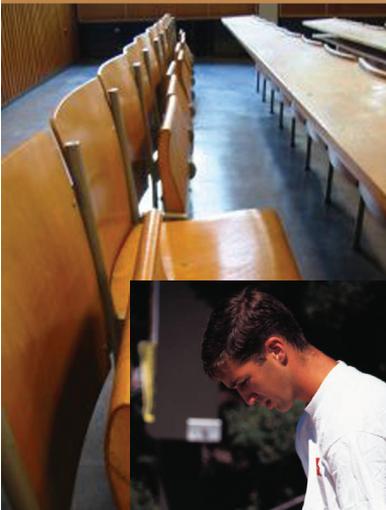


The Future of the Graduate College



63rd Annual MAGS Meeting
April 11-13, 2007
Indianapolis

Midwestern Association of Graduate Schools

Proceedings of the
63rd Annual Meeting

The Future of the
Graduate College

The Indianapolis Marriott
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April 11-13, 2007

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The Value of the Graduate College

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Abstract

The graduate college and the graduate dean contribute to the university in diverse ways. After discussing some general ways in which they add value to the university, this paper explores in some detail four specific spheres in which the graduate dean makes major contributions to the graduate enterprise. These include the dean's leadership, service to graduate students, administrative contributions, and external responsibilities.

The Value of Looking at Value

In the early 1990's when I attended my first CGS meeting, I remember listening to a case presentation that described the dissolution of the graduate college at some university. There was a lively discussion of the causes and consequences of the dissolution. Similar discussions occur today. Some universities today are eliminating – or considering eliminating – their graduate college while other universities that previously eliminated their graduate college have reinstated it – or are considering doing so. Often elimination is fiscally motivated; someone believes that the university will save money by eliminating the graduate school. Sometimes elimination is motivated by the belief that there are more efficient models for serving the graduate enterprise; and sometimes it is to deal with a non-functional graduate college. Reinstatement results when university officials realize that much is lost when the graduate college is dissolved. Moreover, the goal of saving money is not realized, although the costs may be buried in the budgets of diverse units, making it appear that money is saved.

If we can document and demonstrate the value of the graduate college and the graduate dean, then perhaps we can save our institutions from the disruption associated with dissolving and reinstating a graduate college. Moreover, we can use information about the roles and responsibilities of the graduate college at other universities to benchmark our own performance.

Seeing Value Through Metaphors

Symbols can effectively capture the essence of a complex issue such as the value of the graduate college. An example would be the telescope which captures several key aspects of the value of the graduate dean and the graduate college. Telescopes focus on their subject which is also what the graduate dean does. That is, graduate deans focus their attention on graduate education, graduate programs, and graduate students. Almost all universities are “primarily undergraduate institutions,” at least in terms of their enrollments. As a result, the provost and college deans must focus their efforts on undergraduate programs and undergraduate students as well as on the myriad of other responsibilities that are associated with their positions. Graduate deans, on the other hand, focus their efforts and their thinking on the graduate enterprise.

Telescopes also help us to see the big picture beyond our immediate environment. Graduate deans do the same thing. They are concerned with the big picture, not only at their own universities, but also nationally and internationally. The graduate enterprise does not operate in a vacuum, independent of the other programs at the university, nor can it function independently from what is happening in graduate education elsewhere. The graduate dean must ensure that graduate programs fit within the institutional context as well as within national and international contexts.

Finally, telescopes help us look at the stars, an activity sometimes associated with dreaming, and graduate deans ought to engage in dreaming. They should dream about the future of graduate education and the vast number of changes that are likely to occur in this growing enterprise. They must be able to anticipate the future of graduate education in order to prepare their universities for that future.

The Thinker, a bronze sculpture created by Auguste Rodin, also symbolizes the graduate dean, for the graduate dean is the academic administrator who thinks deeply about graduate education. The opening plenary given by Suzanne Ortega, graduate dean at the University of Washington, exemplifies my point. Ortega raised questions about graduate students’ willingness to take intellectual risks. She talked about developing their ability to be innovators and other issues that relate to graduate students independent of their field of study. As graduate dean, Ortega is obviously thinking deeply about cross-cutting issues that relate to graduate education.

The Context for this Paper

The roles of the graduate college and the graduate dean vary by university. They are a function of the size of the university, the number and mix of graduate programs, the size of the graduate population, the highest degree level, the age of the university and its institutional history, traditions, and preferences. It is important, therefore, that you know something about the perspective that I bring to articulating

the value of the graduate college. Those from different types of institutions would likely emphasize different aspects of the value of the graduate college.

Northern Kentucky University (NKU), where I currently serve as graduate dean, is a young, metropolitan university located about five minutes from downtown Cincinnati. Having opened our doors in 1968, we do not have a large number of deeply ingrained traditions and change is relatively easy. NKU focuses on serving our geographic region. More than 90% of our 14,600 students are from the region and approximately 90% remain in the region after graduation. Our graduate programs and graduate enrollments have grown significantly over the past 5 years. Specifically, we have grown from 7 master's degree programs in 2001 to the 16 master's degree programs we now offer. During this time, our graduate enrollments have increased by 62% to our current enrollment of about 1,450 students. In addition to offering master's programs, we offer a host of certificate programs and are working on our first doctoral program, an Ed.D. in educational leadership. All of our programs can be completed on a part-time basis and all are available through evening, week-end or online options. In other words, our graduate programs are designed to serve working adults, and the programs have an applied focus as opposed to a pre-doctoral focus.

