. They are also looking for guidelines and proven solutions to typical challenges. The US graduate community, however, has lacked information specific to the US graduate education context and has called for a common reference guide to fill this gap as they seek, in the long term, definitive guidelines and best practices in international collaboration. Building upon a grant from the National Science Foundation and upon prior international activities of the Council of Graduate Schools and its member universities, this book seeks to provide such a reference guide.

Because the Graduate International Collaborations Project was supported by an NSF grant, many of the examples provided in this book refer to STEM

(science, technology, engineering, and mathematics) fields. Of course, US graduate international collaborations span the range of disciplines, and the majority of findings and issues discussed in this book are applicable to collaborations across the research disciplines. Taken together, the following chapters provide a comprehensive picture of the wide range of issues to be considered as institutions approach international collaborations for the first time, from a new direction, or in order to strengthen the collaborations they already have.

This introductory chapter presents an overview of the broader issues that surface around international collaboration: the benefits of international collaboration to students, institutions, and society; the US context for institutional collaboration with international partners; and the essential role of strategic leadership in support of such collaborations.

Chapter Two reviews the extant (mostly European) literature on joint and dual degrees. These degrees represent some of the most promising innovative degree structures for building sustainable relationships between institutions. Despite their promise, these structures have also resulted in great confusion given the lack of consensus on definitions and the sometimes significant administrative hurdles to be overcome.

Chapter Three presents findings from the CGS Graduate International Collaborations Project. Findings are discussed in three separate sections that represent three distinct project activities: (1) results of a CGS member survey on international collaborations that sought to shed light on some key, unanswered questions, such as: how are such degrees typically structured?, what policies are in place to support those degrees?, and what challenges or issues are typically encountered by degree type?; (2) analysis of focus group discussions that expanded upon issues identified in the survey and explored possible solutions to common challenges with graduate deans from North American institutions (US and Canada) that have developed joint and dual degree programs with international partners; and (3) a summary of discussions from a set of two technical workshops on international research collaborations involving principal investigators from NSF-funded grants programs and graduate deans at the host institutions. Together these participants discussed international research collaborations that are not necessarily housed in formal joint or dual degree programs but which constitute a large part of the US graduate education system's engagement in international collaborative research. There are still many questions that remain unanswered, and subsequent work remains to be done at the national level to assist universities in creating institutional environments for international collaborations to thrive and prosper.

Chapter Four discusses the gaps in our current understanding and national practice and defines next steps for national activities in the development of best practices and guidelines that would benefit the US graduate community. The NSF-funded Graduate International Collaborations Project was conceived to be an initial, synthesis phase project that could ultimately inform a larger, second-phase study to identify best practices and provide national guidelines for the development of collaborations, where appropriate and needed by the graduate community. The current publication therefore does not identify "best practices" per se as CGS defines them, i.e., as identified through a rigorous model of evidence-based assessments of pilot projects and case studies. Such activities are necessary and valuable but fell outside the parameters of the NSF grant that funded this project. The following chapters, especially Chapter Three and the appendix material, however, provide examples of solutions that universities participating in this study have found to be effective in solving some of the most common challenges.

The Benefits of International Collaboration

When considering options for international collaboration, one of the first questions that faculty and senior administrators raise is: what are the benefits? The investment of financial resources and time in institutionalizing formal collaborations with international partners can be significant. Therefore, all stakeholders should first seek to determine the value of the proposed collaboration to their institution's research, degree programs, and to the institution as a whole. Those who have been successful in launching or scaling up collaborations at the graduate level report a variety of typical benefits for students, institutions, and the broader public.

Student benefits

Graduate students and undergraduates may benefit in similar ways from participating in international collaborative programs and research exchanges, but there are also benefits that are unique to graduate study. Those benefits that are well documented for undergraduates and that may also extend to graduate students include:

- Personal development and enrichment,
- Enhanced career prospects and increased academic opportunities, and
- Enhanced cultural diplomacy skills (skills that may also benefit the institution.)[1]

In addition to these benefits that undergraduate and graduate students may share in common, the benefits more specific to graduate students typically include:

- Enhanced research skills,
- Expanded research networks,
- Access to specialized equipment and expertise, and
- Enhanced "science diplomacy" skills (in science and engineering).[2]

At the undergraduate level, international collaborations may be created with the primary purpose of enriching students' lives with a rewarding intercultural educational experience. At the graduate level, while such enrichment may be a perceived benefit, the initial motivation often springs from faculty research interests. As discussed in Chapter Four, a better understanding of the benefits to students and all stakeholders through improved assessment of the outcomes of such collaborations is important.

Benefits to institutions and faculty

International collaborations are widely perceived to benefit the institution and participating graduate programs in a variety of ways. The most commonly cited benefits to institutions and their faculty researchers include:

- The increased prestige that may result from an institution's reputation as a global university,
- Increased international student recruitment and tuition dollars,
- The sharing of world-class equipment and resources, and
- An enhanced educational climate that results from the diverse cultural experiences that international students bring to the US and that US students bring back after their study abroad.

Because the funding of international collaborations can prove challenging, especially at the start, and institutions always assume some degree of risk in pursuing them, a solid understanding of the expected benefits and subsequent efforts to measure outcomes once they are in place is an important part of any graduate internationalization strategy.

Public benefits

Beyond the benefits to individual students and faculty, and their institutions, international collaborations may also yield broader public benefits. These can be more difficult to measure, but include:

- **Economic benefits**, such as the creation of jobs, revenue, and patents developed through enhanced student mobility and research productivity;
- **Social benefits,** including quality of life improvements and the amelioration of social and environmental problems; as well as
- **Socio-political benefits** achieved through science and cultural diplomacy.

Regional and national economies benefit from international students studying in the US at both the graduate and undergraduate levels. It is estimated, for example, that international students contributed approximately $15.54 billion to the US economy between 2007 and 2008, and $17.6 billion between 2008 and 2009.[3] Economic benefits may also accrue in more far-reaching ways. For example, the number of international patents developed within a country is a strong indicator of that country's capacity for innovation, which is enhanced when skills and resources are drawn from outside its borders.[4]

Further public benefits arise from the research advances that result from successful international collaborations. For example, partnerships may emerge around issues such as water conservation or sustainable agriculture that affect the local regions of both partner institutions.[5] Indeed, some now argue that progress is not possible on big, global-scale topics such as climate, energy, disease, and hunger without more international research collaboration and more coordination of researchers and policymakers across national borders. Collaborations may directly benefit the local and regional populations of both partnering institutions, or they may benefit some partnering institutions' countries and regions more indirectly, where the consequences of failing to address problems with long time horizons can be detrimental to national and local interests.[6]

The broader public benefits of international collaborations are frequently cited, but can be difficult to measure. Similarly, the long-term economic benefits that may result from student mobility, international networks, and the fruits of these collaborations can be difficult to quantify. One of the metrics commonly used as a proxy for these broader benefits is student mobility.

Student mobility has not been seen uniformly as a positive phenomenon. Where students perceive their career opportunities to be greatest in the country

where they pursue their graduate degrees, sending countries have sometimes been justifiably concerned about the long-term loss of their top domestic talent. Such concerns about "brain drain" have been common to both developed and developing countries. Recently, however, rapid economic development in some parts of the developing world has challenged the assumption behind the view that students who travel to the US for graduate education will remain there to pursue their subsequent careers unless there are strong incentives to return (or disincentives to stay in the US). Traditional conceptions of a "developed core" economy and economically "developing peripheries" that might have once supported this view may no longer be adequate to describe employment opportunities for graduates of some international collaborative programs. While such a model might once have described the distribution of career opportunities between partnering countries and lent credence to conceptions of "brain drain" and "brain gain," some researchers now argue that new models are needed to more accurately describe a "flattening" world where developed countries face the prospect of slower growth and emerging economies are host to some of the strongest growth in a knowledge sector workforce.[7]

International collaborations can be developed, and student mobility within those collaborations structured, in such a way as to maximize benefits to all partnering countries. Future success in a global knowledge workforce may well be achieved by countries that can best prepare their researchers to develop international networks and work efficiently and comfortably across national and cultural borders. In both non-academic and academic sectors, the global employment opportunities created out of international research collaborations can yield social and economic benefits to local regions and national populations of both partner institutions.

International collaborations are arguably vital both to the advancement of science and to the realization of its public benefits. Arden Bement, NSF Director from 2004-2010, has made this point on many occasions.[8] Cora Marrett, Acting Deputy Director of NSF, reiterated the message at a workshop co-hosted by CGS and NSF in April 2009, stating that in the new era of extreme globalization, "we must collaborate globally to prosper and thrive individually." Dr. Marrett articulated three ways that global collaborations and engagement enrich the enterprise of science: (1) by "mak[ing] for more vibrant lives and careers for our scientists and engineers"; (2) by "advancing science through intellectual and social networks"; and (3) "by enabling and cultivating *science diplomacy*, the idea that through collaborations in science and engineering, we can enrich relations among nations."[9]

The importance to the economy, to society, and to national security

of creating and sustaining successful international graduate collaborations between the US and other countries is recognized by those outside the federal science funding bodies as well. Leaders in the US political and public service communities have joined those in the scientific community to affirm their belief that the United States can neither be economically competitive nor secure as a nation until it extends and deepens its commitment to international research and educational collaborations. The position that international collaborations in science and science diplomacy should play a larger role in US foreign policy is conveyed in the "Statement on Science Diplomacy" below. This statement was issued by a bipartisan group of Nobel Prize-winning scientists, national policy advisors, and national leaders including members from the US Congress:

> US national security depends upon our willingness to share the costs and benefits of scientific progress with other nations. Enhanced international scientific cooperation can also lead to greater economic prosperity at home. The US needs new technologies and markets to create jobs, grow new industries and rebuild consumer and investor confidence. Sustainable international partnerships allow us to leverage limited resources and give American companies access to cutting-edge research and expertise around the world.[10]

Every successful international research collaboration or educational exchange has the potential to yield a full range of benefits to students and faculty, their institutions, and their home countries. We can also learn from failures, as unsuccessful collaborations can shed light on the importance of such things as feasibility planning, sufficient resources, and ensuring a match between quality institutions. As senior administrators and faculty work more closely than before with each other and with policymakers to better understand the impact of collaborations, they can better support each others' missions and contribute to broader public goals.

The US Context for International Collaboration

Chapter Three of this publication discusses specific challenges US universities face in developing and sustaining international programs as well as some strategies they have used to overcome such challenges. But these institutions are also situated in the broader national context. Launching and sustaining international collaborations from the US carries its own unique challenges, despite the many opportunities available to American institutions

as a result of their global reputation for excellence in graduate education. These broader contextual challenges include:

(1) Patterns of student mobility that result in underrepresentation of US domestic students in collaborative programs; and

(2) An "ad hoc" national approach to collaborations that reflects the decentralized nature of graduate education in the US and respects the autonomy of institutions, but which may prove to be insufficient as other countries and regions move forward on more concerted strategic investments in international collaborations.

The student mobility challenge

One of the main motivations behind the internationalization of higher education is a desire to increase student mobility. According to the Institute of International Education (IIE), student mobility has increased by 57% since 1999, with 2.9 million students currently pursuing higher education opportunities outside their home countries.[11] Globally, student mobility is projected to grow to include 7.2 million students traveling outside their home countries by 2025.[12] Overall, the number of US students who studied abroad in 2007/2008 (243,360) and of those international students who studied in the US (241,791) is about even.[13] The vast majority of US students studying abroad, however, are undergraduates.[14] Undergraduate student mobility can take a variety of forms: educational and cultural exchanges of even a short duration; participation in a joint or dual degree program that requires a significant period of time in another country; or a full course of undergraduate study at a college or university abroad.

At the graduate level, the picture is somewhat different. On the one hand, international students make up a substantial part of the US graduate education enterprise. IIE reports that 44% of all the international students in the US are studying at the graduate level, and that the ratio of international to domestic students at the graduate level is nearly ten times greater than that seen at the undergraduate level.[15] International students comprise 16% of the total graduate enrollment in the US, but the percentage is much higher in STEM fields, where international students make up approximately 50% of the graduate enrollment in US engineering programs.[16] International students are highly valued by US graduate programs as they bring depth of content knowledge and fresh perspectives to classrooms, seminars, and labs. Collaborative degree programs can be an important part of an institution's strategy to attract international students and strengthen research. As survey data discussed in Chapter Three show, however, US domestic students

have not taken advantage of these collaborative research and educational opportunities to travel abroad in the same proportion as international students who have participated in them in the US.

One important argument for the value of international collaborations in STEM fields at the graduate level is that, by studying and practicing research in a foreign country, students can expand their international networks and broaden their understanding of how research is conducted in different settings. According to IIE, US graduate students are much less likely to study abroad than many of their international counterparts.[17] There is no definitive data on the number of US graduate students who study abroad at some point during their graduate program. Estimates suggest, however, that the percentage is very small.[18] US citizens and permanent residents in US graduate programs make up just 11% of the total of all US students studying abroad. Even when joint and dual degree graduate programs or special grants programs have been established to create international opportunities for US domestic students, those programs have typically been characterized by an influx of international students, rather than a balanced, two-way flow between partnering institutions.

Judging by the diverse national origins of the students enrolled in US graduate programs, American graduate education is already a highly internationalized enterprise. International students studying in US graduate programs are not only being prepared as researchers in their chosen discipline, they are also learning skills to conduct research and collaborate with colleagues across national borders. These skills will serve them well in the global knowledge economy. US graduate programs must also seek, however, to prepare domestic students with the skills to succeed in a global research enterprise. The development of incentives for US graduate students to take advantage of opportunities to conduct research in international settings is an important goal that the US has not yet fully achieved, despite the existence of valuable programs sponsored by the National Science Foundation and the US Department of Education. As other countries continue to build capacity in R&D and higher education, employers both inside and outside academia are likely to require researchers with access to international networks and greater understanding of differences in the cultural and national policy contexts for research.

The imbalance between international students and US domestic students in joint and dual degree programs may be the result of a variety of factors, such as: foreign language ability (many US students lack fluency in a foreign language), differential costs (many European students are not required to pay

tuition), and cultural issues. The imbalance could also reflect a perception that the benefits of such programs disproportionately accrue to students from partner countries and regions. On the other hand, some partner country institutions have expressed disappointment when a program designed to exchange equal numbers of US and partner country students does not live up to its stated goals, because both partners perceive the value of an equal exchange of high quality students.

Another issue that partnering institutions may encounter concerns the employment opportunities for students after graduation. In some collaborations, especially when one of the partnering institutions is located in a developing country, the potential exists for highly skilled graduates from such programs with advanced training in a discipline to be attracted by job opportunities (and attractive to employers) in the US. More attention to ensuring greater equity between the number of US students studying abroad and international students attending US institutions may benefit the partnership and may also better address a broader national need to prepare US graduate students for success as global researchers and scholars.

"Ad hoc" vs. strategic national approaches

Given the scale of the recent economic crisis that began in 2007, and the serious financial and sustainability challenges that many universities face as a result, it is conceivable that some of the international collaborations planned before the recession will be stalled, scaled back, or dissolved altogether. Lacking good, reliable outcomes measures for demonstrating the success and return on investment of such collaborations, neither the real benefits of continued pursuit nor the consequences of retreat can be well estimated. (The need for better definition and documentation of measurable outcomes is addressed in Chapter Four of this publication.) The consequences of not keeping pace with other countries in the internationalization of graduate education may potentially be experienced, however, in a range of areas. For example, it could result in the loss of "market share" of much of world's best talent to other universities outside the US; in an inability of US domestic graduate students to compete for employment in a global research job market; or even in comparative declines in research productivity. It is arguably all the more important in a constrained fiscal environment for both the US and for individual institutions to balance short-term opportunities, budget realities, and risks with long term needs and strategic priorities.

The number of recent empirical studies on international collaboration that have been conducted in Europe (described in Chapter Two) reflects

the fact that in the past decade, European countries have taken a strategic approach to the mobility of talent and to higher education partnerships. By contrast, the US approach has been much more decentralized and piecemeal. In part, perhaps, this difference can be explained by the decentralized system of graduate education in the US and the comparative advantage US graduate programs have long maintained in attracting top students from around the globe. As other countries have struggled to recruit that top talent, many have been driven to innovate, to forge institutional partnerships and alliances, and to create incentives to internationalize their graduate programs. Meanwhile, US graduate programs that have easily attracted talented students from around the world with only minimal active recruiting may have encountered relatively less pressure to pursue institutional collaborations with international partners for reasons other than strengthening research. For many institutions, this situation changed after steep declines in international student applications to US graduate programs following the attacks of September 11, 2001. The declines suggested to observers that historical trends of positive growth in international student admissions could no longer be taken for granted and arguably sparked a new interest in international collaboration as a student recruitment strategy.[19] The broader pattern of international student applications to US programs suggests more global competition and a declining market share for US graduate programs of global PhD degree production. As these trends continue, international collaborations are likely to play an even larger part in the strategic positioning of US universities.

The Role of Strategic Leadership in Advancing International Collaboration

The question for many US institutions, then, is no longer whether to internationalize graduate education, but rather how to do so in a way that (a) is strategic, proactive, and efficient, and (b) benefits students, institutions, and researchers. In answering this question, graduate deans and other senior administrators play an important role. Even where an existing relationship between two institutions' faculty members and students or existing programs provide the foundations of a given graduate international collaboration, a senior administrator's role can range from administrative support and networking assistance to a shaping, driving force.

An institution's context and mission may strongly influence the forms of collaboration under consideration. Some forms, such as joint or dual degree programs, can involve large numbers of graduate students and faculty and require significant institutional commitment. Others, such as research

collaborations and exchanges, typically involve fewer faculty members and students and comparatively little administrative burden. Regardless of scale, almost all international collaborations involving graduate students benefit from the input of senior administrators such as graduate deans, who typically provide guidance and assistance in coordinating campus units in support of a range of collaborative endeavors. On a daily basis, graduate deans must help decide about what is appropriate for advancing faculty research, improving the graduate student experience, and enhancing the institution's reputation.