Classifying Value in Four Areas

The graduate college and graduate dean provide extensive value to the university. This paper focuses on their contributions in four areas: providing leadership; serving graduate students; handling administrative tasks; and meeting external responsibilities. Each is discussed below.

Area 1 Providing Leadership

While all of these roles are important, the graduate dean's leadership role is probably of greatest importance. As part of that role, it is critical that the graduate dean continually advocates for excellence regarding every aspect of the graduate enterprise.

There are so many ways in which graduate deans express their leadership roles and so many opportunities to advocate for excellence. They can do this through their communication with others, such as the provost, deans, department chairs, graduate program directors, the graduate council and various faculty groups. With every group, the dean should promote excellence and what is best for the graduate enterprise. It is critical that the graduate dean serve on the Deans' Council to ensure that graduate issues get appropriate consideration and to prevent decisions that would have unintended negative consequences for the quality of graduate programs or the welfare of graduate students.

The first critical area in leadership is development of the strategic plan. The graduate dean should play an important leadership role in the development of a strategic plan for the graduate enterprise. With a campus-wide perspective and

knowledge of the national trends in graduate education, the dean is the ideal person to lead in mapping the development of new graduate programs and the expansion of existing ones. The task, however, is not an easy one and should include inputs from faculty, current and prospective students, university administrators, and employers within the region.

In developing our graduate strategic plan at NKU, we considered five factors and agreed that a sixth factor – student demand – would be assessed before any proposed program could be implemented. The five factors were: job opportunities, regional competition, benchmark programs, program cost, and faculty interest, in that order.

Assessing job opportunities for graduates proved more challenging than anticipated. While one might assume that government forecasts provide useful data, they were actually of very limited help. Job titles (e.g., salesperson) often tell us little about the required academic preparation. For applied master's degrees, the best source of information about jobs is likely to come from employers in the region and professional associations related to the degree programs.

We next looked at the programs being offered by universities within commuting distance from our region. Because we wanted to be sure we would use our scarce resources wisely, we wanted to avoid unnecessary program duplication. Thus, we eliminated from consideration those programs already available in the area, provided they had remaining capacity, were offered at times our potential students could attend, and were as affordable as the programs that we might develop.

For programs that survived the two screens applied thus far, we looked at whether similar programs were offered at our benchmark institutions, a set of nineteen universities that our state uses as “standards for comparison” for NKU. We assumed that if universities like us are offering a program and attracting students, then we are also likely to attract students if we add the program.

Our final two considerations for new programs were the cost to implement the program and the interests of our own faculty. If implementing a program would be too costly, then we might not be able to afford the program unless we could attract outside support. If our faculty have little or no interest in the program or lack the appropriate academic background, then we must consider whether we could attract a faculty for the program and whether we could afford to do so.

Our sixth factor – student demand – will be assessed before any new program is implemented, and in fact, is a required part of any pre-proposal for new programs at NKU. After all, if the program isn't going to attract students, there is no point in developing it.

Predicting student demand, however, is very challenging. We know that most survey approaches overestimate the demand. As an example, one survey, with which I am familiar, showed that 400 people were “interested” in enrolling in a program that was being contemplated, yet when the program was actually offered, only 7 students enrolled. Although there is no cure for this problem, one

way to ameliorate it is to structure a survey to initially provide detailed program information and follow it with very precise questions. Give the survey respondents a description of the program and the benefits of the degree. Let them know the duration of the program, the number of credits involved, information on admission standards, whether the program will be available on a full- or part-time basis, and anything else that might affect their decision to enroll. Then ask very specific questions about whether the program meets their needs, fits their budget, and meshes with their goals and expectations. The very last question should ascertain exactly when a respondent intends to enroll.

Once completed, a strategic plan is useless if it does nothing but sit on a shelf. The graduate dean must ensure that it is endorsed and supported by the upper administration, the other deans, the faculty leaders and opinion makers, and those who are in a position to commit resources to the new programs.

In addition to developing a graduate-specific strategic plan, the graduate dean must ensure that graduate education is appropriately represented in the university's strategic plan.

The second area of leadership is program review. Another important area for the graduate dean's leadership is program review. Ideally, the review of graduate programs should be conducted under the auspices of the graduate college, but if that is not possible, then the graduate dean should be closely involved in the review of graduate programs. Furthermore, for program review to be truly meaningful, the review document must not represent the end of the process. Someone must ensure that the review leads to continuous quality improvement and that "someone" is often the graduate dean. Perhaps the program needs more resources or a realignment of their existing resources; perhaps it needs to be restructured or "tweaked" a bit; perhaps it should be recognized in some way for its outstanding quality; or perhaps the program ought to be eliminated. Regardless of what is needed, the graduate dean should ensure that the recommendations in the program review document are given appropriate consideration. If program review leads to nothing more than a formal report, then it is not worth doing.

The third area of leadership involves the graduate council. The graduate dean has an important leadership responsibility in regards to the graduate council. The roles, responsibilities, and composition of the graduate council vary by institution, but it should always be structured to protect the graduate enterprise and ensure its quality. Because the graduate council plays such a critical role in graduate education, the graduate dean will want to ensure that the council is structured and supported to serve the university most effectively. In my experience, this means having a graduate council comprised of faculty, not administrators.

It is critically important that the graduate dean and the graduate council work together harmoniously, but it is also important that the council reflects different views. An adversarial relationship is highly destructive; a "rubber stamp" graduate council contributes little to advancing graduate education. Most valuable is a council that is thoughtful, committed to graduate education, willing to invest time in preparing for and attending meetings, and comfortable engaging in lively,

respectful debate.

At some universities, the graduate dean chairs the graduate council. At others, the graduate dean is a member of the council, and a faculty member chairs the council. I prefer the latter arrangement as I feel I can be a more effective leader when I can concentrate on the issues and not be responsible for the flow of the meeting. I also like having a separate agenda-setting committee comprised of the graduate council's officers and the graduate dean. By working closely with this group, I can provide leadership for what is included on the agenda, get a preview of how the group is likely to respond to the various issues, and help the leaders of the graduate council to relate issues at our university to the national scene.

The graduate council can be of enormous help to the graduate dean in advancing graduate education and promoting excellence. Their specific responsibilities may vary, but at the very least they are responsible for the graduate curricula which means they should have the authority to approve program and course additions, changes, and deletions. In addition, they should establish university-wide minimum standards for graduate programs. These standards are critical for maintaining quality and the reputation of the graduate programs. While the graduate dean should educate the graduate council about policies at other universities and should provide guidance in the development of the minimum standards, it is the graduate council who actually approves the standards.

In addition, the Graduate Council can assist the dean in dealing with potentially contentious issues. For example, the graduate council can determine the allocation plan for graduate assistants, take responsibility for the fellowship selection process, and establish the graduate faculty policy. While the enforcement of this policy may be delegated to the graduate dean, the graduate council, being a faculty body, can often more effectively and less contentiously enforce the graduate faculty policy.

The fourth area of leadership is program innovation. The graduate dean should provide leadership in program innovation. Online programs, which were at one time considered highly innovative, are now commonplace. There is a clear market for these programs which serve students who desire a graduate degree but either cannot or choose not to attend face-to-face classes. The students' options may be limited because of job-related travel, geographic isolation, family responsibilities or any of a host of other reasons that lead them to seek out online programs. If traditional universities do not address the academic needs of this growing population of prospective students, they will be ceding it to others, and the for-profit sector of higher education is eager to serve the market. To meet the needs of non-traditional students, universities today must also consider non-traditional delivery times and places. If all program offerings are on campus, during the day, then it is unlikely that they will meet the needs of working adults. Perhaps classes need to be offered in the evening, perhaps on the week-ends, perhaps as a blend of face-to-face and online. Taking classes, preferably a full program, to the students' work site is a great way to serve the students while simultaneously building a close partnership with local area businesses. The goals should be access for potential students and high quality programs, not the convenience

of faculty and administrators. The role of the graduate dean in implementing or overseeing programs offered in non-traditional ways will vary depending on the university's organizational structure. Above all else, the graduate dean should ensure that the programs are of the highest quality and students are provided with the appropriate auxiliary services.

Interdisciplinary programming is the sixth area of leadership. Interdisciplinary programs present a whole host of challenges, not the least of which are finding a home, a champion, and a resource stream for the programs. The graduate college can play an important leadership role in regards to interdisciplinary programs. The graduate dean can ensure the programs are served by a committed faculty, have appropriate resources, and are created in such a way to ensure their long-term sustainability. The programs may actually be housed in the graduate college, especially when the involved disciplines are located in different colleges.

The Professional Science Masters (PSM) is an excellent example of an interdisciplinary program which has benefitted from strong leadership within the graduate community. The graduate dean is an excellent source of information about how PSM programs are developing around the country: how they are structured, funded, and staffed. For more information, the graduate dean can readily consult fellow deans at other universities that have PSM programs.

Finally, there are numerous other areas in which the graduate dean has an opportunity to provide leadership. For example, graduate deans are often deeply involved in the development of programs that cross institutional or even international boundaries; they might work with the provost and the relevant college dean to ensure that graduate programs are adequately funded; and they can assist the academic departments with issues surrounding "load" credit for thesis and dissertation supervision. The graduate dean should ensure that university-wide policies that apply to graduate students are appropriate for them. For example, violations of academic integrity standards might typically be handled by the dean of students if the allegation involves an undergraduate student, but the standards, the consequences of violating those standards, and the adjudication of cases involving graduate students should be the purview of the graduate faculty. The graduate dean should ensure that there is a separate policy for graduate students.