Senior administrators and faculty may review together specific opportunities for international collaboration from multiple perspectives, including whether: partnering institutions are comparable in quality and/or complementary in research strengths and resources; the programs are sustainable, or should be, prior to start-up; all provisions for student safety and support, including financial support, have been accounted for; and intellectual property concerns have been addressed. Additionally, graduate deans may help to decide where their institutions' policies can be flexible, and where they must remain firm, with respect to admissions, curricular requirements and structure. Different US institutions may answer these questions in different ways, depending on their educational and research missions and their long-term strategic plan.[20] Because the US graduate education system is so decentralized and provides so much institutional autonomy, the responsibilities of senior administrators such as graduate deans may therefore be greater to ensure that important questions are being adequately answered at all stages. Even in cases where there is a permanent office or administrator to oversee international collaborations, graduate deans can provide essential input on issues ranging from negotiating a memorandum of understanding (MOU) through periodic review. At the same time, current trends suggest that regional accreditors and policymakers may well subject international collaborations to greater scrutiny in the near future, and graduate deans must also be kept abreast of such trends and apprised of assessment outcomes and accountability efforts.

As researchers and senior administrators work together to identify appropriate partners and forms of collaboration, they must also consider larger questions pertaining to institutional mission, risk management, and global responsibility. Graduate deans, for example, may be called upon to ask questions on behalf of their institution such as:

- How large a role should internationalization play in our institution's mission?

- How can graduate education best support that mission: through the establishment of campuses abroad, structured joint or dual degree programs, certificate programs, or less formal research and educational exchanges?
- What are the tangible benefits of collaboration?
- Is all the talk about internationalization hype or fad? Do growth trends in the internationalization of graduate education signal a "gold rush" for revenue or a shift in direction that is necessary to support faculty and student success and generate valuable scholarly and scientific progress?
- How do institutions ensure that they are doing the right thing as responsible institutional world citizens, pursuing their own interests while at the same time acting responsibly to ensure equitable benefits to all partners?

The ability to answer these questions in a way that positions institutions and programs for the future requires strategic leadership. The major finding from this project (as reflected in the input of survey, focus group, and technical workshop participants) is that strategic leadership in support of advancing international collaboration is more important today than it has been in the past. As a result, many graduate deans are discovering the need for greater personal familiarity with the issues, characteristics, and structures common to graduate international collaborations. Given the speed and complexity of growth in international collaborations, researchers and senior administrators together must consider issues related to institutional mission, even as they concern themselves with getting the operational details right in any given collaborative program or exchange. The following chapters do not provide answers to the broad questions listed above, which will vary depending upon an institution's mission and context. Rather, they provide graduate deans and faculty with important background information, criteria they should consider when answering these questions for their own institutions, and policies and practices that many institutions with experience in the area of international collaboration have found successful. This information should be useful to all stakeholders as they seek to answer these broader questions in ways that best serve their students, faculty, and institutions.

II. What Do We Know About International Graduate Degree Collaborations? A Review of Recent Studies

International degree collaborations are common in Europe at the graduate level, and several recent studies have emerged to track characteristics, growth trends, and challenges faced in their implementation and acceptance.[21] Because the majority of international joint and dual degree collaborations among US universities include partnerships with European universities, these recent studies are valuable as background to US institutions seeking to enhance their collaborative strategies. The summaries below represent overall findings from six major recent studies.

The EUA Joint Master's Projects (2002, 2004)

With programs such as SOCRATES and Erasmus Mundus, the European Commission has exercised a major influence on the growth of international collaborations between and among European universities starting in the 1990s.[22] The European University Association (EUA) commissioned a study on joint master's degrees with support from the European Commission's SOCRATES program.[23] In 2002, the EUA surveyed the central university contact person for European higher education policy implementation or mobility programs. Thirty-one higher education systems are represented in the study.

The study found international joint master's degrees to be most common in business, engineering, law and management and more common in Europe at the master's and doctoral level than at the undergraduate level. It also found that degrees awarded jointly with international partner institutions tended to be more expensive than national degrees, and typically the result of inter-institutional rather than intergovernmental agreements. In addition to financial barriers to the growth of joint degrees, the chief European barriers identified in the study were legal: "The award of a single degree in the name of several institutions is still legally difficult [in Europe]. Joint degrees are therefore usually awarded either as double degrees (two separate national qualifications) or as one national qualification with reference to the fact

that it results from a joint program."[24] The authors acknowledged concerns, however, about the data received due to "lack of a clear and generally agreed definition of the joint degree; and…very little information regarding the development of joint degrees at the central level" at European universities.[25]

In 2002-2004, the EUA launched the "EUA Joint Master's Project," a multi-year initiative that documented experiences, challenges, and lessons learned from 11 international collaborative programs involving over 100 universities.[26] The project report includes qualitative research findings on institutional issues and policy needs in areas such as quality assurance and degree recognition; student experience and mobility; and curriculum integration and sustainability.

The 2004 EUA report on this project identified the following **benefits** of joint degree programs to three groups:

- *Students*
  - "A range of social, linguistic and inter-cultural management skills" demanded by academic and non-academic employers;
  - Expanded networks of research contacts; and
  - Greater exposure to a range of teaching and learning methods.
- *Institutions*
  - Enhanced global competitiveness through greater mutual awareness of policies and practices in other European institutions and countries;
  - The ability to gain from complementary institutional strengths;
  - Enhanced international reputation and attractiveness to prospective students.
- *Europe*
  - Facilitated adoption of comparable degree structures, degree recognition and credit transfer policies;
  - Mutual benefit from shared quality assessment approaches;
  - Greater student retention;
  - Enhanced ability to attract overseas students;
  - The establishment of Europe as a global exemplar in discussions of higher education quality.[27]

The EUA Joint Master's Project report also identified **barriers** to creating successful joint programs. The key barriers include the uneven recognition of joint degrees, quality assurance in collaborative programs, and funding. The EUA project noted the great variety of program models and structures that fall under the term "joint master's," and recommended that efforts be made to address serious difficulties in national, legal recognition of these degrees as well the need for common definitions.[28]

German Academic Exchange Service (DAAD) and the German Rector's Conference (HRK), (2006)

Subsequent European studies reported on a variety of joint and dual degrees by documenting national differences in the structuring of these degree programs. A 2006 study of "double, multiple, or joint degrees" commissioned by the German Academic Exchange Service (DAAD) and the German Rector's Conference (HRK) reported on results from a survey of 24 European countries selected from among the then 45 Bologna signatory countries.[29] Results from 303 surveys reflected predominantly German programs (40%), with programs from France, Belgium and Poland each representing about 8%. Most common partner university countries included France (40%), Germany (26%), Spain (17%), the UK (17%), Italy (16%), the Netherlands (11%), Sweden (8%), Poland (7%), and Belgium (7%); the US was identified as a partner by 6% of the respondents. In the study, master's degrees were most prevalent (66%), followed by bachelor's (21%), and bachelor's + master's combined (10%); only 2% of the survey responses reflected doctoral programs. The report noted, however, that while in Europe international collaborative degrees are more common at the graduate level, outside Europe, undergraduate collaborative programs are more common.

Findings in the DAAD/HRK study are reported separately for EU and non-EU participants, though they are not reported by degree level. More than two thirds of the programs described in the study were developed with external funds from either national or regional governments, the European Union or the Erasmus Mundus program; the majority of non-EU countries, however, reported receiving no external financial support.[30] The study found that double or dual degrees, in which students received two or more national diplomas (sometimes accompanied by a joint certification from all partners) comprised 71% of programs represented and were thus much more common than joint degrees, where diplomas were signed by both partner universities, which comprised 16%. A small number conferred only a single national degree, either accompanied by joint certification from partner universities

or not.[31] Legislative restrictions, employability concerns, and administrative difficulties were the most frequently cited barriers to the establishment of joint degrees.

The DAAD/HRK study also found that:

- Fields in which collaborations were most common included: engineering and technology, management sciences, and social sciences.
- The average time spent abroad during the course of study was 12 months.
- Nearly two thirds of the programs were accredited by national or international bodies or both.
- Most programs were taught in the languages of both partnering institutions.

Institute of International Education (IIE)/Freie Universität Berlin (FUB), (2009)

The largest study on international degree collaborations to date was conducted by the Freie Universität Berlin (FUB) and the Institute of International Education (IIE), with funding from the EU-US Atlantis Program of the US Department of Education's Fund for the Improvement of Postsecondary Education (FIPSE) and the European Union Commission's Directorate General for Education and Culture. The 2009 report includes findings from a survey conducted between March and June, 2008.[32] Results represent 180 higher education institutions in the US and the European Union, including undergraduate and graduate programs (master's, doctoral, and other). The findings represent 805 EU country programs + 291 US programs (including 125 graduate programs).

The FUB/IIE study found double degrees to be much more common than joint degrees, "and European institutions are about twice as likely to offer at least one joint degree as US institutions and offer about twice as many such degrees as US institutions."[33] European partners are more common for both US and European institutions than partners from any other region. Top partner countries for EU institutions are the US (N=39); France (N=32); Spain (N=32); Germany (N=29); and the U.K (25); top partner countries for US respondents are: Germany (N=17), China (N=16), France (N=12), Mexico (N=10), South Korea (N=8), and Spain (N=8). Among the 805 programs reported by EU institutions, a much higher percentage (84%) were master's, while undergraduate and doctoral degrees each comprised 16%. Among the

291 programs reported by US institutions, 51% were undergraduate programs; 40% master's; 3% doctoral; and 6% fell into the *"other"* category].

Findings from the FUB/IIE report include:

- The most popular fields for international collaborative programs are: business, management, and engineering.
- US students are less likely to participate in collaborative degree programs than European students.
- The most common language of instruction is English (at 39%).
- A large majority indicate future plans to develop international joint and dual degree programs.

The biggest challenges identified in the study are securing institutional support for programs and securing funding.

Council of Graduate Schools, Member Surveys (2007, 2008)

The only recent studies that have focused exclusively on collaborative degree programs at the graduate level prior to the Graduate International Collaborations Project were the 2007 and 2008 CGS studies on the scope of international joint and dual degree programs at US universities. Those surveys were designed to better understand:

- The prevalence of formal joint and dual degree collaborations between US institutions and international partner institutions at the graduate level;
- The number of these programs by type and by discipline;
- The definitions used to describe these programs;
- The geographical distribution by country and region of the partner institutions; and
- Potential growth in this area as evident by reported plans to develop these degrees within the next two years.

In 2007, a survey was sent to 473 CGS member colleges and universities. CGS received 160 usable responses, with an overall response rate of 34%, although response rates among universities in the top 50 with respect to international student enrollment were twice as high (68%), and those in the top 25 and 10 categories of international student enrollment were higher yet.[34] Analysis of the 2007 survey results found that, overall, dual (or double)

degrees were more prevalent than joint degrees, and that these formal degree collaborations were most prevalent at universities with higher concentrations of international students. Overall, 14% of all respondents reported having established dual degrees, while 10% reported having joint degrees: 11% of all respondents reported that they had established one or more dual (or double) degree programs only; 7% had initiated one or more joint degree programs only; and about 3% of all respondents reported having established one or more programs of both types of degrees.[35] Among the institutions in the largest 50 with respect to the size of international student enrollment, the preference for dual degrees was even more pronounced, with 41% of respondents in that category reporting the establishment of one or more dual degrees, and 12% reporting joint degrees; and among the largest 10 universities in international student enrollment, 44% reported dual degrees, while none reported joint degrees.[36] In 2007, 24% of US graduate schools among the respondents planned to establish new international collaborative degree programs in the next two years, and the percentage is even higher for the institutions with the largest number of international students [33% of the 10 largest and 39% of the 50 largest – which enroll 41% of all international graduate students in the US – indicated that they planned to establish new collaborative degree programs].[37]

In 2008, a survey was sent to 484 CGS member colleges and universities. CGS received 177 usable responses, with an overall response rate of 37%. The combined results of the 2007 and 2008 surveys shown in Table 1 indicate noticeable one-year growth in dual degrees across all groupings of institutions with respect to the size of international graduate student enrollment (overall, top 10, 25, and 50, and all others). Universities reported little growth in joint degrees at US institutions during that time. While strict comparisons are not possible due to the refinement of definitions in 2008, the 2007 and 2008 surveys suggested that the real growth degree in US international graduate collaborations was the dual degree. Over half of the institutions (51%) in the largest 50 with respect to international graduate student enrollment reported existing dual degree programs with international partner institutions, up from 41% in 2007. And in all of the three groupings in the top 50 and higher (top 10, top 25, and top 50), 60% or more institutions report having one or more existing international collaborative programs (dual degree, joint degree, or certificate program).[38]

Table 1. Percentage of US Graduate Schools That Have Established International Collaborative Graduate Programs With Non-US Universities, 2007 and 2008, by International Graduate Student Enrollment Size[39]

	Dual/Double Degree		Joint Degree		Certificate or Other		One or More Programs	
	2007	**2008**	2007	**2008**	2007	**2008**	2007	**2008**
Total	14%	**21%**	10%	**10%**	8%	**8%**	29%	**38%**
International Graduate Student Enrollment Size								
Largest 10	44%	**60%**	0%	**10%**	11%	**20%**	56%	**60%**
Largest 25	38%	**48%**	10%	**14%**	5%	**19%**	48%	**62%**
Largest 50	41%	**51%**	12%	**14%**	12%	**17%**	56%	**60%**
All Others	7%	**14%**	9%	**9%**	7%	**7%**	22%	**33%**

Sources: 2007 CGS International Graduate Admissions Survey II: Final Applications and Initial Offers of Admission, August 2007; and 2008 CGS International Graduate Admissions Survey II: Final Applications and Initial Offers of Admission, August 2008.

Prevalence by Degree Level, Discipline, and Country/Region

Overall, as reported in 2008, collaborations with international partner institutions are by far more prevalent at the master's level than at the doctorate level in the fields of business and engineering, followed by the physical sciences and social sciences (see Table 2). At the doctoral level, collaborative degrees and certificate programs are most common in the physical sciences (at 19%), followed by engineering (at 11%) (see Table 2). At the master's level, collaborations are most common with partner institutions in Europe (36%), followed by China (18%), India (14%), South Korea (12%), Taiwan, Mexico and Singapore (each 8%) and the Middle East (5%). At the doctoral level, 17% of those reporting existing degree collaborations reported doctoral collaborations with Europe, 5% with South Korea, and 3% with China. No doctoral collaborations reported were by respondents with partner institutions in India, Taiwan, or the Middle East. At the doctoral level, 8% of the collaborations were reported with other regions, including Mexico, Turkey, and Russia.[40]

Table 2. Fields of Study in Which US Graduate Schools Offered Collaborative Degree, Certificate, or Other Programs With International Higher Education Institutions in 2008

	Master's	Doctoral
Business	39%	0%
Engineering	26%	11%
Physical Sciences	15%	19%
Social Sciences	15%	5%
Humanities & Arts	8%	8%
Life Sciences	8%	8%
Education	6%	0%
Other	9%	5%

Source: 2008 CGS International Graduate Admissions Survey II: Final Applications and Initial Offers of Admission, August 2008.
Note: Percentages are based on respondents who indicated that their institutions had established at least one dual/double, joint, or other collaborative degree program with an international (non-US) college or university. Responses are not mutually exclusive (some graduate schools may have established more than one collaborative program.)

The Council of Graduate Schools' 2007 and 2008 international surveys identified joint and dual degrees, and dual degrees especially, as growth areas. While this growth was most pronounced at institutions with the highest concentrations of international students, it was not exclusive to those institutions. Internationalization of graduate education in the form of growth in joint and dual degrees as well as certificate and other non-degree collaborations is a phenomenon that is likely to continue to spread, as suggested by CGS member universities' reported plans to continue developing these degrees and to build on the successes and lessons learned from existing collaborations.

Summary

Table 3 compiles information about survey samples and key findings from all of the recent studies summarized above. Several general trends stand out. [We note that these studies yielded information about the scope of collaborative degree programs, but did not provide data that could support "best practice"

guidelines.] While their samples represented different proportions of European nations engaging in intra-European and transatlantic degree collaborations, the most common fields for joint and dual degree programs, overall, are engineering, business, and the social sciences; collaborations at the master's level are more common than at the doctoral level; and dual (or double) degrees are more common in Europe, in part due to the legislative barriers to joint degrees in place at the time these studies were conducted. Though international collaborations are more common in Europe at the graduate level than at the undergraduate level, the reverse is true in the United States. Several studies noted that a lack of common definitions poses challenges for study and recognition of collaborative degrees, and that more research is needed on best practices in developing and sustaining international collaborative degree programs.

Table 3. Recent Studies on Joint and Dual Degree Programs, Scope and Key Findings

Study (Source)	Survey Population: respondents	Number of Programs Represented by Level (US/EU)	Number of Programs Reported by Degree Type (US/EU)	Key Findings
EUA (2002)	26 countries	*Data on number of programs not collected.*	Joint and Dual (all Europe)	* There is no common definition of "joint degree," which is used to describe a variety of program structures. * Collaborations are most common at doctoral and master's than undergraduate degree levels in Europe. * The absence of legislation does not prevent joint programs from being established, but may create problems for the awarding and recognition of degrees. In some countries, legislation hinders joint programs. * Double degree awards or single national qualification are most common (even when recognizing joint programs), due to legal difficulties surrounding the awarding of one degree in the name of two institutions.
EUA (2004)	73 institutions (11 joint master's programs) *supported and studied by EUA*	All Master's (0/11)	Joint (0/11)	* Most common at doctoral and master's than undergraduate degree levels.
DAAD/HRK (2006)	303 surveys from 24 European (Bologna signatory) countries	Bachelor (63) Master's (197) Bachelor + Master's (30) Doctoral (6)* ** Based on reported percentages.*	Dual (-/212) Joint (-/48)* ** Based on reported percentages. (Joint degrees more common among Erasmus Mundus participants.)*	* Most common in engineering, management, and social sciences. * Legislative restrictions, employability concerns, and administrative difficulties cited as barriers to joint degree. * More than 2/3 developed with external funds. * 64% accredited by national or international bodies or both. * Majority offer classes taught in both national language and language of partner institution country.
Freie/IIE (2008-09)	180 institutions (92 EU; 81 US; 7 non-EU European)	Undergraduate (149/126) Graduate/master's (115/548) Doctoral (10/127) Other (17/4)	Joint (38/50) Double (240/613) Planned (110/172)	*Double degrees much more common than joint degrees * In US, more common at undergraduate level. * Most common in business, management, and engineering. * US students less likely than European Students to participate. * Large majority in US & EU plan to develop more joint and dual degrees. * Biggest challenges for US: funding, sustainability, and institutional support.
CGS (2007)	160 institutions (US only)	*Data on number of programs not collected.*	*Data on number of programs not collected.*	* Most common in business, engineering, social sciences (master's); and in engineering and physical sciences (doctoral). * Partnerships most common with Europe, China, India, Korea, Middle East, Other (Mexico and Singapore).
CGS (2008)	177 institutions (US only)	*Data on number of programs not collected.*	*Data on number of programs not collected.*	* 31% of graduate schools planned to establish new international collaborative degree programs within 2 years (up from 24% in 2007). * 60% of the 10 institutions with largest international student enrollment had one or more such programs.