Area 2 Serving Graduate Students

Graduate students are generally a minority on the campus. As such, they may require special protection. Compared to undergraduate students, they are likely to have different needs in regards to financial aid, housing, health insurance, childcare, counseling and career services. Services must be available for graduate students when they need them, which may not be between the traditional office hours of 8 and 5. The orientation for undergraduates is generally not appropriate for graduate students. It is the graduate college that can assume responsibility for ensuring that their needs are addressed, and it is the graduate dean who must advocate forcefully and persuasively for the rights and needs of graduate students.

Financial assistance is first critical area of service for graduate students. To attract full-time high-quality graduate students, it is generally imperative that the institution provide competitive financial support in the form of fellowships and/or assistantships. Even for programs serving part-time working adults, it is important to have funding available even if it only supports research and travel expenses. The graduate college can play various roles in regards to financial support for graduate students. It is likely to advocate for increased student support. In addition, it might oversee the student support budget for fellowships and/or assistantships, motivate others to create assistantships or develop creative ways to partner with other entities to create assistantships, set the standards for the selection and retention of graduate assistants, as well as setting standards for the stipends and benefits associated with both assistantships and fellowships.

A second area is the protection of student's rights. There are academic issues where the interests of graduate students may need protection. For example, the students' intellectual property rights should not be violated by the university or by external entities involved with the student's research; students need helpful, motivated mentors and dissertation or thesis advisors who are appropriately responsive; and graduate assistants must be treated appropriately which means they are given needed training, treated with respect, and assigned job responsibilities appropriate to their hours of employment. The graduate dean can play an important, impartial role in protecting all of the students' rights. On some campuses, the graduate dean may even be called upon to mediate disputes between a graduate student and a graduate advisor.

Enforcing policies is a third area of service to students. While the graduate council establishes minimum standards and university-wide policies, it is often the graduate college that is charged with the enforcement role. The graduate college must protect the integrity and value of the degrees for all students, and this means holding everyone to high standards. For some policy violations, the graduate college may be directly responsible for meting out the consequences, and for others, it may oversee the process that metes out the consequences. Regardless of which role the graduate college is playing, it has the advantage of having a university-wide perspective on the enforcement of policies and standards.

A fourth area of service includes listening to our graduate students. On most campuses, student government focuses on undergraduate students and is oblivious to the needs or interests of graduate students. Graduate students might want their own organization, in which case someone from the graduate college can be helpful in supporting and mentoring the group. However, student interest in such an organization is likely to be minimal at best, especially for part-time graduate students. Even full-time graduate students are more likely to be active in programs emanating from their department than in university-wide organizations. Thus many universities do not have a graduate student organization or have one that is weak and non-representative. In those cases, the graduate dean should help graduate students find their voice on campus. This can be accomplished through a graduate student advisory group that meets periodically with the graduate dean,

through ad hoc focus groups, or through other means that fit the campus culture.

Service also include a variety of student-related responsibilities. There are other supportive functions the graduate college can play such as offering a graduate student orientation, providing – or ensuring that some other campus unit is providing – training for graduate assistants, hosting social events for graduate students, and providing special events associated with commencement for graduate students.

Area 3 Handling Administrative Tasks

The graduate office tends to be a busy place with many responsibilities for the operational aspects of graduate education. The graduate college should be an efficient office which provides consistency in the application of standards and policies for the graduate enterprise. The specific responsibilities of the office vary by university, but some functions are common to most graduate offices.

The graduate office is often the hub for processing graduate applications, but the admission decisions should always be handled by faculty in the relevant program. While some universities have a single admissions office that handles both graduate and undergraduate applications, that arrangement risks having graduate applications take a backseat to the undergraduate ones which are likely to be far greater in number. Applications can also be handled at the college or department level, but that arrangement poses a greater risk that standards will be applied unevenly and inconsistently. Handling graduate applications, wherever it is done, is a challenging task accompanied by hundreds of telephone and e-mail inquiries. Because the graduate office staff is committed to serving applicants, they are likely to be most responsive to the inquires. Overall, centralized admission processing in the graduate college is most likely to be efficient, consistent, and “customer” friendly.

International applications are substantially more complex to process. The processing may reside in the graduate office, which is likely to ensure that applications are treated as a priority, or they may be handled in an “international office” where undergraduate applications may take precedence.

The graduate office provides many other functions to support the graduate enterprise at the university. The office is generally responsible to publish the catalog (online or hard copy), the graduate student handbook (or encourage each program to provide its own), and a thesis and dissertation manual. The office might also conduct the graduation audit to determine whether a student has satisfied all requirements for the degree. The graduate office often enforces the probation and dematriculation process, approves the composition of thesis and dissertation committees, and manages many of the orientation and training programs already mentioned, such as the fellowship program, the assistantship program, graduate student orientation, and special graduation events. The graduate office might also offer special workshops for graduate students on topics such as “résumé writing” or “drafting the dissertation proposal.”