III. INTERNATIONAL COLLABORATIONS AT THE GRADUATE LEVEL: PERSPECTIVES OF GRADUATE DEANS AND GRADUATE RESEARCH FACULTY

Characteristics of US Joint and Dual Degree Programs

One of the major activities of the Graduate International Collaborations Project was to design and conduct a survey on formal international degree collaborations and non-degree research collaborations. This survey was developed to gain a deeper understanding of the motivations, challenges, requirements and structural characteristics of formal joint and dual degree collaborations. Eighty-four institutions were surveyed. The sample was composed of 47 institutions that had reported in prior 2007 and 2008 CGS surveys having existing programs and 37 that reported planning to develop programs within the next two years. Forty-three universities provided valid responses, resulting in an overall response rate of 51%. [For more information about survey methodology, see Appendix C.]

Definitions

In answering the survey questions, respondents were asked to consider the following common definitions (further refined from the definition used in the 2008 survey described in the previous chapter):

> **DUAL (OR DOUBLE) DEGREE PROGRAM: Students study at two or more institutions and upon completion of the program receive a separate diploma from each of the participating institutions.**
>
> **JOINT DEGREE PROGRAM: Students study at two or more institutions and upon completion of the program receive a single diploma representing work completed at two or more institutions.** (This diploma may be "double-sealed" or "double-badged," containing names and official seals of all institutions in the international collaborative

arrangement, or may be issued by the home institution, with that institution's seal only and accompanied by a transcript, certificate, or other document indicating the student's participation in the international collaborative program.)

A. Institutional motivation

International graduate degree collaborations typically require support from multiple people and units within a university all of whom may have slightly different, though ideally complementary, motives for institutionalizing a partnership. The survey first asked: *What are the primary motivations for your institution to partner with an international institution on joint and dual degree programs?* The most frequently cited motivations in order of frequency (N=43) are listed below (respondents were asked to check all that apply):

- Attract international students (86%)
- Faculty Interest (84%)
- Administrative Interest in Internationalization the Institution (81%)
- Strengthen Academic Research Quality (79%)
- Increase Prestige (53%)
- Increase Revenue (47%)
- Employer/Industry Demand (35%)
- Other (12%)
- Provide International Experience for Students (5%)
- International Relations/Outreach (5%)

The institutional motivations reported reflect a full range of interests and missions supported by graduate school administration. Overall, the institutional motivations for international collaboration at the graduate level tend to cluster around issues related to research and program quality. Less than half of the respondents indicated that revenue or prestige was a primary motivation for partnering on joint or dual degrees; [data below from subsequent questions on challenges further suggest that joint and dual degrees in the sciences are not typically revenue generators]. Of course, the options are not mutually exclusive. One means of increasing revenue is by recruiting international students who may pay their own tuition, and the "faculty interest" that institutions seek to support may include strengthening the quality of academic research in their particular areas. Although the provision

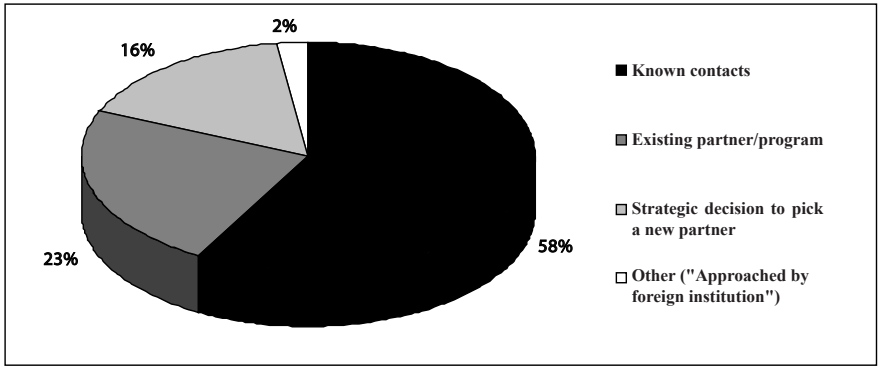
of an international experience for students (a common motivation reported for institutional support of undergraduate students) was not an option on the survey, two respondents (5%) provided this as an "other" institutional motivation for pursuing joint and dual degree partnerships. The survey also asked respondents to rank order these motivations in terms of importance. Interestingly, "Strengthen[ing] academic research quality" was listed as most important by the higher percentage (42%) of respondents, with 73% listing it as the first or second most important. "Attracting international students" and "Faculty interest" were ranked as most important by approximately a third of respondents (33% and 31%, respectively). An "Administrative interest in internationalizing the institution" was ranked as such by a quarter (24%).

B. Partner institution selection

Collaborative degree programs at the undergraduate level that focus on students' educational and cultural opportunities may be initiated in a variety of ways: at the instigation of senior university administrators, by the availability of resources that foreign governments have committed to promote exchange, and by faculty and international offices that support particular programs.

To gain a better understanding of how institutions perceived the primary reason for initiating such programs at the graduate level, the second question asked: *How are Partner Institutions typically chosen in your joint or dual degree programs?*

Figure 1. Partner Institution Selection (N = 43)



Source: CGS Graduate International Collaborations Survey, 2009

Notably, at a time when some US institutions are receiving multiple requests for formal collaboration from institutions abroad, only one institution indicated that its degree collaboration was initiated by a foreign

institution. As with the responses provided for the question on institutional motivation, responses here are not necessarily mutually exclusive, and in fact collaborations may develop as a result of more than one of the above factors. (An existing partnership may, for example, result in, or emerge from, the deepening of faculty contacts that are required for a proposed program to succeed.) The distribution of responses, however, indicates that the primary criterion in selecting a partner institution for graduate international collaboration for the vast majority of respondents was an interest in expanding a relationship already in place, whether it was based on known faculty contacts or existing collaborative programs. Such criteria are often described as the "bottom up" (i.e., faculty- and program-initiated) rather than "top down" (e.g., senior administration-initiated) origins typical of graduate collaborations. Only 7 of the 43 respondents (16%) reporting that partner selection was a "strategic decision."

While graduate deans describe themselves as providing leadership in various aspects of joint and dual degree development, as discussed later in this chapter, partner selection at the graduate level usually originates not from contacts between senior administrators (or governments) but between faculty researchers. All collaborations, however, require careful assessment of whether the partnering institutions are compatible and of comparable quality to merit a formal, degree partnership, as opposed to a more informal research exchange involving graduate students.

C. Field distribution

As noted in Chapter Two, earlier CGS survey research on the scope and field distribution of joint and dual degrees between US institutions and institutions from other countries found that the greatest proportion of such collaborations were in business and engineering, followed by physical and social sciences, with less than 10% of institutions with international master's or doctoral collaborations reporting such degree programs in the humanities or life sciences (see above, Table 2). Prior CGS surveys did not request data on the number of programs. In this more recent survey for the Graduate International Collaborations Project, universities reported on 168 programs overall. In order to interpret subsequent responses where mental averaging across programs was sometimes required, and to account for possible field differences reflected in those responses, we asked: *How many collaborative degree programs of each type [does your institution] have with an international partner institution?* CGS later followed up with a second, short questionnaire to respondents that requested additional data

on those collaborative degree programs reported by degree level (doctoral versus master's). The distribution of programs is indicated in Table 4. [The response rate for the follow up survey was 100%].

Table 4. Numbers of Programs by Field and Level (N = 43 institutions responding on 168 programs)

	Business	Engineering	Other Research Degree	Other non-Research (Professional) Degree	*Total # of Programs*
Joint Master's Degrees	18	8	4	2	32
Dual Master's Degrees	48	32	27	2	109
Joint Doctoral Degrees	0	3	4	0	7
Dual Doctoral Degrees	2	9	8	1	20
TOTAL	*68*	*52*	*43*	*5*	N=168

Source: CGS Graduate International Collaborations Survey, 2009

Overall, approximately a third (31%) of the 168 programs are in engineering; 40% are in business; and another quarter (26%) are in "other research" disciplines.[41] Aside from business, where US international graduate degree collaborations are most prevalent, only four master's and one doctoral program were in non-research (professional) fields. Among the "other research degrees" represented in the survey findings, eight are reported as joint degrees and 35 are reported as dual degrees.[42] The dual master's was the most common type of collaborative degree, with 109 programs reported by survey respondents.

D. Accreditation and approval

One of the most frequently cited challenges identified in the focus group was accreditation, which is discussed in greater detail in the next section. In the focus group, as in prior CGS member discussions in summer workshop and annual meeting sessions, it was suggested that joint degrees were subject to much greater scrutiny than dual degrees in these processes. The survey therefore asked: *Who has been involved in accreditation or external approval?*

Table 5. Accreditation and Approval Required by Degree Type (N=43)

	Joint Degrees	Dual Degrees
Regional accreditors	26%	26%
State board(s)	9%	14%
International accrediting bodies	7%	2%
Professional accrediting bodies	19%	12%
Other	9%	5%
None (N/A)	9%	33%

Source: CGS Graduate International Collaborations Survey, 2009

Equal percentages of respondents indicated that regional accreditors were involved in both joint and dual degrees. While this parity might suggest that the two types of degrees require equal degrees of external approval, the overall difference between the percentage who reported no approval required for joint degrees (less than 10%) and those who reported this for dual degrees (one third of respondents) confirm anecdotal reports that the administrative burden for joint degrees is much higher. This may contribute to the higher growth rates of joint degrees. Specific issues that may arise in accreditation approval and review, such as double credit concerns, institutional comparability, and transfer credit, are discussed in greater detail below.

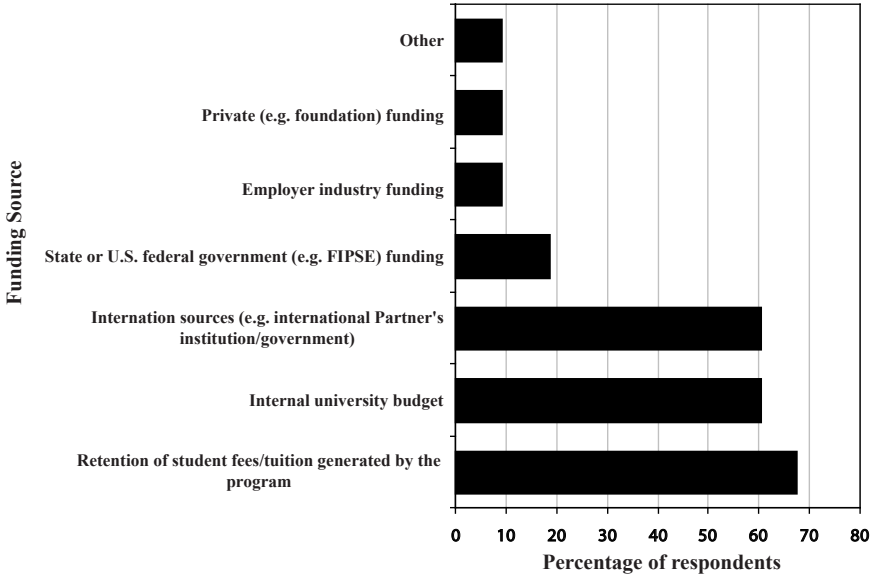
Accreditation, approval, and national recognition have been documented to be among the main challenges facing European institutions as they develop joint or dual degree programs with international partners. In the US, while national legislative barriers to such programs are not an issue, regional accreditation and approval by other bodies (such as state boards and professional bodies) must be considered as institutions seek to develop successful programs and choose between different structural possibilities.

E. Sources of funding

Among the greatest challenges in developing and sustaining international degree collaborations identified in our focus group and in this survey is funding. We asked institutions to *describe the source of funding for joint*

and/or dual degree programs currently in place or being planned? Results are shown in Figure 2 below.

Figure 2. Sources of Funding for Joint and/or Dual Degree Programs (n=43)



Source: CGS Graduate International Collaborations Survey, 2009

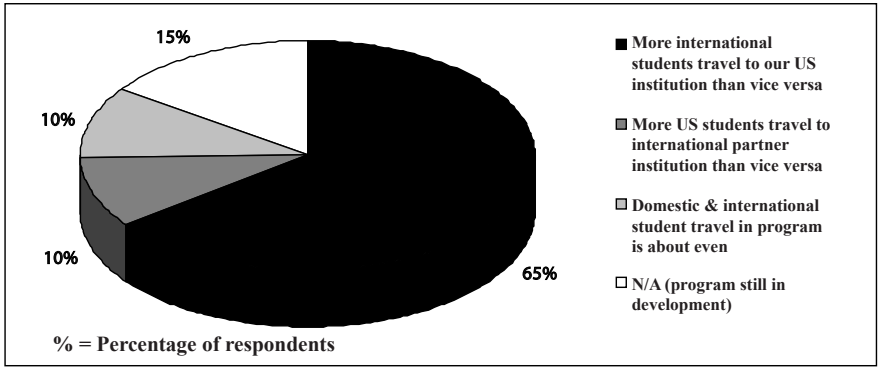
Overall, the biggest source of funding for international collaborative degrees for a typical US institution was the retention of student fees/tuition generated by the program, followed by internal university budget funds and international sources. As shown in Figure 2, fewer than a fifth of respondents reported external support from state or US federal government sources. [By contrast, recall that over two-thirds of the 303 European programs included in the DAAD/HRK study discussed in Chapter Two reported receiving external government support.] While we recognized that a question requiring respondents to mentally average different programs may pose difficulty, we also asked respondents to estimate the percentage of funding from each source for joint and/or dual degrees at their institution. Notably, 23% reported that the retention of student fees provided 100% of program funding, and 62% estimated that this source provided 50% or more of program funding. By comparison, the next most cited sources, "Internal university budget" and "International sources," were reported as providing 100% of funding by

only 4% and 9% of respondents, respectively, and as providing 50% or more by less than a quarter (24%) and less than half (45%), respectively. There are some limitations to these percentage estimates, and there are likely to be differences by discipline that are masked by the aggregated field data and the inclusion of doctoral and master's degrees. The results, however, strongly suggest that the majority of joint and dual degree programs are (and/or should be) self-funded rather than reliant upon external sources of funding.

F. Student and faculty mobility

The challenges of student mobility in graduate international programs are well documented. As discussed in the introductory chapter, domestic students tend to travel less in such collaborations than students from abroad, resulting in asymmetries that can sometimes be frustrating to program champions from both partnering institutions. This asymmetry was confirmed by responses to the following survey question: *Which of the following best describes overall student mobility in your programs?*

Figure 3. Characterization of Student Mobility.



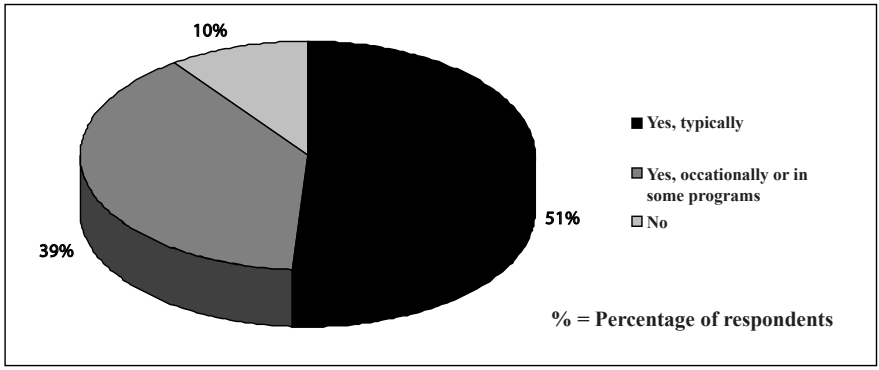
Source: CGS Graduate International Collaborations Survey, 2009

The pattern illustrated in Figure 3, with 65% of respondents reporting that more international students travel to the US institution than vice versa (versus only 10% reporting that more US students travel to partner institutions or that the proportions are about even) suggests a huge challenge for US institutions seeking to build international partnerships. This pattern also suggests a number of subsidiary challenges for preparing students to succeed in a global research community. Parity in numbers of students traveling to each partner institution is often a metric of success defined for the program at the outset. This metric may be built into an MOU, and it

may be one of the motivating principles behind enthusiasm for a formal, degree partnership. More information is needed to better understand why the asymmetry exists. Possible reasons include: student funding; language preparation; degree recognition and employability; and concerns, especially at the doctoral level, about supervision and timely progress. Institutions seeking to develop international collaborations should be cognizant of the student mobility challenges and make provisions, where appropriate, to incentivize the participation of domestic students.

Focus group discussions described in the next section identified the importance of faculty travel for ensuring a smooth administrative start to collaborative degree programs. In the survey, we were curious to learn how prevalent faculty travel was for research purposes (as opposed to administrative purposes) in these collaborations. We therefore asked, *Do your joint or dual degree programs involve faculty travel between institutions for the purpose of teaching and/or research?*

Figure 4. Characterization of US Program Faculty Mobility (N = 43).



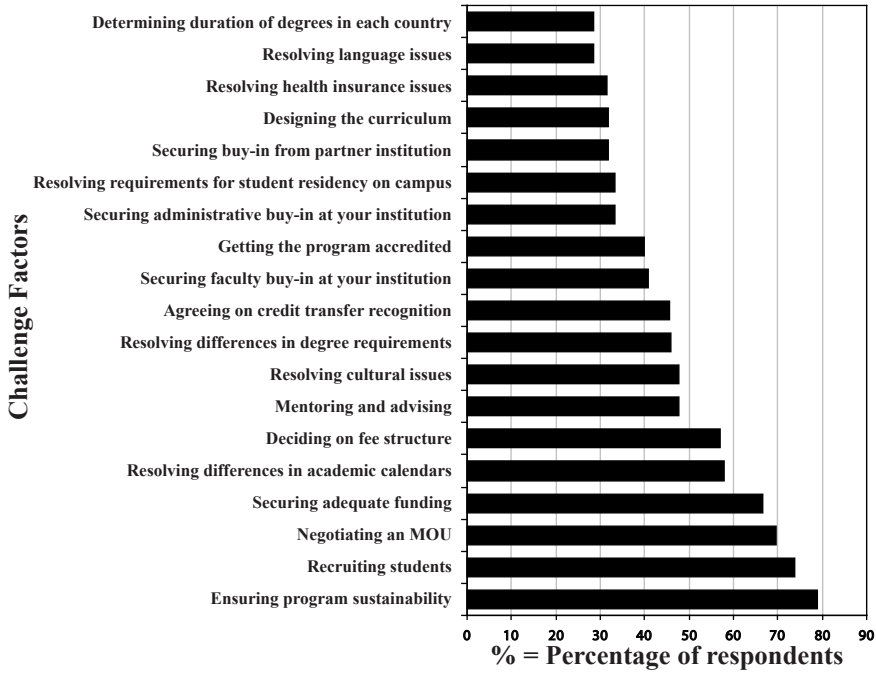
Source: CGS Graduate International Collaborations Survey, 2009

As Figure 4 shows, about half of respondents indicated that faculty travel in their joint or dual degree programs for teaching and research purposes, apart from purely administrative purposes. The relatively high levels of faculty travel may suggest that a lack of faculty support for student travel in such collaborations may be less of a disincentive to US student travel in international collaborative programs than other factors (such as language ability and financial issues). Faculty travel can help to address some of typical concerns when research students travel abroad such as ensuring that there are mechanisms for adequate student supervision and advising on theses or dissertations.

G. Challenges by degree type

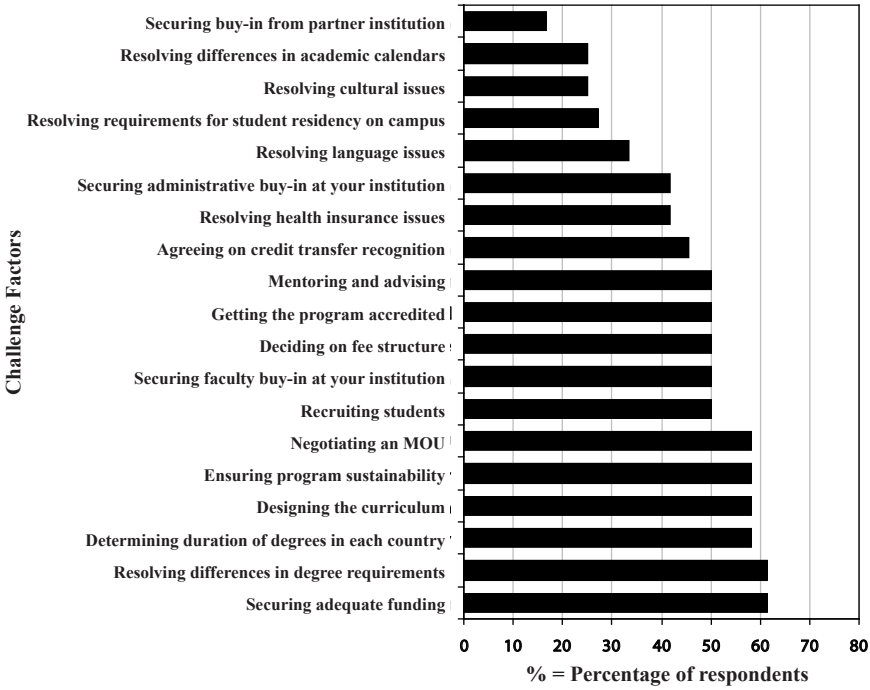
International degree collaborations present challenges. Some of these must be overcome in any degree collaboration between two institutions, some are unique to international collaborations but common to both joint and dual degrees, and some are relatively specific to the particular structure of degree collaboration (e.g., joint vs. dual). Figures 5 and 6 show the extent to which various factors were perceived as "very challenging" or "somewhat challenging" in setting up dual degrees and joint degrees, respectively. Overall, the idea that joint ideas pose greater administrative challenges than dual degrees, suggested by growth patterns reported in prior CGS surveys (discussed above in Chapter Two), is given further support here. Eleven factors were reported by 50% or more respondents with international joint degrees as very or somewhat challenging (Figure 6), as compared to only six factors reported by 50% or more among those with dual degrees (Figure 5). [Note that the numbers of institutions reporting on the various degree structures differ: N=23 institutions responding on dual degree programs; N=12 institutions responding on joint degrees.]

Figure 5. Extent to Which Factors Were "Very/Somewhat Challenging" in Setting up Dual Degree Programs (n=23)



Source: CGS Graduate International Collaborations Survey, 2009

Figure 6. Extent to Which Factors Were "Very" or "Somewhat Challenging" in Setting up Joint Degree Programs (n=12)



Source: CGS Graduate International Collaborations Survey, 2009

Results shown in Figures 5 and 6 suggest the factors that pose **common challenges** across the two degree types (identified by 50% or more respondents in both questions) include:

- ensuring program sustainability,
- securing adequate funding,
- recruiting students,
- negotiating an MOU, and
- deciding on fee structure.

Factors that appear to pose **greater challenges for joint degrees** than for dual degrees include: determining the duration of degrees in each country, designing the curriculum, and resolving differences in degree requirements

(which, along with securing adequate funding, was the number-one challenge reported for joint degrees). Factors that appear to pose **greater challenges for dual degrees** include: resolving differences in academic calendars and resolving cultural issues. (Many of these challenges are discussed in detail in the section below, "Common Issues and Success Strategies in Developing Sustainable Joint and Dual Degree Programs.")

Three of the top five challenges common to joint and dual degrees relate to issues of funding. Differences between the availability of external support for the development of such programs in Europe and the scarcity of such support in the US may prove to be a significant factor in the long-term sustainability of some of these US collaborations with international partners. Funding issues were also identified, however, in the European studies and the IIE/FUB study discussed above in Chapter Two, suggesting that even where external start-up funds are available, funding for long-term sustainability is an issue.

H. Concerns about double credit for a single body of work

Despite the greater administrative burden that joint degrees pose, there are strong arguments in the graduate community for the value of a true joint degree, especially in research fields where a thesis is required. One of the least resolved issues in the acceptance of dual degrees as a structure for graduate international collaboration is the argument that the dual degree potentially rewards students with double credit for a single body of work. When asked, *Were concerns about students receiving "double credit" for a single body of work (e.g., thesis or coursework) an issue in the implementation of your international collaborative degree programs?,* responses were almost equally divided: 51% said that this was a concern, and 49% reported that this was not a concern. Explanations and solutions ranged widely, including: firm institutional decisions "not to explore dual degrees" ("we will only use single-diploma model") to "[asking] students to sign a form acknowledging that they would be receiving dual degrees for a single curriculum and dissertation."

One university reported that its "Graduate Council has established a policy that a single research project can be used to earn only one degree," thereby discouraging dual degrees as an appropriate structure for graduate research collaborations. Several universities noted that existing policies for intra-university interdisciplinary work or institutional collaborations between their own institutions and other domestic institutions have helped to guide university policy on this issue. Existing policies may accommodate

or prevent approval of dual degrees as appropriate structures for graduate degree collaborations. One respondent replied that while the existing Graduate College policy was upheld to address course credit transfer, that policy would not allow theses or dissertations completed elsewhere to be counted towards a degree at that institution. Another institution resolved the double credit issue differently by distinguishing between coursework and thesis requirements and turned to existing policies regarding interdisciplinary research degrees to accommodate a dual degree structure: "Having only [one] thesis for 2 degrees continues to be an issue, but has been partially resolved by using an existing internal process for interdisciplinary degree programs as a model for dual degrees." One respondent discussed the importance of the work being deemed appropriate to doctoral-level research as evaluated by experts "not associated with either institution" and meeting requirements of each institutions resolving the issue.

There is no consensus on how institutions should address concerns about the potential for double degrees to confer double credit for a single body of work. Graduate deans, graduate councils, and graduate colleges use a variety of policies depending upon whether they perceive the priority issues to be related to the nature of a doctoral degree and dissertation, the protection of institutional identity, or the integrity of individual students in appropriately identifying their graduate dual degree credentials to prospective employers. The rich variety of responses to the survey's question about this issue points toward the important role that graduate schools and strategic institutional leaders play in the development of international collaborations.

I. The role of the graduate dean and graduate school in overcoming challenges

Graduate deans and graduate schools describe themselves as providing "technical support," "follow up" and sources of institutional "good will." In addition, graduate deans indicate that they support collaborations by providing templates, administrative resources, and sustainability strategies. As expressed in one response, "So many times some of these proposals could have been derailed by a well-meaning office on campus and the graduate dean would have to call directly and resolve the issue so that the faculty could move forward." Other survey responses indicate that international collaborations are evolving from mainly faculty-instigated programs to strategic institutional partnerships where faculty and graduate school leaders are working in collaboration. When asked how universities had overcome some of the main challenges they faced, several open-ended responses indicate that what once began on their campuses as faculty-directed efforts in which the graduate

school administration served a primarily supportive role have developed into more strategic institutional partnerships in which graduate deans and faculty work together; the latter model has helped to address some of the sustainability, funding, and administrative start-up issues. One response captures this:

> Our programs have been in place for several years. Initially, it was a matter of identifying faculty linkages with colleagues overseas and then matching curricula for the degree program. These partnerships were initially based on personalism. We have worked to involve new faculty in the process through orientation, information at the opening convocation and by bringing highly qualified students from abroad to study on our campus. Exposure to exceptional students in graduate courses does a lot to convince faculty of their potential as researchers and industry leaders. Faculty begin to gravitate toward and encourage the international exchange programs.

Multiple responses also describe the importance of identifying models that can be used and replicated for future collaborative programs. While faculty interest and collaboration provide the foundation for success in most international graduate research programs, graduate schools often play a vital role in overseeing the coordination of units that all need to be in communication in the development and sustainability of successful programs. As described in several open-ended responses to the question about strategies for overcoming typical challenges, multiple stakeholders may include: senior graduate administrators (graduate deans and senior research administrators), division or college deans, institutional CFO's, departments, governance bodies and faculty, and the office of international education, not to mention relevant stakeholders from the partner institution.

Common Issues and Success Strategies in Developing Sustainable Joint and Dual Degree Programs

A key element of the Graduate International Collaborations project was a focus group that explored the experiences of graduate deans who had played a role in creating, implementing, or maintaining collaborations. The focus group was designed to gather first-hand accounts of the challenges involved in overseeing joint and dual degree programs, although CGS also collected information about other, less formal collaborations, such as research

exchanges. The discussion format presented a number of advantages: it allowed participants to give specific reasons behind decisions made by their universities regarding joint and dual degree programs, to provide context for their observations, and to explain the dynamic relationship between the various institutional and regional factors that affect these degree collaborations. Focused principally on the US context, the focus group included ten graduate deans at US institutions and one graduate dean at a Canadian university. For a discussion of the focus group methodology, please see Appendix C.

The protocol for the focus group included questions covering the following general topics, which are discussed in detail in the following sections:

- The role of the graduate dean in facilitating collaborations
- Benefits of collaboration
- Forces behind joint and dual degree programs
- Advantages/disadvantages of joint versus dual degrees
- Factors promoting program success
- Challenges encountered, and strategies for overcoming them
- Program sustainability
- Areas where future research and coordinated effort are needed

Why pursue a joint or dual degree program?

Forces driving international curricular degree collaborations

As presented in the introduction, a number of recent studies have surveyed the motivations behind international collaborations and outlined several important institutional drivers.[43] Many of the motivations cited in the focus group fell within general categories of motivation, such as the desire to expand curricular options or to increase the enrollment of foreign students. At the same time, the focus group also uncovered some of the particular reasons motivating international joint and dual degree programs at the graduate level. More specifically, respondents placed the greatest amount of importance on expanding and enhancing research capabilities and resources, a motive explored in greater depth in the upcoming section ("Selecting a Partner").

When asked a general, open-ended question about the forces motivating universities, programs, or departments to pursue international degree collaborations, a number of participants divided drivers into the categories

of "bottom up" (faculty-driven) and "top-down" (administration-driven). In describing "top-down" drivers, participants identified a range of university leaders as key actors, including the President or Chancellor, Provost, the Director of the International Center, and the Graduate Dean. An additional administrative driver was a comprehensive institutional agenda or strategic plan to foster internationalization or degree collaboration. International institutional partners were also cited as driving forces, but only in cases where there was reciprocal motivation from faculty and administrators at the home institution.

It is important to emphasize, however, that participants in the focus group tended to describe these forces as working simultaneously. Among the eleven participants, seven listed *both* faculty and administrators as initiators of collaborations, and several presented the interests of different stakeholders as overlapping or shared. As one dean put it,

> At [my university,] there is a bottom-up motivation, but there is also a broader [institutional] philosophy with multiple dimensions. Collaboration is seen as a public good. It also satisfies strategic concerns by adding value to degrees. It supports research between faculty and different institutions. Collaboration is also pragmatic for students who want training from different institutions. It also fits the agenda for creating formal international links.

Of course, this comment describes an institution where there is generalized support for international collaborations. At some institutions, a greater degree of motivation may come from faculty, and in these cases, the graduate dean may need to work more actively to harmonize the priorities of faculty and administration.

Benefits of international collaboration

Participants cited four main areas in which international collaborations provide benefits to institutions and suggested that multiple groups benefited in some areas.

Table 6. Benefits of International Collaborations for Graduate Students, Faculty, and Institutions

What is the benefit?	Who benefits?	How?
Development of research activities	*Students*	More training and research opportunities.
	Faculty	Broader research networks and access to new knowledge, skills, and resources.
	Institutions	Broadened research capacities: a collaboration can "bring together two sets of expertise."
Increases in student mobility	*Students*	Cultural perspective and skills required for international research projects.
	Institutions	Ability to attract international students and "go global at home."
Support for Institutional Plans	*Institutions*	Adaptation to international mission and a "new global model in graduate education." Support for strategic efforts to develop a certain area of academic study and research. Support for efforts to develop ties with certain regions and countries.
Financial benefits	*Institutions*	Increase in revenues in cases where a degree program is profitable. Ability to meet new demands for international degrees or degrees with "added value."

Source: CGS Focus Group on International Joint and Dual Degrees, 2008

The role of the graduate dean

The focus group shed light on the variety of roles played by graduate deans in facilitating joint and dual degree programs and on the range of forces that shape their work. When asked to describe their roles in creating or managing international partnerships, for example, participants described their activities in relation to a number of different institutional regulatory bodies: the Graduate Council, the Provost's Office, and Executive Committees within the Dean's Office or Graduate School, some or all of which were involved in the process of approving new degree programs. As explained in a later section, "The Challenges of Implementation," the rules of these various bodies, along with state laws, may also shape a graduate dean's choice to pursue a joint versus a dual degree program.

As the university leaders who typically provide an institution-wide perspective on all graduate programs, graduate deans may consider the advantages of partnering with a foreign institution in the context of the university's long-term plans and priorities. This role can be more difficult in the relatively unfamiliar territory of international partnerships. When describing their approaches to collaboration, participants generally expressed a need for openness balanced by careful attention to the unique needs of the institution. Focus group comments suggested that research on a potential partner may often lead to promising possibilities. For example, one dean reported that he had been approached by an institution that had already approved a collaboration with his university before seeking its approval and input. In spite of his initial skepticism, he found that sharing the proposal was worthwhile because this led to significant faculty interest. Another dean described her position as one of selective encouragement of new possibilities: "We would be open to [programs] that emerge, but we are not going to actively encourage [programs] that fall outside of our areas of focus." Different institutional contexts may allow for various degrees of flexibility about the number and kinds of collaborations that can be pursued and encouraged.

A number of the graduate deans in the focus group also reported that they played a role in reconciling the commitments of their institutions to domestic students with the plan to internationalize their campuses. This role was more difficult for deans at state institutions with policies that restricted many services and funds to in-state students or to programs designed specifically to serve in-state students. While some deans reported that the goals of internationalization and service to domestic students were sometimes presented as conflicting goals in state-level discussions of higher education policies affecting internationalization, they also noted that international collaborations may support, rather than compete with, broader institutional missions that benefit all students. As the table above shows, ("support for institutional plans,") some deans may strategically choose collaborations that broaden resources in those academic fields the university is seeking to develop.

The Challenges of Start-Up

Selecting a partner

The process of gathering information about international partners is a time-consuming but necessary step in the process of creating (or choosing not to

create) a collaborative degree program. Sometimes institutions will already have well-established relationships with their potential partners when the degree program is first proposed; at other times, they must conduct extensive research on an institution about which they have very little information and no prior relationship.

When asked about the process of selecting and approving partners, focus group participants gave particular attention to strategies used in cases where the proposed collaboration had been initiated by faculty members. A number of the deans described the process by which faculty at their institutions submit to their offices Memoranda of Understanding (MOU). MOUs are designed to ensure that both partnering institutions meet certain criteria before they invest the time and resources needed to go forward. Subsequent activities, such as conducting additional research on a potential partner's affiliations and credentials, are typically necessary before an actual partnership is approved. Some participants indicated that they also use less official documents and procedures to shape the process, including guidelines for faculty members who propose international degree programs. Such guidelines, they noted, can help faculty to better understand the institutional procedures involved in creating a new degree program and limit the number of proposals that are not consistent with broader university standards and goals. Several deans at large research institutions reported that well-established procedures introduced at an early stage help them to save the time of both faculty and administrators involved in the process.

Participants gave less attention to "top down" approaches to the selection process. A number of deans indicated that their role was to guide selection by providing a framework through which faculty-driven collaborations could be chosen. They reported a range of criteria used at their institutions for selecting and approving a partner:

- Evidence of research cooperation between the involved institutions
- Evidence of faculty interest
- The overall quality of the partner institution and its faculty
- The partner's experience creating international collaborative programs
- Satisfaction of strategic interests
- Availability of adequate funding
- Certainty about the partner's investments of time and funding

Focus group participants gave special emphasis to the importance of ensuring the presence and quality of collaborative research projects between their universities and potential partners. A number of participants emphasized two-directional research relationships: some of the phrases used to characterize such relationships included "exchanges in both directions," "mutual collaboration," "research cooperation," and "mutually beneficial research." These responses suggest that many deans are looking for an institutional relationship that is "collaborative" in the real sense of the term, involving the commitments, resources, and strengths of both universities involved. Deans also cited such a relationship as a key criterion for deciding whether or not to scale up an existing exchange program or research collaboration. For example, one dean explained that research collaborations may arise out of more personal or accidental relationships among faculty, as when faculty who are alumni of the same institution maintain or create ongoing research relationships. In these cases, it is important to ensure that the collaboration makes sense not only for the researchers, but for their institutions as well.