Area 4 Meeting External Responsibilities

The graduate college plays a very important external role, ensuring a positive image in the eyes of the various publics. One critical external responsibility is networking. The graduate dean represents the university in professional associations such as the Council of Graduate Schools and the Midwest Association of Graduate Schools. The dean attends their conferences and participates in the CGS listserv. This involvement is critical for ensuring the university's visibility and credibility within the national and regional graduate dean communities. More importantly, it is critical for keeping the university abreast of issues, challenges, and changes related to graduate education across the country. Finally, the connections established at conferences provide each graduate dean with access to a network of graduate deans and associate deans, while participation on the listserv provides a source for answering any question related to graduate education. Without a graduate dean, these important connections are likely to be lost.

At some universities, the graduate office plays a major role in marketing graduate programs and recruiting graduate students. With student recruitment being very competitive today, there is no longer the attitude of "build it and they will come." Rather the university must promote its programs to prospective students. The graduate office may control the marketing budget for graduate programs or may be limited to influencing the offices that do. The graduate office might work with individual graduate programs to develop and implement various recruitment efforts. The graduate office might also represent the university at graduate recruiting fairs, in contacts with corporate sectors that will send students to the programs, or in other marketing/recruiting functions.

In addition to marketing to prospective students, the graduate dean should ensure that the general public, the state legislature, and the federal government is repeatedly reminded about the importance and value of a graduate degree. The graduate dean might be directly involved in this "education" function or may simply provide the facts and supporting data to those who carry out this function.

The graduate college and graduate dean may be directly involved in fund-raising to support graduate programs. Some graduate colleges even have their own "development officer," full- or part-time. On the other hand, because alumni generally feel more connected to their academic program rather than to the graduate college, fund-raising efforts on behalf of graduate education might best be served by the graduate dean working collaboratively with an individual program or college. Even when most fund-raising is at the program level, graduate alumni may be willing to provide centralized support for graduate student research and travel.

The graduate web site serves both external and internal audiences. Regardless of whether the web site was planned as a recruitment tool, it will function as one, since prospective students obtain much of their information about program options from "surfing" the web. The graduate dean needs to look carefully at the graduate web site from the perspective of someone who knows little or nothing about the

university and its graduate programs but wants to learn whether a particular graduate program, as well as the university in general, is a “good fit” for this prospective student. Watching how naive users explore the web site, arranging formal usability studies, and conducting focus groups with new students can all provide valuable information about the quality and functionality of the web site.

Concluding Remarks

Clearly, the graduate college contributes to the university in extremely important and diverse ways. Of greatest importance is the graduate dean's role as a leader, which is unlikely to be filled as effectively by any other campus administrator. Also of importance is the graduate college's role as advocate for the graduate students and their welfare. After all, the success of our graduate programs is dependent upon our recruiting, retaining, and graduating high performing graduate students. The graduate college fulfills numerous operational responsibilities many of which are required by our graduate programs. While these responsibilities can be fulfilled by other units of the university, they are likely to be done less efficiently, less consistently, and less thoroughly than when they are done in the graduate office. Finally, the graduate college and graduate dean bear important responsibilities to maintain a public presence and positive image for the university's graduate programs.

Although it has been demonstrated that graduate programs can survive without a graduate dean and graduate college, surviving and thriving are not the same. Graduate programs are more likely to thrive when under the leadership of a strong, effective graduate dean who brings great value to the university.

Response to the Keynote Address Value of the Graduate College

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Introduction

Following the Keynote Presentation attendees broke into four discussion groups to consider one of the four topics covered in the address on the roles of the graduate college. These included providing leadership, serving graduate students, handling administrative tasks, and meeting external responsibilities. The focus of this panel was a discussion on meeting external responsibilities.

Response to the Keynote Address

Presently, the two graduate schools of the University of Colorado at Denver and Health Sciences Center (UCDHSC) are in the process of merging as a result of the agreement in 2004 to create a single university by joining what had been the University of Colorado at Denver and the University of Colorado Health Sciences Center. The Health Sciences Center campus has had a traditionally centralized graduate school. On the other hand, I found that the Denver campus (formerly UCD) has had highly decentralized graduate school. Some reflection on the UCD model may provide some insights into the consequences of not having a well-defined, centralized graduate school.

The current situation of the graduate school at the Downtown campus has several salient features. In the Fall semester of 2006, there were over 3,900 graduate students enrolled in the Downtown programs of UCDHSC. These graduate students were served centrally by a half-time graduate dean and part time administrative assistant. Even though slightly fewer than half of these were full-time graduate students, it should be clear that much of the administrative responsibilities for these students must be borne by the colleges and schools in which they are enrolled. Currently, only 17% of the doctoral students at UCD have any financial support from the State. Of the seven academic colleges three of them serve mostly graduate students, suggesting that we might, in effect, have several "graduate deans", each

quite reasonably and logically working primarily for the benefit of his or her unit. The Graduate Council has customarily met in a sporadic fashion and the “Graduate School Rules” are a montage of seven views of the graduate student universe. The current situation arose in part, I think, by a significant lack of financial resources and partly by a fear that a centralized graduate school might become “rules central” rather than an organization driven by a desire to serve graduate students. None of these conditions imply that the academic colleges produce graduate students that are not well-qualified; indeed, there is considerable evidence that they are producing many excellent students who are having no difficulty in finding good positions.