Participants also stressed the importance of ensuring faculty interest. Some suggested that the success of a program can depend on the presence of faculty willing to invest time and energy in creating and developing it. At the same time, faculty interest and motivation can be a byproduct of other factors. For example, one dean posited a relationship between the quality of the partner institution and the motivation of his own institutions' faculty to make the program a success: if the program is well-sustained on the partner's end, and if the faculty from the partner institution make other significant contributions to the collaboration, then faculty at the home institution are more likely to sustain an interest in the program. A program that demands an unequal amount of time and energy from the faculty at the home institution may lead to the overtaxing of faculty and dwindling interest in the collaboration. These comments suggest that even when faculty initiate the selection of a partner institution, it may be important to ensure that this interest can be sufficiently sustained.

The Challenges of Implementation

Determining structure: the pros and cons of "dual" vs. "joint" structures
The benefits of a joint versus a dual degree program depend heavily on restrictions imposed by national and state laws and institutional guidelines that are often influenced by these regulations. As reported in the survey

results, joint degrees tend to require layers of approval and accreditation that dual degrees do not, and the focus group confirmed this result: the majority of deans stated that dual degrees were preferred at their institutions because this degree type requires significantly fewer administrative burdens than joint degrees. Of the five deans who addressed this question, only one indicated that neither type of degree posed more administrative barriers than the other, while the other four indicated that dual degrees were easier to implement. One dean indicated that the administrative efficiency associated with dual degrees is directly tied to the fact that there is a longer "tradition" of degrees of this type. This observation raised an important question: to what extent are dual degrees preferred at US institutions because they are more familiar and accepted, and to what extent do they present other, substantive advantages over joint degrees?

According to participants, one reason that dual degrees are preferred is that they present certain financial advantages. More specifically, dual degrees may offer greater financial flexibility, as they may be easier to dissolve when shifts occur in core faculty or student interest. In a dual program, an institution does not need to maintain a reciprocal commitment to the other institution and its students. In the case of joint degrees, on the other hand, institutions may need to make a strong early commitment to work with the partner institution to maintain a "pipeline" of students. For this reason joints may require closer attention to sustainability.

A second reason given in the focus group for preferring dual degrees is that graduates earning this type of degree may be more employable. There is also some secondary material suggesting that the value of each separate degree may be more portable, or easily recognized in the country of the awarding institution.[44] One dean supported this idea with anecdotal evidence of students who had found it easier to find jobs once they returned to their own countries.

As discussed previously, however, dual degrees also raise questions about whether they confer "double" recognition for what amounts to a single body of work. The focus group presented a range of different views on this issue. While one dean stated that he found dual degrees to exaggerate a student's accomplishments, he also expressed hope that potential employers would not recognize dual degrees as two separate degrees. Complicating this view, another dean presented the perspective that a dual degree does, in fact, represent greater value than a joint degree since it requires a greater volume of student work and the satisfaction of different sets of requirements. The next section outlines some of the concrete issues that focus group participants considered when considering the two degree structures.

Structuring coursework and credit

Deciding how to give credit for work completed at a foreign institution is one of the first challenges that universities face when designing the structure of a collaborative degree program. In the focus group, two basic strategies emerged for dealing with the task of counting credits: 1) creating, in conversation with a partner university, a system of equivalence; 2) using the pre-existing transfer credit policy at one's home institution to credit coursework completed at a partner university (to cite the example offered by one dean, counting no more than one-half of the graded course hours). The viability of the second option will vary, however, according to each institution's policies about transfer credits. For example, one dean noted that if the hours are counted at a different institution, then they cannot be counted at his home institution. Some deans raised the question of whether a cap should be placed on double-counting, the practice at some institutions.

As reported in the survey, theses and dissertations raise special questions about conferring credit.[45] The focus group allowed us to explore some of the specific approaches and rationales used for crediting a capstone project and to identify two basic models:

1. **The thesis or dissertation is viewed as a single piece of work and represents the same value/amount of work as a thesis completed at a single institution**. According to this model, additional administrative requirements related to completing the thesis at two different institutions do not augment the amount of work represented by the document or the value of the culminating degree. For example, a dean describing this model indicated that the requirement of producing the thesis in two different languages does not imply that the document represents two separate bodies of work or a more valuable body of work.
2. **The thesis or dissertation is viewed as a single piece of work, but one that represents more value than a thesis completed at a single institution**. In this case, a student must serve twice as many advisors, or in some cases, two committees that hold separate thesis defenses, requirements that are considered to add value to the document. As one dean put it, referring to a master's degree program in which students are assigned

> two faculty advisors from each institution, "Essentially, [students] do the work of two theses, even if there is a joint committee." The same dean indicated that this view of the thesis also held for dissertations completed in an international doctoral degree program.

It is important to emphasize that these models do not correspond to established criteria for program or research content. The focus group discussion shed light on the fact that university administrators are called on to interpret the value of the thesis and to make these interpretations in relation to a wide variety of factors. Is the student required to satisfy a significant number of additional institutional requirements at the partner institution? Produce work that is more complex because it involves the integration of different research experiences, (i.e. work completed within different laboratories, or two sets of fieldwork)? Satisfy the requirements of a larger number of total advisors (more than the number required in a non-collaborative degree program at the home institution)? Successfully defend the degree at both of the partnering institutions? Deans may consider these and other questions when deciding how the thesis should be understood at their own institutions.

Addressing cultural factors in the training of international students

When joint and dual degree programs require the mobility of students and faculty, universities often must anticipate the cultural differences that may arise in the context of research, education, and mentoring. Focus group participants directly raised this issue and gave specific attention to the importance of cultural sensitivity among mentors of international students. For example, one participant in the focus group cited the importance of preparing faculty mentors to understand different cultural expectations about class attendance, noting that attendance may be optional at European universities, while at his own university, it is a requirement. Mentors must be prepared to help students understand these differences.

A second, related topic that emerged in the discussion was research ethics training in the context of international collaboration. Secondary research on this topic confirms that many institutions are concerned about the way cultural differences can lead to confusion about responsible research practice. Three of the twelve deans in the focus group independently raised this issue as one of significant concern at their institutions: one dean stated that different standards in human subjects research were a challenge for creating partnerships between programs; a second dean stated that cultural differences

raise larger questions about the definition of scholarship and research; and two of the three cited cases where cultural differences had led to cases of plagiarism at their universities. The focus group's observations about RCR and mentoring issues suggest that university leaders could benefit from more information about how best to prepare faculty and students for the specific cultural challenges they may face within various collaborative programs.

A number of deans indicated that a need existed for more collaboration among American and Canadian universities in negotiating difficult cultural differences that arise with partners outside of their home countries. More general information is needed about avoiding cultural conflicts, including "best practices" research that would help universities minimize the possibility of serious cultural misunderstandings.

Administrative challenges

In addition to the challenges presented above, focus group participants noted a number of practical issues related to the mobility of students. The following challenges were specifically mentioned:

- Factoring in the amount of time and fees required to process papers and visas required for student travel
- Encouraging research advisors to support student travel
- Understanding the way visa status affects the status of students within the institution
- Ensuring that collaborative programs do not excessively affect times-to-degree
- Ensuring that students are not overcharged for tuition when they are not present at the billing institution
- Providing support to the administrators who may be burdened with complex and ongoing paperwork issues related to student mobility

A more general issue raised in this context, one that relates to all of the above, concerns the way in which partner universities approve the mobility of students and formalize their status at each university. This process can pose additional challenges if there is uncertainty about the authority and responsibility of administrators at the partner institutions. As one dean suggested, it can be helpful to clarify responsibilities of key leaders, especially in cases where the job titles and responsibilities of leaders at the partner institutions are not parallel.

Evaluating Programs

Program assessment and review

In addition to asking the focus group to reflect on their criteria for selecting good partners, the facilitators asked participants to discuss their institutions' measures for evaluating a program's success. Naturally, many areas of program review corresponded with the benefits reported both here and in the survey report: a program's success was measured by its ability to deliver the potential benefits outlined by the institution developing it. The following is a random-order list of short and long-term metrics for program success provided by focus group participants:

1. **Enrollment numbers**. As one dean put it, "Are people voting with their feet?" While it may take years for a program to attract the number of applicants needed to ensure long-term sustainability, enrollment can be used as one of the clearest signs that a program is working.
2. **An international perspective**. In line with the start-up goals mentioned earlier, one measure of success is that participating students are developing an international perspective on relevant research topics. One dean compared the value of crossing national educational borders to the value of participating in interdisciplinary programs or diverse university communities. The opportunity to cross traditional or social borders—between disciplines, national cultures and social backgrounds—has the potential to broaden students' views.
3. **Development of institutional reputation**. While it is difficult to measure the enhancement of institutional reputation, focus group participants cited the following as possible metrics: the number of international partnerships that the university can claim to hold, the strategic importance of partnerships held in a particular region of the world, the capacity of a university to project an international image to outside visitors, and the ability of students to demonstrate an international perspective on research-related topics.
4. **Development of program reputation**. One dean cited the example of a master's degree program that allowed her institution to draw the enrollment necessary to sustain a PhD program, and, eventually, to build an independent PhD program.

5. **Development of the research collaboration**. The value of a deeper research collaboration can be measured both materially, through access to new resources or equipment not available at the home institution, as well as through the output of scholars participating on international projects.

It is important to note that the successes of international collaborations may be measured differently from those of domestic collaborations, which are often less complex. One dean indicated that because of the experimental nature of some degree programs, universities may choose to set conservative goals with respect to numbers of graduating students and program finances. For information to consider when developing processes of program review, see Appendix A, *An MOU Checklist for International Collaborations*.

Sustainability issues

While revenue may be an important factor in a dean's decision to support or continue a joint or dual degree program, economic rewards may shift over the life of a degree program. For example, one dean reported that profit may be considered a priority consideration at the outset, but become less important as the program gains strength and offers other significant advantages.

In spite of such fluctuations, most universities would not pursue a collaborative degree program unless there is evidence that the program can be maintained for a minimum number of years. Further discussion in the focus group indicated that a range of different approaches may be taken to determine program duration. In cases where a university wishes to ensure that a program will have maximum sustainability, deans may choose to create a Sustainability Plan. One dean noted that he avoids including sunset clauses in such plans, and this allows programs to be more competitive with international programs that do impose clear ending-points. At the same time, a number of deans indicated that there are good reasons to accept the impermanence of programs, as when the demand for a certain degree program diminishes over time. These changes need not be seen as failures. For example, one participant pointed out that a decrease in demand for a certain program may be taken as good news for some universities, citing the case of a joint PhD degree program that had strengthened a department to the point that it became large enough to start its own, independent PhD program. "In that sense," she commented, "the end of a joint degree is the ultimate mark of its success."

Conclusions

One of the most important ideas to emerge from the focus group discussion is that there is no single approach to creating and implementing international collaborative degree programs, and that approaches may need to be tailored to the specific needs of universities. Deans and other university leaders will have different ways of weighing the relative importance of different concerns at their own institutions. As international collaboration becomes more widespread, it may become easier for universities with similar needs to compare practical strategies for starting new programs, and for more general best practices to be established. In the meantime, there is a need for greater coordination among graduate institutions in the US and Canada and for general guidelines provided by "best practice" research.

The focus group on joint and dual degrees highlights what a number of experienced deans deem promising practices, or at least practices that have seen positive results at their own institutions. Further research is needed to give stronger empirical support to the efficacy of these practices; to demonstrate which of these practices are best suited for institutions with strong programs in the STEM fields; and to determine which of the policies and practices outlined can serve as general "best practices" for all institutions seeking to build and maintain all international research collaborations

Strategies for Fostering Research-Intensive Collaborations in STEM Fields

While graduate institutions generally view joint and dual degree programs as ventures involving significant and long-term institutional commitments of time and resources, a different view may hold for research collaborations that do not include formal degree programs. Research collaborations are easier to formalize because they do not require approval from a state legislature, or a university senate or governing board, and graduate schools typically do not need to justify long-term investments or develop sustainability plans. In STEM fields, opportunities for external funding also may not encounter common challenges of joint and dual degree programs, such as identifying sources of institutional funding, aligning programs with a strategic plan, or defending programs to other senior administrators. For example, many institutions compete for grants from prestigious NSF programs, such as the Integrative Graduate Education and Research Traineeship (IGERT) program and the Graduate STEM Fellows in K-12 Education (GK-12) program, both of which may have international components, and the Partnerships for International Research and Education (PIRE) program.[46]

Research-intensive collaborations in STEM also merit further close attention because they involve a distinct set of issues related to the preparation of graduate students and faculty. Some may feel that it is the role of faculty to determine the material conditions and intellectual content of international research projects involving graduate students. However, data from the focus group and technical workshops suggest that graduate deans are playing a stronger role in these areas since they directly involve institutional standards and in some cases, funding sources. How will US students be prepared for professional norms that may differ in a foreign lab, for example, and for different ethical and legal standards that may apply there? How will institutions ensure that faculty from each partner institution are prepared to supervise students from the partner institution, and that culture-specific expectations for mentoring are addressed? How will the impacts of participating in a research collaboration be measured, both through short-term tangible outcomes, such as publications, and through long-term effects on a graduate student's or faculty member's career path in the fields of science and engineering?

To pursue these and other questions, we conducted two technical workshops that focused on the major challenges experienced and lessons learned by participants in NSF-funded grants with an international component, which included both principal investigators for PIRE and IGERT grants and graduate deans at institutions where PIRE and IGERT projects had been conducted. This focus allowed a pragmatic, hands-on approach to discussing structural practices at NSF and universities, as well as policy recommendations for improving graduate collaborations in STEM.

The questions explored with participants at these technical workshops addressed the following general topics, with a focus on the specific administrative needs and strategies used in facilitating research collaborations.

- Benefits of international collaboration to students, institutions, and faculty research
- Challenges of institutional coordination
- Measuring the success of international collaborations
- Legal issues in the development of MOUs
- Financial challenges
- Cultural differences (related to administration, pedagogy, and research cultures)

- Governmental issues that affect collaboration
- Strategies for overcoming barriers
- Recommendations for improving the process and making projects more successful

For a more extensive discussion of the methodology used, see Appendix C.

The three major topics that emerged in these workshops were: 1) the changing role of senior administrators in facilitating research collaborations in STEM fields; 2) the administrative challenges that arise in these partnerships, and some solutions that have proved effective in some contexts; and 3) the need for effective metrics for assessing the impact of research-intensive collaborations in STEM. In the following pages of this section, we discuss each of these areas and provide two brief "problem-solving scenarios" designed to capture the complex processes involved in these types of collaborations.

The Role of Senior Administrators in Facilitating Research Collaborations in STEM Fields

When describing the role of senior administrators in facilitating international research collaborations, participants in the technical workshop discussions reiterated two of the central points that emerged from the focus group on joint and dual degrees. First, participants indicated that it is best for faculty to initiate research collaborations because this ensures that the project will be in line with the research interests of the PI (principal investigator). At the same time, deans must work to harmonize faculty research needs with the university's administrative structure and priorities, an approach that requires flexibility and creative problem-solving.

One dean indicated that her job is to find ways to support faculty research interests whenever possible, and in cases where this was difficult, to propose solutions that are aligned with both the interests of faculty and institutional requirements:

> Faculty members will come to me first with an idea and I try to figure out what we can do within our current structure. If they can't do it within our current structure, I figure out what they would need to do to do something really different. I then might convene a committee that includes our contracts officer, who writes up the [memorandum of agreement], and the head of our international programs office. I feel like

> I'm kind of the translator between the PI (faculty person), contracts person, and the International Officer and we try to come up with something that meets the needs of the PI.

Comments in the technical workshops also indicated that graduate deans overseeing an NSF-funded international grant may exercise somewhat different forms of leadership and allocate their time differently than they would in helping to develop a joint or dual degree program. Since in most cases, deans will not need to justify the use of institutional funding to other senior university personnel or, in the case of state universities, to bodies governing the use of funding within their university, they devote most of their time to maximizing research opportunities through a number of practical measures. Some of the practices cited included:

- Making faculty aware of research opportunities, sometimes in formal presentations, such as informational sessions on the PIRE and IGERT programs
- Providing support services for proposal writing
- Overseeing the total pool of proposals from their institution to ensure that faculty are aware of opportunities to collaborate on proposals

In addition, deans discussed a number of practices that would be more widely applicable to a variety of international collaborations.

- Setting up program infrastructure and assessment
- Working as an "interpreter" or "conduit" between faculty and other offices
- Overseeing risk management issues
- Providing support services for writing MOUs
- Reporting program outcomes

The discussion of roles brought to light the increasingly key role played by senior international officers and international offices in developing international collaborations. In one of the technical workshops this emerged as a major topic of discussion, and seven of eight participants specifically mentioned that their institutions had a senior administrator assigned to international projects. Both graduate deans and PIs reported that these individuals can be very helpful in some of the technical aspects of designing and implementing the collaboration in areas such as: administrative

strategy and risk management; program development and, in cases where the research collaboration also involves a formal educational component, course development; faculty development initiatives; implementing tools for program assessment; and administrative support.

Administrative Challenges and Emerging Solutions

In spite of the relative ease of developing research collaborations, participants in the technical workshops reported some of the challenges typically encountered in developing joint and dual degree programs: problems of efficiency and communication surrounding the MOU process, and administrative burdens on faculty. The technical workshops allowed us to explore these topics in detail and to draw out some proposed and proven solutions. Some of these solutions may be easier to implement if a research-intensive collaboration is supported with external funding. Some universities may find that the provision of administrative support to assist with research collaborations may save time and resources over the long term, while other universities that lack the staff or resources to help faculty depend on PIs being as fully informed as possible about possible challenges and solutions.

The technical workshops provided many rich stories about the complex process steps involved in overseeing research collaborations. From these stories we have drawn a number of important lessons: that it is crucial to consider the particular goals and needs of one's institution when making administrative decisions; that collaborations may require both long-term strategies as well as creative, short-term solutions; and that graduate deans often play a crucial role in ensuring that the conditions for collaboration remain strong even while specific collaborations present uncertain variables. To illustrate these lessons, we have provided two problem-solving scenarios that are drawn from various examples described in the focus group and technical workshops.

<u>Problem-Solving Scenario #1: Avoiding Miscommunication in the MOU Process</u>

The graduate dean at a large state research university received an MOU for a research collaboration between her own institution's doctoral program in engineering and a doctoral program at a Chinese university. While she had discussed plans for the partnership with the lead faculty member at her own institution, she had received no communications from him since the previous semester, and was surprised to receive the MOU. She had assumed that discussions of program content were still under negotiation with the partner

institution. Upon examining the document, an MOU signed by the partner institution, she realized that the faculty member had promised eight Chinese graduate students tuition and health insurance for one full semester; without knowledge of this promise, the Graduate School had made no allocations for this expense in its budget.

When the dean contacted the faculty member, he explained that he had drafted the MOU using a sample provided by a colleague in a different department, and that the tuition waiver and health insurance was offered to meet a reciprocal promise from the Chinese university. He also explained that drafting a new MOU document would likely make it impossible to proceed with the collaboration by delaying the exchange for at least one semester and taking a very tight research timeline, which was tied to external funding requirements, off track. It might also lead the Chinese university to pull out of the agreement.

The graduate dean weighed a number of options. The surprise MOU was the third of its kind in the past several years, and although previous MOUs had not required changes to her budget, she did not want to set a precedent for giving a program funding and access to resources when the MOU had not been approved through the regular channels. Such decisions were particularly problematic at a state university, where it was often difficult to secure tuition waivers for in-state students. At the same time, she suspected that the pattern of misdirected MOUs indicated that the current policy needed better management. She also knew that the research collaboration would draw resources from a highly competitive external grant and present graduate students and faculty with significant training and research opportunities.

To resolve the problem, the dean implemented a number of short-term and long-term solutions. First, she explained the situation to the VP for Finance, and asked the faculty member to submit a justification for the expense directly to his office. Signing of the MOU was delayed by several weeks, pending this approval, but the MOU was finally approved by her own university.

To prevent future MOUs from missing crucial steps in the approvals process, she arranged for the following changes to be made, in cooperation with the VP Finance's Office and the International Programs Office:

1. **A more explicit policy**. At the next meeting of the Graduate Council, the dean asked the group to develop a more explicit policy for the routing and approvals of MOUs. The current policy stated only that the MOU needed to be reviewed and approved by the Graduate Dean before it

was sent to the partner university, but it did not give faculty information about how long these approvals would take and information about whom to contact with specific types of questions. Without these changes, it was possible for some faculty to believe that the review process was simply a formality.

2. **A better communication strategy with faculty.** The dean ensured that the new description of the process for approving MOUs was provided on the faculty website as well as on the website of the International Office. The new web resource provided a clearly articulated procedure for the routing of the MOU, including a timeline that enabled PIs to understand how much time was needed for approval and make plans that would fit with the requirements of any external sponsors. It also included contact information for the individuals who could answer questions: the graduate dean and the director of the international office. In addition, the dean asked a staff member in the International Office and a member of her own staff to create a new section of the faculty website that provided sample MOUs and an MOU checklist. These helped faculty to anticipate concerns and questions that they might not have considered before, and demonstrated that MOUs are not "one size fits all."

Problem-Solving Scenario #2: Maximizing Administrative Efficacy after Program Implementation.

A medium-sized private university drafted a new strategic plan that made internationalization a priority, with specific emphasis on international collaborations that developed research capacities and provided graduate students with research experiences abroad. In the past, administrative support for those programs had been provided by the graduate dean, faculty members involved in the collaboration, and assistants in both the offices of departments involved in collaborative activities and in the Graduate School office, but this arrangement was highly time-consuming and inconvenient. After the new strategic plan was implemented, the Graduate School office created a more central source of administrative support for graduate-level collaborations in the international office, which in the past had only handled undergraduate exchange programs.

Two graduate departments began to work with the Director of the International Office to handle various aspects of their existing programs. A biochemistry program that had recently scaled up a highly-successful research collaboration into a dual degree program asked the administrator to help develop an assessment tool for this program; meanwhile, the School

of Public Health, which had a dual master's degree program that brought international students to campus for one year of study, began to route questions from international students through the International Office. In both cases, the Director of the International Office provided suggestions that had worked with undergraduate students and programs, but often to the dissatisfaction of graduate faculty, who found that graduate programs and students had different needs.

The graduate dean became aware of the problem when a faculty member called to say that she was spending increasing amounts of time doing administrative work for the project, and that the time was a significant drain away from her research and advising responsibilities for graduate students involved in the partnerships. She added that the Director of the International Office felt that he was in a similar position; she too was working beyond the amount of time that had been allocated for her work on graduate programs.

The graduate dean realized that the originally proposed administrative solution was not working, and he began to discuss various short and long-term solutions.

1. **Long-term planning for administrative training and support**. The Graduate School began to develop a full-time position devoted to administrative support of graduate international collaborations. Recently, a faculty member had written a successful proposal for an external grant and included in his budget a half-time position for an administrative assistant, and the dean saw this as an opportunity to train a staff member in the International Office to gain experience administering graduate-level collaborations. The dean worked with the International Office to create a new position for an existing staff member: half of this person's salary would by paid by the grant, and the other half would be paid out of the Graduate Dean's budget. This arrangement allowed the staff member to spend part of her time supporting the development of other graduate international collaborations overseen by the dean's office. By the end of the two-year grant, the assistant was in a position to provide helpful information to faculty in the other existing programs and to provide guidance to both faculty and the dean on the development of future programs. Based on the success of this arrangement, the university was finally able to justify paying a full-time salary to this staff member. She implemented a number of informational sessions for faculty involved in graduate-level partnerships with foreign institutions, and developed a number of resources that made programs more efficient

and made international collaborations more appealing to graduate faculty. As the university's programs developed over time, it was able to create a more senior position for international programs that was housed within the Graduate School. The strategic plan helped the Graduate School justify a number of long-term investments in the development of their collaborative graduate programs, including web development and professional development opportunities for other administrative staff.

2. **Pooling of resources among departments with current and developing collaborations.** As programs grew and developed at the university, involved faculty members were asked to share developing resources with the graduate school and the international office. The program assessment tool eventually developed by the biochemistry program became a model for other programs, and the administrator in charge of graduate collaborations developed a list of "Frequently Asked Questions" specifically tailored to the needs of international graduate students across a wide variety of programs.

IV. NEXT STEPS: POLICY, RESEARCH, AND BEST PRACTICES

Formal degree collaborations with international partner institutions are likely to play a major role in shaping the global future of graduate education. As discussed in this book's introductory chapter, Europe has exhibited a much more strategic approach than the US to fostering international collaborations. European policymakers have targeted international degree collaborations as a means of advancing the goals of the Bologna Process for establishing a European Higher Education Research Area with internationally comparable degrees and qualifications. With a growing number of programs in Europe being offered in English, and the availability of financial support from foreign governments to cover some portion of the costs, opportunities for US institutions to partner with European institutions are growing.[47]

There are some factors, however, that may limit the growth of international collaborations between US institutions and international partners. While there are no national legal barriers in the US to the establishment of joint degree programs, as there have been until recently in some European countries, state boards and regional accrediting organizations in the US may discourage some structures preferred by partnering institutions seeking to establish formal, degree partnerships.[48] (For example, some accrediting bodies may require that the majority of credits earned toward a joint degrees are from the US-accredited institution, though thesis degrees with international collaborators can be difficult to quantify in credit hours; approval for joint degree programs in some states can be required at several levels, such as the university president, the state board, and the regional accrediting body.) Costs for transatlantic and transpacific partnerships may be higher than intra-continental international partnerships. And employer recognition of international higher education institutions may not be as great in the US as in other regions.

There are three areas where more work is clearly needed to position US universities and STEM research faculty to take better advantage of current and future opportunities for international collaboration. These areas are:

1. greater definition of outcomes and metrics of success and agreement upon strategies for assessing them;
2. better preparation of students for the ethical issues that arise in international collaborative research; and
3. greater opportunities for the international exchange of best practices in international collaboration.

The Need for Outcomes Assessment

There is a growing body of evidence to suggest that graduate international collaborations provide crucial opportunities to prepare US graduate students to conduct international research. More rigorous studies are needed, however, to demonstrate the actual social and economic benefits to merit the greater investment required to support this research. In the focus group and technical workshops, many deans and PIs on international research projects reported that the challenges surrounding collaboration could be addressed through the development of more powerful tools for assessing both the short- and long-term outcomes of collaboration. While institutions may have different goals for their internationalization efforts, greater coordination on improved assessment tools might help universities and US national funding agencies make stronger projections about the potential benefits and risks of different types of collaborative activities.

Participants in this study reported two main reasons for improving the assessment of outcomes in international collaborations. The first was a need to deepen our understanding of the potential benefits and risks of collaboration. The following are the main areas of potential analysis discussed by participants in the discussion groups:

- **Effects of international collaboration experience on individual careers**, in addition to concrete outcomes such as publications and theses. As one dean explained, "The premise of IGERT is broad-based thinking and the international experience is right there […] If the argument is that the 21st century is going to be more global and interconnected, I think it is safe to say that there has to be a strong, meaningful international experience in [one's] toolbox."
- **Specific scientific skills** developed through international collaborations. Describing recent methods used by NSF to gather data on international collaborations, one PI and Dean reported, "[…] all of the commonly used methods tended to focus first on the individual and

the cultural understanding that is gained. These experiences may have made a better person, but have we really been able to bridge that gap between being a better scientist? There is a huge area of opportunity there because there aren't good methods for doing that […]"

- **Impact on US universities.** Deans report significant benefits to their universities in the areas of revenue generation, reputation, competitiveness for research funding, visibility to potential partners and investors abroad, the capacity to build bridges with other institutions, and improved graduate student recruitment.
- **Benefits to the public in terms of economic strength and resources.** A more strategic effort might be made to assess what many deans and PIs considered measures of program success: the impact of the collaboration in local communities, the impact of the research finding, and the acquired workforce competencies gained by those involved in or affected by the collaboration. In the case of workforce skills, one PI indicated that it would be helpful to measure the benefit to US researchers of understanding foreign markets during the technological transfer process.
- **Impact of the collaboration on the perspectives of non-US collaborators.** While many universities measure the impact of the collaboration to their own community, it was suggested that it would be helpful to better understand how other countries perceive programs and their participants.

Improved data on outcomes assessment would also, of course, support more strategic action on the part of university leaders and their funders by illuminating the potential returns on investment that can be garnered through collaborations. As reported in section III, many deans find it difficult to justify the value of collaboration in general, or the value of one collaboration over another, without the capacity to martial a larger body of evidence. One dean observed that there is a strong need for assessments that demonstrate the value of collaboration to groups and individuals outside funding agencies: university leaders and state legislatures. Another dean added, "I firmly believe that doctoral students in science and engineering should get international experience, but it's a hard argument to make."

CGS has begun to pursue further the problems and questions surrounding outcomes assessment identified in the 2009 Strategic Leaders Global Summit, in which summit delegates resolved to pursue common strategies

for measuring outcomes (see "International Best Practices Exchange" below). At the 2010 Summit in Brisbane [September 13-15, 2010,] a panel will be held to specifically address the Quality of International Educational and Research Programs. Topics will include the development of metrics for program success, the ability of programs to prepare scholars to lead and conduct research in a global environment, and the use of data to improve existing collaborations. In addition to these activities, CGS will continue to solicit the input of graduate deans on outcomes assessment in workshops devoted to International Collaboration at the 2010 CGS Summer Workshop and Annual Meetings, and will seek the guidance of NSF program officers on helping graduate institutions develop their capacity to measure and analyze the effects of STEM collaborations.

Research Ethics and the Responsible Conduct of Research (RCR)

While US universities have engaged in both graduate international collaborations and in the development of research ethics education and RCR training, there has been little curricular or institution-level attention to the ethical issues students and researchers face when participating in international collaborative research and educational programs. Heightened attention has been given to issues of research integrity and the responsible conduct of research in the United States and across Europe and Asia through influential reports from the National Academies of Science (2002) and the European Science Foundation ("Stewards of Integrity," 2008), the establishment of the UK Research Integrity Office in 2006, and two large-scale conferences on research integrity held in 2007: the OECD Global Science Forum Tokyo conference and the first World Conference on Research Integrity (co-sponsored by ESF and ORI) held in Lisbon, Portugal with a second World Conference to be held in Singapore in July 2010. The primary focus of the global conferences, however, has been the important but daunting issue of coordinating international policy. Given the lack of standard regulatory frameworks, common codes of conduct, and even common definitions, researchers collaborating across national borders inevitably face challenges in interpreting policy that can ultimately compromise both research and collaborative relationships.[49]

In 2008, in recognition of the need for greater dialogue and coordination between institutions on best practices in educational programming in this area, CGS convened thirty-five leaders representing graduate education in Australia, Botswana, Canada, China, England, Hong Kong, Italy, Germany, and the United States to share national and comparative perspectives on

research ethics in a global context and identify possible areas for future collaboration.[50] The 2008 Strategic Leaders Summit was the first of its kind, focusing on the capacity of university leaders to improve the institutional climate and graduate curricula for advancing scholarly integrity and ethical and responsible research conduct. Topics addressed included: national policy frameworks and definitional differences; institutional approaches to creating a culture for scholarly integrity; global issues shaping education and training; and emerging best practices in areas such as research mentoring, conflicts of interest and commitment, emergent technologies, curricular and assessment strategies, and the ethical and psychological implications for researchers working with human subjects on sensitive topics.

Participants identified three needs and five specific action items for strengthening scholarly integrity:

1. A common frame of reference that addresses the continuum of educational and training objectives from scholarly integrity to compliance;
2. Leadership at all levels to prepare future scholars, researchers, and professionals to demonstrate integrity in all aspects of their careers as scholars; and
3. Exchange of best practices and resources (including codes of conduct, regulatory frameworks, curricular materials, and instruments for assessment and evaluation).

The specific action items for organizations and institutions that all agreed upon included activities such as: building scholarly integrity into existing structures that prepare future faculty and future professionals; developing and maintaining an open source, online website for facilitating resource and best practice exchange; identifying mechanisms that explicitly address universal and global issues in scholarly integrity, and ethical issues that may arise from the mobility of scholars (including priority areas of digital publishing and plagiarism in an international environment); developing collaborative mechanisms for addressing plagiarism in an international context; and utilizing international joint degree, dual degree, and other collaborative program structures for integrating educational activities to advance scholarly integrity.

Graduate international collaborations provide optimal settings for addressing some of the broader national needs to prepare a workforce for success in the global research enterprise. Graduate student researchers and

scholars, especially in STEM fields, should be prepared for professional practice in the context of international collaborative research, education, and scholarship. For example, young researchers should understand the regulatory, legal, and cultural differences of countries or regions where partnering institutions are located as well as the ethical issues that arise when conducting research in international settings or collaborations. Also, students in US STEM graduate programs from international and intercultural backgrounds should be provided with orientation, preparation, and training in the responsible and ethical conduct of research. All STEM students studying in US graduate programs should understand the expectations for RCR in the US context, including regulations of funding bodies relevant to their respective fields, the ethical issues that scientists and scholars typically face that go beyond national compliance regulations, as well as professional standards of their discipline. In the development of such education programs, US institutions should also recognize differences in students' background preparation and in professional standards and expectations while at the same time providing all students with access to professional socialization in the nationally recognized standards of the disciplines. Finally, differences in education and training between partnering institutions should be recognized and addressed in formal collaborative degree programs and graduate educational exchanges, since these programs and exchanges provide concrete opportunities for students and faculty to address issues that arise in international collaborative research.

International Best Practice Exchange

More international dialogue is needed to identify "best practices" in developing and sustaining graduate international research collaborations. This dialogue is needed among research faculty and among university leaders, as well as between both groups. As discussed in Chapter Three, most successful international collaborations at the graduate level either originate in existing faculty research contacts or build upon existing programs. Through the Graduate International Collaborations Project, however, we have learned that senior administrative leaders are playing a larger role in the subsequent development and expansion of these collaborations. The roles they play range from providing administrative assistance in campus coordination to ensuring that considerations of the institution's mission are included at key points in the decision making process, for example, in MOU approval and partner selection for degree programs. If they have overall responsibility for the quality of graduate education across the disciplines,

senior administrators can also provide valuable perspectives on the educational aspects of international research collaborations. In the United States, these senior administrative leaders are typically graduate deans. In other countries, where there may be no clear administrative equivalent to the graduate school, senior administrators at other levels of the university may provide such input. Engaged and informed senior leaders can be crucial when needs arise for things such as: additional or restructured financial support; coordination of different campus units across a university and between universities; assistance in addressing legal issues that may differ by country or in working with international and external stakeholders where structures of collaboration do not conform easily to existing university models or regulations or accrediting body standards. Being informed means knowing what practices seem most promising not only in one's own institution and at other institutions in one's own country, but also at prospective partner institutions in other countries; it also means being familiar with broader international trends that may influence future strategizing.

As discussed in Chapter One, graduate international collaborations take place in a broader policy area and can intersect with issues of national security, diplomacy, and public welfare, as well as with social and economic policy goals for nations and regions. Here too, greater dialogue between institutional leaders who are well-positioned to communicate with their faculty and administrative support units as well as with external stakeholders could help those institutions to better pursue their missions and engage public awareness of the benefits of the resulting research. In such an international best practice forum, graduate deans may be called upon to represent both their particular institutions as well as their countries.

There are some opportunities (for example, NSF-sponsored PI meetings or disciplinary society meetings) for faculty to exchange best practice ideas on international collaborations, and several annual conferences for international office directors to do so (e.g., NAFSA meetings). There are few opportunities, however, for senior leaders of graduate education to exchange their ideas on best practices and lessons learned in ways that might benefit their respective institutions and the broader research community. One such opportunity is the annual Strategic Leaders Global Summit on Graduate Education series, which was explicitly created to provide senior university leaders with a forum for exchanging ideas on best practices in graduate education.

The first, 2006 meeting convened such leaders for a transatlantic dialogue on the pressing issues facing graduate education in Europe and North America. In 2007, the first official Strategic Leaders Global Summit on Graduate

Education took place in Banff, Canada, in cooperation with the Ministry of Alberta, an expanded meeting which resulted in the development of a set of principles for graduate international collaboration that are now widely cited as the "Banff Principles"; the second Global Summit in 2008, as mentioned in the previous section, convened in Florence, Italy and focused on the topics of research ethics and scholarly integrity. While not funded by the NSF grant for the Graduate International Collaborations project, the 2009 Global Summit, themed "International Collaborations: How to Build and Sustain Them," which met in San Francisco, California, provided an opportunity for 32 senior leaders from 9 countries to exchange information about the context, structures, and challenges of international collaborations in their countries, to exchange best practices, and to discuss the emerging outcomes of the NSF-funded CGS Graduate International Collaborations Project.[51]

Whether on specific topics, such as the responsible conduct of research, professional development of graduate students, or quality assessment, or on general issues such as the coordination of policies and practices for developing formal degree and informal research collaborations, further international dialogue among strategic leaders is essential. CGS looks forward to working with its member universities and graduate education leaders from around the globe as we continue to expand the global conversation and opportunities for best practice exchange.