What are some of the apparent consequences of this extreme decentralization of the graduate school? We receive many calls from individuals asking for interpretations of our current “Graduate School Rules” as a result of conflicts in wording between the central rules and the college rules. Only some of our graduate programs have adequate graduate school handbooks – leading to confusion and even threats of lawsuits concerning missing guidance in certain programs. The quality of graduate student recruitment is extremely variable among disciplines with no uniformity of the quality of information provided on web pages or elsewhere. There is no general graduate student orientation program. No one speaks consistently to the higher administration about the need for financial support or other support for graduate students. No help exists for graduate students trying to apply for fellowships or scholarships. (The very low institutional support for current graduate students does suggest to me that going it alone has not been effective in generating financial support for graduate education). There also appears to be inefficient and inequitable distribution of resources in support of graduate education. Finally, there is an absence of systematic tracking of both M.S. and Ph.D. students once they graduate.

While no one will believe that all these problems will disappear once the graduate school becomes centralized, the act of centralization itself shows that we recognize that there are several important issues faced by all graduate programs which might be better addressed in a concerted manner than piecemeal. Some of the above observations with a decentralized system suggest to me that a plan to eliminate graduate deans and graduate schools as redundancies at universities may be premature. In any case, UCDHSC is now committed to creating a much more centralized graduate school to serve both campuses of the University with an aim of increasing services to all graduate students.

Panel Discussion on Meeting External Responsibilities

Below is a summary of ideas and comments from the discussion group focusing on the role of the graduate college in meeting external responsibilities. The discussion group suggested that graduate deans should engage in the following activities:

- market internally using web resources to communicate about graduate programs available at the university
- offer workshops for graduate program directors on web development
- survey recently entered graduate students to find out how they learned

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- of graduate program offerings
- hold a “graduate education week” program for state legislators and other external stakeholders
 - use television and radio ads to showcase outcomes of graduate education
 - recruit alumni to go participate in graduate fairs
 - seek endowments for graduate education from foundations and donors whenever that is possible
 - collaborate with the faculty to advance graduate study and address graduate issues
 - give graduate presentations at any recruitment event possible
 - consider developing a program such as “Life Science Day” at the University of Indiana to present to the legislature work of students to garner support for graduate education
 - look at the Ohio multiple-institutions model for presenting cases to legislature and elsewhere of value of graduate education
 - invite multiple faculty from a single (well-chosen) department to visit and present at a host department to build knowledge and trust for recruiting students

Response to the Keynote Address Value of the Graduate College

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Introduction

Dr. Beere provided an overview of the role of the graduate college that emphasized providing leadership, serving graduate students, handling administrative tasks, and meeting external responsibilities. Each of these perspectives is part of the responsibility of the graduate college. Along with the Provost, and other Deans, the Graduate Dean is part of the leadership team that helps drive graduate education at the university.

Response to the Keynote Address

In addition to the above mentioned roles of the graduate college, there are other critical responsibilities that are required of most graduate colleges. They include the following contributions:

- Program Review
 - o Conducts periodic external reviews of graduate programs
 - o Allocates resources to departments based upon external review recommendations
- Review and Development of Academic Policies
 - o Develops student centered policies
 - o Maintains quality standards
 - o Considers exceptions to policies
- Recruitment Activities
 - o Attends recruitment fairs
 - o Offers recruitment fairs
 - o Provides graduate open houses
 - o Produces posters, brochures, and other recruitment materials
 - o Monitors admissions and enrollment rates
 - o Sponsors campus visits of graduate students
 - o Consults on recruitment activities
 - o Develops web materials
- Admissions Processing

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- o Monitors compliance with academic admission standards
 - o Maintains admissions records
 - o Gathers weekly reports on inquiries, applications, enrollments, etc
 - Administration of Assistantships and Fellowships
 - o Administers the appointment process for Graduate assistantships and fellowships
 - Appointment of Graduate Faculty
 - o Monitors a system of faculty status of full and associate membership
 - Appointment and Approval of Faculty Thesis and Dissertation Committees
 - o Approves committees based upon graduate faculty status
 - o Reviews external members
 - Degree Auditing
 - o Reviews completion of programs of study
 - o Authorizes exceptions to degree requirements
 - o Maintains auditing for degree verification
 - Thesis and Dissertation Approval
 - o Reviews theses and dissertations after they are approved by student's committee
 - o Provides help with formatting and consistency
 - o Provides formatting workshops
 - o Administers electronic thesis and dissertation program
 - Liaison with Student Organizations
 - o Serves in advising capacity to the Graduate Student Organization
 - o Reports on proposed new policies
 - o Offers joint programs with GSO
 - o Holds informal meetings with groups of graduate students
 - Student Grievance Procedures
 - o Insures due process for students
 - o Provides adjudication of student grievances
 - o Hears student appeals
 - Academic Integrity
 - o Administers an honor's code
 - o Provides workshops on research ethics
 - o Resolves alleged violations
 - Participation in Faculty Appointment Process
 - o Interviews candidates for senior positions
 - o Educates faculty about the mission and services of the Graduate College
 - Oversight of Postdoctoral Fellows
 - o Establishes policies relating to Post-doctoral candidates
 - Data Collection and Dissemination
 - o Collects and publishes data relating to time to degree, attrition rates, and types of employment of graduate students