CONCLUSION

Formal international degree collaborations may not be appropriate for every institution, and some universities have more faculty members engaged in internationally collaborative research than others. Nevertheless, there is a strong argument to be made that to be a university in the twenty-first century is to be internationally engaged. In nearly every discipline, discoveries and advancements are being made on an international scale. In such an environment, students in all research fields will benefit from opportunities that prepare them to communicate their findings beyond their immediate context, to participate in international conversations about their discipline or interdisciplinary research, and to seek out opportunities for fruitful collaboration that may one day benefit their field and their own students.

Recent studies and continuing dialogue about graduate international collaborations are contributing to better mutual understanding among partnering institutions of the characteristic challenges faced in each region or country. Such understanding is a necessary first step in ultimately identifying best practices that can help to ensure the aspirations of each partner for their collaborative activities have the best chance to be realized. More information is now available about European collaborations as a result of the numerous studies described in Chapter Two. As a complement to these studies, the CGS Graduate Collaborations Project has contributed to our understanding of the constraints and opportunities for North American institutions.

This project has also identified a number of specific needs and areas where greater clarification is required. These needs and areas for future work include:

- a compendium of "best practice" case studies that could help institutions navigate common administrative challenges in ways that are appropriate to their mission and context;[52]
- a database of international joint and dual degree master's and doctorates that would enhance the ability of senior administrators and other stakeholders to network with each other and consult each other on issues specific to international degree collaborations;
- more national resources to help identify, define, and measure outcomes appropriate to graduate-level research and skills development;
- national and international models for addressing the ethical issues

that arise in international collaborative research; and

- greater dialogue on models for coordinating quality assessment and quality assurance efforts, which vary by nation and region.

It is not clear whether or how fluctuations in national and regional economies will affect the future of specific graduate international collaborations. Nor it is clear what future patterns of student mobility may look like or how new trends may inhibit or contribute to the growth of formal, degree partnerships. Given the sustainability, funding, and student recruiting challenges to international collaborations expressed by participants in this project, continued study of both of these issues will be important.

An additional issue where future investigation is needed is the employability of graduates from international collaborative degree programs or programs of study where international research exchange has been a key component. Such an inquiry might look at pathways not only to academic institutions but also to and through other sectors, as more companies transition to "multinational" corporations and as inter-sector partnerships between universities and non-academic partners in industry and government become more important. Another factor that could affect the growth of international joint and dual degree collaborations at the graduate level is increased scrutiny given to these degree types by accrediting bodies and policymakers. In order to ensure a secure future for successful collaborations, university champions and senior leaders should be in dialogue with both groups to understand their concerns and convey the benefits of such collaborations (including their importance to delivering high quality graduate education, generally) as well as to indicate challenges faced.

Successful international collaborations depend upon the contributions from members of vast teams that may include federal program officers of funded research and directors of initiatives to promote internationalization in participating countries and regions, as well as, at all participating institutions, contributors at different levels of the university such as: senior administrators, faculty, directors and staff of campus international offices, registrars and legal counsel. In the US and Canada, and in partnering countries around the world, these stakeholders will need to continue to work together to ensure that the collaborations to which they lend their vision and support are efficient and successful and that, where appropriate, successes can endure and be replicated elsewhere.

Appendix A: An MOU Checklist for International Collaborations

Memoranda of Understanding (MOUs) and Memoranda of Agreement (MOAs) for international collaborations vary considerably, depending on the scope and objectives of the partnership and the national and institutional contexts of the universities involved. The following checklist addresses general programmatic issues that should be considered when developing an MOU or MOA for a formal international partnership. The guidelines described in this checklist have been culled from sample memoranda and MOU checklists provided to CGS by institutions that participated in the discussions and activities sponsored by the CGS Graduate International Collaborations Project. While this checklist is designed to cover a range of collaborations, components specific to international joint and dual degree programs are signaled with a "J/D" below.

In addition to considering the guidelines below, institutions with experience overseeing collaborations recommend providing detailed information to faculty members about the process of submitting an MOU or other agreement for approval. Many institutions elect to include this information in online resources for faculty and/or with planning documents that must precede or accompany the MOU, such as an application to submit with a collaborative exchange proposal. It is recommended that these documents:

A. **Define the types of possible agreements (MOU, Agreement of Friendship and Cooperation, etc.) and the purpose of each.**
B. **Describe the different types of documents that must be completed and approved.** Explain the approvals process for different types of agreements, indicating routing and required signatures.
C. **Provide an estimated timeline for approval** once a proposed MOU and accompanying documentation has been submitted.
D. **Provide names and contact information for senior administrators and staff members** who can offer support and assistance for different types of questions.

MOU Checklist

VALUE

1. **Establish the value of the collaboration** to the university and to any other relevant groups of stakeholders. Refer to any documents that demonstrate the commitment of the institution and institutional leadership to internationalization and collaboration (for example, a vision statement or strategic plan).
2. **Outline the rationale** or objectives motivating the collaboration, outlining benefits to all groups of stakeholders.
3. **Describe the potential for development of the collaboration across other departments, programs or schools.**
4. **Describe the potential of the proposed project to complement existing programs or to enhance areas of priority for the university.**

PLANNING

5. **Articulate concrete outcomes or actions that will result** from the collaboration.
6. **Summarize planning and communication activities that have already taken place between partners.**
7. **Define the program structure,** including:
   a. The title of the program and the title of any degree(s) and certification(s) that will result (J/D)
   b. The duration of the program (with start date and end date, as applicable) and duration of the MOU, including provisions for early termination by mutual or single agreement (e.g., what happens to students who are already in progress at the time of termination)
   c. The accreditation status of the partner institutions and programs, if appropriate (J/D)
   d. If applicable, the process of adding participating institutions
8. **Define terms that may be interpreted differently** between various academic contexts (“academic year,” “full-time enrollment,” etc.) (J/D)

LEGAL ISSUES

9. **Describe basic legal requirements for student mobility** between the countries where partner institutions are located.
10. **Define legal rights and liabilities of universities in relation to the program and its intellectual and material outcomes.** (Issues to be considered would include, but would not be limited to, intellectual property, equal opportunity law, monetary exchanges or reimbursements between universities as the result of profits generated or expenses incurred.)
11. **Establish which institutional rules and policies apply to students** studying at the host institution, and terms of disciplinary action. (J/D)

ADMISSIONS (J/D)

12. **Establish equivalencies for units of credit awarded by partner institutions**.
13. **Establish academic criteria for student participation** in the program and mechanisms by which eligibility and admission to the program will be determined.

CURRICULUM (J/D)

14. **Describe modes and mechanisms of delivering program content,** including, as appropriate:
    a. The language(s) of instruction
    b. The curriculum, including courses and/or instruction that will be provided by each institution
    c. Requirements for the thesis, dissertation, or capstone project, and mechanisms of supervision and defense of the project
15. **Describe graduation requirements and mechanisms for awarding credit and certifying student work,** i.e., transfer credit policy (including the number of credits, if any, that can be double counted at each institution), extenuating circumstances, and transcript release.

RESOURCES AND FINANCING

16. **Outline the funding structure for the collaboration.** Basic categories for funding sources may include: internal university budget; US federal or state funding sources; private US funders;

and international sources (including the partner institution or self-supporting students). Basic categories of expenditures may include: research expenses; facilities for faculty and administrative support staff; tuition/fees; housing; and travel.

17. **Establish terms and resources for student advising and support**, (i.e., visa support services, academic advising, terms of student access to academic, social, and health facilities). (J/D)
18. **Establish student responsibilities and expenses,** (i.e., registration, payment of tuition and living expenses, housing, immigration compliance, health insurance and medical expenses). (J/D)

ASSESSMENT AND REVIEW

19. **Establish benchmarks for program success.** (J/D)
20. **Describe mechanisms and timeline for program evaluation** and if applicable, assessment of learning outcomes. (J/D)
21. **Define period within which the MOU may be renewed or terminated with mutual consent of institutions.**
22. **For agreements of indefinite length, describe university policy on inactive agreements.**

APPENDIX B. RESOURCES

International Collaborations and Joint and Dual Degrees

Global Perspectives on Graduate International Collaborations
Proceedings of the 2009 Strategic Leaders Global Summit. Council of Graduate Schools. 2010

CGS Convenes Strategic Leaders for Global Summit on Graduate International Collaborations.
Council of Graduate Schools. *Communicator* 43(1): Jan. 2010
http://www.cgsnet.org/portals/0/pdf/comm_2010_1.pdf

The Graduate International Collaborations Project: A North American Perspective on Joint and Dual Degree Programs.
Council of Graduate Schools. *Communicator* 42(8): Oct. 2009
http://www.cgsnet.org/portals/0/pdf/comm_2009_10.pdf

Joint and Double Degree Programs: An Emerging Model for Transatlantic Exchange
Obst, D, and Kuder, M. Institute for International Education [IIE]. 2009
http://www.iienetwork.org/page/150347/

Global Perspectives on Research Ethics and Scholarly Integrity. Council of Graduate Schools.
2009. http://www.cgsnet.org/Default.aspx?tabid=348

Global Perspectives on Graduate Education: Proceedings of the Strategic Leaders Global Summit on Graduate Education.
Council of Graduate Schools. 2008. http://www.cgsnet.org/Default.aspx?tabid=348

Student Mobility

Graduate Study in the United States: A Guide for Prospective International Graduate Students
Council of Graduate Schools. 2007. http://www.cgsnet.org/Default.aspx?tabid=348

IIE Open Doors Report on International Educational Exchange (IIE, 2009)
http://opendoors.iienetwork.org/

Comparative Data on Global Higher Education Systems

Education at a Glance 2009: OECD Indicators
Organisation for Economic Co-Operation and Development. 2009
http://www.oecd.org/document/62/0,3343,
en_2649_39263238_43586328_1_1_1_37455,00.html

Meetings and Conferences

Connecting Continents: 21st Annual EAIE Conference
European Association for International Education. Madrid, Spain.
16 – 19 September 2009. http://www.eaie.org/Madrid/

2009 CGS/NSF Workshop: Globalizing Graduate Education and Research
Council of Graduate Schools/ National Science Foundation.
Arlington, Virginia. 20 April 2009. http://www.cgsnet.org/Default.aspx?tabid=345

CGS 48th Annual Meeting, "Graduate Education in a Global Context"
Council of Graduate Schools. Washington, DC. 3-6 December 2008.
http://www.cgsnet.org/Default.aspx?tabid=345

Strategic Leaders Conference on Graduate Education and Research Ethics in a Global Context
Council of Graduate Schools. Florence, Italy. August 31 –
September 2, 2008.
http://www.cgsnet.org/Default.aspx?tabid=345

Strategic Leaders Global Summit on Graduate Education
Council of Graduate Schools. Banff, Alberta, Canada. August 31 –
September 1, 2007.
http://www.cgsnet.org/Default.aspx?tabid=345

Transatlantic Dialogue on Doctoral Education
Council of Graduate Schools. Salzburg, Austria. 2–5 September 2006.
http://www.cgsnet.org/Default.aspx?tabid=345

Websites and Newsletters

The Boston College Center for International Higher Education

Information related to research, publication, policy, globalization, and professional development, among other topics. http://www.bc.edu/bc_org/avp/soe/cihe/

GlobalHigherEd

Olds, K, and Robertson, S. Blog. Information on developing links between global higher education and the knowledge economy, including new policy developments and emerging networks. http://globalhighered.wordpress.com/

Universitas 21

Updates on collaborative activities of a consortium of 21 research universities. http://www.universitas21.com/newsletters.html

Recent Presentations

Dual and Joint Graduate Degrees: Conceptual Theory and Administrative Practice

Comrie, A, and Horgan, D. Council of Graduate Schools, 49th Annual Meeting. San Francisco, CA. Dec. 2009. http://www.cgsnet.org/portals/0/pdf/am09_Comrie.pdf

US Perspectives on Graduate International Collaborations

Denecke, D. Council of Graduate Schools, Committee for Science, Technology, and Law National Academies. Washington, DC. 21 Oct. 2009.
http://www.cgsnet.org/portals/0/pdf/NAS_CSTL_2009_Denecke.pdf

Emerging Best Practices in Joint and Dual Degree Programs

Stewart, D. Council of Graduate Schools, EAIE Annual Meeting. Madrid, Spain. 18 Sept. 2009. http://www.cgsnet.org/portals/0/pdf/CGS_EAIE_Madrid_2009.pdf

Dual and Joint Degrees Points of Departure: Graduate Education in a Global Context

Godfrey, JB. Council of Graduate Schools Annual Meeting. Washington, DC. 3 Dec. 2008. http://www.cgsnet.org/portals/0/pdf/mtg_am08Godfrey.pdf

Funding Opportunities

National Science Foundation/Graduate Teaching Fellows in K-12 Education Program
NSF GK-12 International. http://www.nsfgk12.org/international.php

Office of International Science and Engineering
National Science Foundation.
http://www.nsf.gov/div/index.jsp?div=OISE

Partnerships for International Research and Education
National Science Foundation
http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=12819

Integrative Graduate Education and Research Traineeship Program
National Science Foundation
http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=12759

European Union-United States Atlantis Program
United States Department of Education. http://www2.ed.gov/programs/fipseec/index.html

APPENDIX C. METHODOLOGY

CGS Survey on Joint and Dual Degrees

Survey Design

CGS worked with a lead researcher on the Freie Universität Berlin/Institute of International Education study to frame questions that would form a basis for comparison with prior European studies and a foundation for further work in identifying best practices in fostering effective collaborations at the graduate level. The survey consisted of 17 questions and took approximately 15 minutes to complete. It was administered electronically to 84 institutions selected on the basis of their response to either the 2007 or the 2008 CGS Phase II International Student Admissions survey, including: 47 institutions that had reported in those prior CGS surveys having existing joint or dual degree programs as well as 37 additional institutions that indicated in 2007 or 2008 plans to develop such programs within the next two years. Forty-three institutions provided valid responses. Not all respondents answered every question; the number of valid responses is indicated for each question. Overall, survey results include data on 168 graduate programs. The response rate was therefore 51% of the total, but significantly higher when calculated for those institutions with known existing joint or dual degree programs.

Survey Limitations

The challenges encountered in designing this survey were similar to those encountered by other organizations conducting similar studies. Because experiences reported anecdotally in the graduate community are so varied across programs that differ by degree type, discipline, and institutional partner institution and region, this survey was designed to capture common challenges and factors across a broad range of issues encountered in collaborating with international partners. The purpose was to provide a more in-depth understanding of issues, including those that facilitate and inhibit collaboration, that would provide the basis for further analysis and follow up. The survey was not designed to capture the structural characteristics of each program by degree type or discipline. The limitations of the survey therefore include aggregation effects:

a) *By discipline:* Questions about "typical" programs required mental averaging across different disciplines that may have different requirements and structures. Alternatively, it would have been possible to request respondents to provide responses based on "one sample program." The potential risk of the latter approach, however, was determined to be the difficulty of ensuring that programs selected would be comparable and representative of the full range of collaborative degree programs. A third approach of requiring institutions to provide separate answers for each existing program was not taken because it was felt to pose too great a survey burden to respondents, thus potentially compromising the response rate.

b) *By degree level:* Because of the small number of collaborations between US and international partner institutions at the PhD level, we did not ask respondents to answer each question separately for master's and PhD programs. While such disaggregation would be important for understanding information about some program characteristics (such as thesis committee structure, for example), we determined that a case study approach will be necessary to describe characteristics and challenges unique to international PhD collaborations. Distribution of degree types by field was determined through a follow-up survey; these data, included in Chapter Three, provide context for understanding the results from the international collaborations survey.

c) For one question on the survey, "How many collaborative master's and PhD programs of each type does your institution currently have with an international partner institution," CGS sent one follow-up question to the 34 institutions that had reporting existing programs on the original survey. Institutions were asked to complete a table in which the main research fields surveyed were broken out by degree level [See Chapter Three, Table 4). Institutions were provided with the original data they had submitted and asked to provide additional data on only those programs that existed at the time they submitted the original survey. The response rate for the second round of surveys was 100%; one survey response was excluded because the institution reporting the data was unable to verify their accuracy.

Some questions invited responses based on research programs only; others invited responses based on the aggregate of programs; and some questions asked respondents to answer the same question separately for joint

degrees and for dual degrees, if structural differences in diploma conferral were believed to potentially yield different differences (e.g., on issues of accreditation and approval) based on anecdotal information shared at CGS meeting sessions.

Two initial questions, on the motivation for engaging in international degree collaboration and on partner selection, invited respondents to generalize across all programs regardless of field.

The chief contacts on the CGS survey were graduate deans or other senior administrators with chief academic responsibility for graduate education. While this may possibly reflect some bias in favor of institutional considerations, many of the graduate deans to whom the survey was sent drew on additional appropriate campus informants and expertise when answering these questions in order to provide the fullest information about existing joint and dual degree programs at their institution.

Definitional Issues

There is no clear consensus among US institutions on the definition of either a "joint degree" or a "dual/double degree." CGS summer workshop and annual meeting sessions and the 2007 member survey described above, for example, brought out the fact that these terms are used differently by different institutions (and even by different programs within the same institution) to define a range of program structures.[53] "Joint degree" and "dual degree" are also variously used to describe master's and doctoral programs with different thesis requirements and varying durations spent by students at the home versus partner institutions. Other structural characteristics may also vary by institution within the same degree type, such as: the institution where students start and finish their study, which institutions participate in defining admissions criteria and curricula, et al. Some universities use terms other than joint or dual degree to refer to degree types in ways that emphasize structural characteristics (e.g., "sandwich programs," "cohort programs," or "joint curricular ventures"); others use more general terms such as "collaborative degrees" to describe a wide range of differently structured programs. Several universities have taken a more philosophical approach to defining international collaborative degree types in ways that recognize their similarities to existing non-collaborative degrees.[54]

Recognizing that this definitional variation also exists outside the US, some prior studies have defined the difference between joint and dual degrees in terms of the diploma and transcript mechanisms for conferring recognition of a student's completion of an international collaborative

graduate program. For example, "joint" degrees referred to collaborative programs where recognition was conferred jointly (via a dual-branded diploma, or a single diploma with transcript notation and/or certificate from a partnering institution) and "dual" programs referred to collaborative programs where institutions awarded two separate diplomas.[55] Because discussions of policies and good practice in joint and dual degrees in the US have sometimes stalled in confusion over definitions, CGS built on 2007 findings to standardize definitions in the 2008 follow up survey. After studying the feasibility of this approach for collecting data on US graduate programs in 2007, CGS adopted in 2008 the following definitions:

- **Dual (or Double) Degree:** Students take coursework and receive a degree ordiploma from each institution.
- **Joint Degree:** Students take coursework at each institution, but receive one degree or diploma, which may have:
  - The names or "seals" of each institution (i.e. a "double sealed" or "double badged" diploma)
  - The home institution's name, with transcript notation of participation
  - The home institution's name, with certificate signifying participation in collaboration

This approach to definition, as opposed to defining these degree types by their structural characteristics, has the advantage of facilitating comparisons with major European/US studies (such as the IIE/Freie Universität study) and of capturing some of the pivotal issues that have proven to be the biggest challenges in terms of implementation and approval, including: concerns about double branding and about the perception that students are receiving double credit for a single body of work. These definitions were not intended to be normative or prescriptive for universities to use in practice, but were rather agreed upon as reference points for better national understanding of key characteristics and common issues surrounding international collaborations.

Focus Group on Joint and Dual Degree Programs

Focus Group Protocol

The focus group on joint and dual degrees was held on December 6, 2008 in conjunction with the CGS Annual Meeting. Potential participants were chosen by CGS from a pool of institutions that had reported existing or

planned international joint and/or dual degree programs on the 2007 and/or 2008 CGS International Admissions Surveys. Ten deans from American institutions (both private and public, and of varying size) and one dean from Canada accepted the invitation to participate.

The focus group discussion took place over a two-hour period and was facilitated by a CGS consultant and two CGS staff members. Discussion began with a brief exchange of context information. The facilitators provided participants with the working definitions of "joint degree" and "dual degree" used in this study[56] and asked them to refer to these definitions when making comments. Participants were promised confidentiality before the audio-recorded discussion began.

Technical Workshops on STEM Research Collaborations and Exchanges

Focus Group Protocol

The technical workshops focused on the major challenges experienced and lessons learned by participants in NSF-funded grants with an international component. While some of the topics covered in these workshops overlapped with those addressed in the focus group on joint and dual degrees and in the NSF/DIR workshop, they gave exclusive attention to grant-funded programs in STEM fields. They also involved a more limited set of participants, principal investigators of PIRE and IGERT grants and graduate deans at institutions where PIRE and IGERT projects had been conducted. These highly specific parameters allowed a pragmatic, hands-on approach to discussing structural practices at NSF and universities, as well as policy solutions for improving graduate education.

CGS invited the participation of PIs on PIRE and IGERT grants with the guidance of NSF program officers as well as graduate deans with experience overseeing grants of one or both types. The workshops included 7-8 participants composed of roughly equal numbers of PIs and deans, and each group included individuals who had played both roles (IGERT or PIRE PI and/or Dean or Associate Dean of the Graduate School). The workshops took place on July 13 and July 15, 2009 in conjunction with the CGS Summer Workshop in Quebec City. Each of the two focus groups took place over a 1.5 hour period and was facilitated by two CGS staff and one consultant, who reviewed the IRB protocol prior to the audio recording of the discussion.

Preservation and coding of data for focus groups

The audio-recorded data collected in the three focus groups were transcribed by CGS project staff, and access to both the recordings and transcripts was limited to essential project staff. Data from the focus groups were coded in consultation with the group facilitator and senior consultant. Coding was conducted according to the frequency of responses across and within focus group responses when assigning weight to different comments. CGS, through the analysis of these qualitative data in the present publication, does not presume to capture broad trends in North American or American graduate international collaborations. The focus group format was designed to cull richer information about the experiences of graduate deans and PIs with experience overseeing collaborations that could not be provided in the survey and to give more detail about administrative processes and challenges surrounding various structures of collaboration.

WORKS CITED

Bement, A.L. Jr. (2009). *International Research Facilities and Infrastructure: Advancing Our Common Commitments* [PowerPoint slides]. Retrieved from www.nsf.gov/news/speeches/bement/09/alb090215_aaas.jsp

Bement, A.L. Jr. (2007). *Remarks at a Reception Honoring Opening of Research Councils UK* [PDF Document]. Retrieved from www.rcuk.ac.uk/cmsweb/downloads/rcuk/us/bement.pdf

Bosch, X., & Titus, S. (2009). Cultural Challenges and International Research Integrity. *The Lancet, 373*(9664), 610-612. Retrieved from www.thelancet.com/journals/lancet/article/PIIS0140673609603792/fulltext?rss=yes

Carnevale, A. (2009). *Graduate Education in 2020: What Does the Future Hold?* Council of Graduate Schools, (Ed.). Washington, DC: Council of Graduate Schools.

Centre for Higher Education Development, Center for Higher Education Policy Studies, & Euregio. (2009). *Joint Degrees in European Higher Education: Obstacles and opportunities for transnational programme partnerships based on the example of the German-Dutch EUREGIO*. Nickel, S., Zdebel, T., Westerheijden, D.F. Retrieved from www.jointdegree.eu/uploads/media/Che_Joint_Degrees_in_European_Higher_Education.pdf

Comrie, A. and Horgan, D. Dual and Joint Graduate Degrees: Conceptual Theory and Administrative Practice. Presentation at CGS Annual Meeting 2009, San Francisco. Available at www.cgsnet.org/portals/0/pdf/am09_Comrie.pdf

Council of Graduate Schools (2007). *2007 Graduate Admissions Survey II: Final Applications and Initial Offers of Admissions.* Available at *www.cgsnet.org*.

Council of Graduate Schools. (2008a). *Global Perspectives on Graduate Education: Proceedings of the Strategic Leaders Global Summit on Graduate Education.* Washington, DC: Council of Graduate Schools.

Council of Graduate Schools. (2008b). *2008 Graduate Admissions Survey II: Final Applications and Initial Offers of Admissions.* Available at www.cgsnet.org.

Council of Graduate Schools. (2009). *Global Perspectives on Research Ethics and Scholarly Integrity: Proceedings of the 2008 Strategic Leaders Global Summit on Graduate Education.* Washington, DC: Council of Graduate Schools.

Council of Graduate Schools. (2010). *Global Perspectives on Graduate International Collaborations: Proceedings of the 2009 Strategic Leaders Global Summit on Graduate Education*. Washington, DC: Council of Graduate Schools.

DAAD (German Academic Exchange Service). (n.d.). Report on a survey of 10 recently-launched DAAD-supported programs in Germany. Retrieved from www.daad.org/file_depot/0-10000000/10000-20000/16426/folder/33804/Survey-Report1.pdf

DAAD (German Academic Exchange Service) & HRK (German Rectors' Conference). (2006). *Results of the Survey on Study Programmes Awarding Joint, Multiple, or Joint Degrees*. Kassel, Germany: Maiworm, F. Retrieved from http://eu.daad.de/imperia/md/content/eu/sokrates/veranstaltungen/jd_report2.pdf

van der Duyn Schouten, F. (n.d.) "Equivalency, Recognition, and Dual Degrees." Retrieved from Netherlands Institute for Higher Education website, www.nihankara.org/web/?lang=3&pageid=180

European University Association. (2002). *Survey on Master's Degrees and Joint Degrees in Europe.* Brussels, Belgium: Tauch, C., and Rauhvargers, A. Retrieved from http://www.eua.be/eua/jsp/en/upload/Survey_Master_Joint_degrees_en.1068806054837.pdf

European University Association. (2002-2004). *Developing Joint Master's Programmes for Europe: Results of the EUA Joint Master's Project*. Brussels, Belgium: EUA. Retrieved from http://www.eua.be/eua/jsp/en/upload/Joint_Masters_report.1087219975578.pdf

Finocchietti, C. and Damiani, M.S. Tr. R. Boyce. (2002). Joint Degrees and Double Degrees: The Italian experience. Retrieved from http://www.cimea.it/files/219_110.pdf

Friedman, T. (2005). *The World is Flat*. New York, NY: Farrar, Straus and Giroux.

Green, M., Luu, D.T. and Burris, B. (2008). *Mapping Internationalization on U.S. Campuses: 2008 Edition*. Retrieved from http://store.acenet.edu/showItem.aspx?product=311770

Institute of International Education. (2009). *Open Doors 2008: Report on International Educational Exchange*. Washington DC: Bhandari, J. and Chow, P.

Institute of International Education and American Institute for Foreign Study. (2009). *Higher Education on the Move: New Developments in Student Mobility.* New York: IIE.

Institute of International Education and Freie Universität Berlin. (2009). *Joint and Double Degree Programs in the Transatlantic Context: A Survey Report*. Berlin, Germany: Kuder, M., and Obst, D. Retrieved from www.iienetwork.org/file_depot/0-10000000/0-10000/1710/folder/80205/TDP+Report_2009_Final21.pdf

Junor, S. & Usher, A. (2008). *Student Mobility and Credit Transfer: A Global and National Survey*. Retrieved from http://www.educationalpolicy.org/publications/pubpdf/credit.pdf

Knight, J. (2008). Joint and Double Degree Programmes: Vexing Questions and Issues. *The Observatory on Borderless Higher Education*, September 2008. Retrieved from www.eahep.org/web/images/Malaysia/joint_and_double_degree_programmes_vexing_questions_and_issues_september_2008.pdf

Leakey, R. (2009). *The Problems for Young Professionals in Developing Countries.* Keynote address delivered at the *CGS/NSF Workshop on Globalizing Graduate Education*. Arlington, VA.

Marrett, C. (2009). *CGS/NSF Workshop: Globalizing Graduate Education and Research* [PDF Document]. Address delivered at the *CGS/NSF Workshop on Globalizing Graduate Education*. Arlington, VA. Retrieved from http://www.cgsnet.org/portals/0/pdf/CGSNSF2009_Marrett.pdf

NAFSA: Association of International Educators. (2008). *International Diplomacy: the Neglected Dimension of Public Diplomacy,*

Recommendations for the Next President. Retrieved from www.nafsa.org/uploadedFiles/NAFSA_Home/Resource_Library_Assets/Public_Policy/public_diplomacy_2008.pdf

NAFSA: Association of International Educators. (2007-2008). *The Economic Benefits of International Education to the United States: A Statistical Analysis, 2007-2008*. Retrieved from http://www.nafsa.org/public_policy.sec/international_education_1/eis_2008/

NAFSA: Association of International Educators. (2008-2009). *The Economic Benefits of International Education to the United States: A Statistical Analysis, 2008-2009.* Retrieved from http://www.nafsa.org/publicpolicy/default.aspx?id=17174

Nerad, M. and Heggelund, M. (Eds.). (2008). *Toward a Global PhD? Forces and Forms in Doctoral Education Worldwide*. Seattle, WA: University of Washington Press.

Organisation for Economic Co-operation and Development. (2009). *International co-operation in research* in *OECD Science, Technology and Industry Scoreboard 2009*. doi: 10.1787/sti_scoreboard-2009-45-en. Retrieved from http://dx.doi.org/10.1787/sti_scoreboard-2009-45-en

Saxenian, A. (2006). *The New Argonauts: Regional Advantage in a Global Economy.* Cambridge: Harvard UP.

Science Diplomacy is Crucial to US Foreign Policy. (n.d.). Retrieved from *Partnership for a Secure America* website, http://www.psaonline.org/article.php?id=620

Sussex Centre for Migration Research, University of Sussex, and the Centre for Applied Population Research, University of Dundee. (2004). *International Student Mobility*. Retrieved from http://www.hefce.ac.uk/pubs/hefce/2004/04_30/

NOTES

1. See Junor and Usher, 2008, and Sussex Centre 2004.
2. See, for example, the Partnership for a Secure America, http://www.psaonline.org/article.php?id=620, and the AAAS Center for Science Diplomacy , http://diplomacy.aaas.org/
3. See NAFSA, 2007-2008 and 2008-09.
4. See OECD 2009, Chapter 4, "International Co-operation in Research," p. 110.
5. CGS Graduate International Collaborations Project, Technical Workshop #2, July 15, 2009. For an extended discussion of the technical workshops, see Chapter 3.C.
6. Leakey 2009.
7. See Saxenian 2006 and Friedman 2005. Thomas Friedman popularized the notion that technology and economic globalization are "flattening" the world.
8. See for example presentations to AAAS (www.nsf.gov/news/speeches/bement/09/alb090215_aaas.jsp) and the Research Councils UK (www.rcuk.ac.uk/cmsweb/downloads/rcuk/us/bement.pdf).
9. Marrett 2009.
10. Partnership for a Secure America, http://www.psaonline.org/.
11. IIE/AIFS 2009.
12. NAFSA 2008.
13. IIE 2008, p.3, p.18. While the number of American undergraduate students who study abroad is up 50% over the past decade, it is still the case that only a small proportion of graduate students do so.
14. Ibid., pp. 31-34.
15. Ibid., p. 3.
16. CGS 2008b, Table 1.4, p. 8 and Table 1.5, p.10
17. See IIE's 2008 *Open Doors Report,* p. 21.
18. Personal conversation with *Open Doors* author Rajika Bhandari in 2008 and correspondence with co-author Patricia Chow (July 28, 2009).

19. Between 2004 and 2009, application numbers have recovered slowly, but growth has slowed; 2009 data suggest that a turnaround seems evident. CGS surveys since 2004 are available online at: http://www.cgsnet.org/Default.aspx?tabid=172

20. See Carnevale in CGS 2009.

21. See European University Association 2002-2004; DAAD/HRK 2006; IIE/Freie Universität Berlin 2009; Finocchetti, et al. 2002; Green, et al. 2008; CGS 2008a and CGS 2009; Nerad and Heggelund 2008.

22. The Erasmus Mundus program is a program funded by the European Commission "to enhance quality in higher education through scholarships and academic cooperation between Europe and the rest of the world"; the program includes funding of joint master's and doctorates. For more information see http://ec.europa.eu/education/external-relation-programmes/doc72_en.htm

23. EUA 2002.

24. Ibid., p.27.

25. Ibid., p.6.

26. EUA 2004.

27. Ibid., p.12.

28. Ibid.

29. Ibid.

30. As the recent report jointly conducted by the Center for Higher Education Development and Center for Higher Education Policy Studies explains, a chief motivation for this investment in formal collaborative programs was the expectation that they "would have a bottom-up positive effect on the convergence of a European higher education system," p.6. http://www.jointdegree.eu/uploads/media/Che_Joint_Degrees_in_European_Higher_Education.pdf

31. DAAD/HRK 2006, p.16.

32. IIE and FUB, 2009.

33. Idem.

34. Among institutions with large international graduate enrollment, the response rates were as follows: 90% from the ten US universities with the largest international graduate student enrollment, 84% of the largest 25, and 68% of the largest 50 provided usable survey responses.

35. CGS 2007.

36. Ibid.

37. Ibid.

38. Ibid and CGS 2008b.

39. See footnotes 7 and 8 for more information.

40. See the CGS website, http://www.cgsnet.org/portals/0/pdf/R_IntlAdm08_II.pdf, table 4.

41. Based on results from prior CGS surveys on field distribution, the survey did not ask respondents to report on every discipline, as the numbers were expected to be too small to serve as the basis for further analysis. [See Chapter Two, Table 2].

42. To minimize survey burden and maximize response rate, CGS did not ask respondents to identify the number of degrees for every research field or discipline. Given the structural similarities of financing and accreditation for most research fields, and the documented higher concentrations of international collaborations in engineering and business than in other fields, we elected to ask respondents to report on degrees for these four categories.

43. The 2009 IIE/FUB Report cites the following motivations for creating a joint or double degree program, in order of most to least important: 1. "Advancing internationalization of the campus; 2. "Raising international visibility and prestige of the institution; 3. Broadening the institution's educational offerings; 4. Strengthening academic research collaborations; 5. Increasing foreign student enrollments," p. 13.

44. See Knight 2008 and van der Duyn Schouten, n.d.

45. This issue is typically not encountered in one of the most common types of international collaborative degrees, the MBA, since these degrees often do not require a thesis, and in the focus group, participants did not discuss this type of program.

46. An international component is required of PIRE grant proposals, whereas international collaboration is elective for IGERT grants.

47. See DAAD, n.d.

48. EUA 2002.

49. Bosch and Titus 2009; Sigma Xi 2008.

50. CGS 2008; CGS 2010.

51. CGS published the proceedings of these Summits as: *Global Perspectives on Graduate Education* (2008), *Global Perspectives on Research Ethics and Scholarly Integrity* (2009), and *Global Perspectives on Graduate International Collaborations* (2010).

52. IIE/FUB's 2009 publication provides some important examples and a basis for future work in this area.

53. In order to test whether this approach was appropriate to the US context, CGS invited institutions in 2007 to define their degree structures using the terms "joint" or "dual degree" and, separately, to identify the mechanism for recognizing completion of a degree program. Among 2007 CGS survey respondents that indicated having at least one degree or certificate collaboration, 39% used the term **dual degree** or **double degree** to describe a program in which "students receive a degree or diploma from each university" as opposed to 6% who used the term to describe a program in which "students receive one degree or diploma from the college or university of registration, with the transcript declaring the program." None used the terms "dual" or "double degree" to describe a program in which "students receive one degree or diploma in the names of both colleges or universities."

US institutions use the term **joint degree** to describe programs that confer recognition in a variety of ways, including what would be typically be described by others as "dual degree" programs: 8% used the term "joint degree" to describe a program in which "students receive one degree or diploma in the names of both colleges and universities"; but 10% percent used the term "joint degree" to describe a program in which "students receive one degree or diploma from the college or university of registration, with the transcript declaring the program," and 16% used the term to describe programs in which students receive a "degree or diploma from each university."

54. See Comrie and Horgan 2009.

55. DAAD/HRK and FUB/IIE are examples.

56. **Dual (or Double) degree program:** Students study at two or more institutions and upon completion of the program receive a separate diploma from each of the participating institutions. **Joint degree program:** Students study at two or more institutions and upon completion of the program receive a single diploma representing work completed at two or more institutions.

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