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- Development/Fund-raising
 - o Attends meetings with development office
 - o Sponsors meetings with donors
 - o Develops relationship with individual donors
 - Preparation of Students for Careers in Academia
 - o Prepares teaching assistants for roles in the classroom
 - o Provides seminars on topics of importance
 - o Administers Preparing Future Faculty Programs (PFF)
 - Curriculum Process Monitoring
 - o Receives reports from curriculum committee meetings
 - o Advises on new graduate curriculum proposals
 - o Serves as a clearinghouse for all graduate curricular changes
 - o Develops and maintains the Graduate Catalog
 - Student Support Services and Retention Programs
 - o Provides orientation for new graduate students
 - o Provides training that improves teaching, research, or service skills of graduate assistants
 - o Advocates for fair and responsible treatment of graduate students in all offices
 - o Administers health care policy eligibility for graduate students
 - Promotion of Intellectual Atmosphere
 - o Provides recognition of faculty
 - o Provides recognition of advisors and committee chairs
 - o Provides recognition of graduate student research and teaching
 - o Provides symposia and events

Following the Keynote Address, each of the respondents in this session was asked to facilitate a discussion relating to four questions regarding graduate education. Below is a summary of the discussion of these questions from one of the groups of participants.

Question 1: Are there successful strategies that you have used at your university in relation to furthering graduate education?

The discussion focused upon advocacy on behalf of graduate education and graduate students. There are many ways that the Graduate Dean can be an effective advocate. The position of Graduate Dean provides many venues for influencing decisions at the university. One of the most important areas of intervention is through the Dean's role on the Graduate Council. Whether serving as the chair of the council or as a resource person, the Graduate Dean can stimulate the graduate council to advocate for quality programming and fair treatment of graduate students. There are, of course, other venues within which the Graduate College can further the goals of graduate education. They include meetings of the Graduate Program Directors, Dean's Council, curriculum committees, and the faculty senate.

Question 2: What are the major challenges at your institution relative to graduate education?

One of the major challenges is striking a balance between being student centered and maintaining strict adherence to university policies. Policies are made to insure the smooth running of the university. Sometimes, however, these policies may disadvantage graduate students. The Graduate College must enforce policies of the university but must also have the flexibility to make exceptions to policies when the conditions warrant them. In a similar way the Graduate College is sometimes faced with the decision of whether to maintain the tradition of the university or champion new directions in policy. The Graduate College must protect the integrity of the academic programs but must also have a flexible approach that encourages new ideas.

Question 3: Are there structural changes that would assist in reaching your goals?

Three issues were discussed in relation to structural changes. First, participants felt that the graduate college can play an integral role in housing those programs that are interdisciplinary in nature. When programs span more than one college, the graduate college can serve as a neutral location for the programs.

The second structural change that was discussed was creating an entrepreneurial arm of the graduate college to facilitate the development of new curricular programming. Unlike undergraduate programs that seem to echo the traditional models of their disciplines, graduate programs can be more innovative and can create new structures. The graduate college should be in a mode that will permit it to spawn such non-traditional programs.

The third structural issue was the nature of the position of the graduate dean. There was debate as to whether it is best to have the administrator of the graduate college serve solely as graduate dean or take on the dual role of graduate dean and vice president of research. The dual role enables a synergy not otherwise possible. Graduate studies and research go hand in hand. Research is enhanced when graduate assistants work with faculty, and the education of graduate students is best accomplished when integrated with research. Often in a combined structure there is a sharing of financial resources that benefits graduate education. On the negative side, being a graduate dean is a full-time job and combining it with research takes away precious time from both positions. Such a combination often requires the second in command in each office to take on a larger role.

Question 4: Are there resource issues that prevent you from reaching your goals?

In discussing resources, the high cost of doctoral programs became a prominent issue. In most doctoral programs there is a need to fund most students. Often in the sciences, the graduate college provides a large number of teaching assistantships and depends on the faculty to fund the majority of research assistantships through

research grants. In the humanities where there is less grant funding available, it becomes necessary to fund a larger proportion of graduate assistants. In order to attract the best doctoral students, it is necessary for the graduate college to have a large enough budget to support graduate students. In contrast, at the master's level, many students pay their own way and thus the cost of the programs is less. However, there is still a need for graduate assistantships for master's students.

The participants in our discussion addressed the issue of how to find out more about which resources are needed. It was concluded that a university should engage a cadre of graduate students to provide input on resource issues. Similarly a focus group of faculty addressing the same issue would be most informative.

Developing Creative Thinking

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Abstract

With a growing emphasis on accountability, efficiency, and sound business practices, universities are in danger of compromising one of their most essential characteristics: the opportunity for students and faculty to engage in bold scholarship and intellectual risk-taking. From funding agency policies, through peer review and tenure and promotion processes, there are strong incentives to produce research and scholarship that is “safe,” i.e., work, the outcomes of which, are already largely known. If bold scholarship and innovation will drive the economies of the 21st century, if they will be critical in meeting pressing global problems and improving quality of life, how can universities organize to promote them? How, also, can graduate faculty and graduate deans implement educational experiences that facilitate these competencies in the next generation of faculty and graduate-prepared professionals? The major premise of this talk is that risk-taking/creativity is both a psychological predisposition and an intellectual attribute; it can be learned and developed but requires a certain level of economic, and organizational resources to incubate and sustain it. Among the competencies which appear to underlie creativity, are an ability to think synthetically/inductively; an interdisciplinary habit of mind; the ability to fail; and the capacity for “deep listening.” Several examples are given of ways that educators might develop course and capstone projects which could facilitate these skills.

In addition to thinking of intellectual risk-taking as a characteristic of individual scholars, we also need to think about creativity and innovation as a distributed knowledge system and ask how we might recruit students into programs and labs in ways that facilitate the development of innovation teams. The example of the new emphasis on translational research is used to illustrate how some of these principles might work. In closing, the question of how changes in graduate student demographics might impact efforts to design and organize an innovation curriculum is explored.

The Value of the Midwestern Association of Graduate Schools

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Abstract

The Council of Graduate Schools has had a long and valued relationship with the Midwestern Association of Graduate Schools. In fact it was MAGS leaders in the early days that were responsible for creating and molding CGS.

History of MAGS through CGS Eyes

Long before the Council of Graduate Schools came into being, there were regional associations. After the issue arose of the need for a national organization to address the special issues of graduate education, a meeting was held February 17-18, 1961 to consider the creation of CGS. Robert J. Henle, S.J., Dean of the Graduate School at St. Louis University, represented the Midwest Conference on Graduate Study and Research, and was the scribe for the meeting. That initial meeting led to the first organizational meeting to which 100 institutions were invited. At that meeting on March 22, 1961, the first chair was elected, Henry Bent, from the University of Missouri. The three chairs that followed him were from MAGS institutions. Indeed, of the 47 deans who have chaired CGS, 19 were from MAGS institutions. And even more amazing, of the five CGS presidents, two—Boyd Page (Iowa State) and Jules Lapidus (Ohio State)—were from MAGS institutions. No other regional association can boast such a record. Since I became president of CGS in 2000, four of the board chairs came from MAGS institutions—perhaps this information should not be shared with the other regional associations!

Those who attend the CGS annual business meeting observe the passing of the CGS gavel and learn the history of that stainless steel gavel made by the University of Missouri and presented to the Council by Henry Bent. What is not seen is the box in which the gavel is stored—the base on which the gavel lays was designed and crafted by a sculptor at the University of Iowa named Humberto Albrizio, and was a gift of John Weaver, the second chair, when he turned over the gavel to Bryce Crawford of the University of Minnesota. The block of walnut comes from one of the original hand-hewn walnut beams used in the construction of the first state capitol building of Iowa which later became the administration building at the University of Iowa. So in some sense CGS is a creation of MAGS.

Value of MAGS

There are traits which are generic to all regional graduate education organizations in the United States. There is the value of addressing shared concerns in a timely fashion. Issues may be local, national, and regional—and CGS cannot address well the regional concerns. Meetings held in the region mean less travel time and lower expenses, and thus allow for more graduate school staff and admissions personnel to attend than can attend a national meeting. Regional meeting sessions are smaller than national meeting sessions, allowing for more networking and sharing of common issues. I must admit, CGS steals some of its best program ideas for its national meetings after observing presentations at the regional meetings.

CGS places great value on all its regional affiliates. However, each regional association makes unique contributions. For example, MAGS is the only regional to prepare proceedings of its annual meeting. CGS has been a repository for the print versions of earlier years; with changes in technology, the proceedings are now available electronically.

In conclusion, I simply note that MAGS has been important to CGS historically and remains an important contributor to the graduate community today.

The Value of MAGS

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Abstract

Graduate deans from large research universities in the Midwest do not often attend the Midwest Association of Graduate Schools (MAGS) annual meeting. There are many good reasons for deans and others to attend MAGS meetings that are shared in this paper.

Introduction

Often, graduate deans from the largest research universities in the Midwest do not attend the MAGS annual meeting. They usually attend the Council of Graduate Schools (CGS) annual meeting and sometimes also the CGS summer meeting. I attend CGS meetings, the summer workshop and new deans institute, as well as the Association of Graduate Schools (AGS—an American Association of Universities—AAU group), as well as the CIC (Committee on Institutional Cooperation—Big Ten) graduate school meetings. I am also a regular attendee at MAGS. So how does the Graduate Dean at a land-grant AAU university who attends all these other meetings, find value in MAGS?

The Value of MAGS

Networking is the first of six values reviewed in this paper. This topic should read: Networking. Networking. Networking! Networking with people you know and people you don't know expands opportunities for information and idea exchange. This is one of the most valuable aspects of MAGS.

A specific set of individuals that I focus on during a MAGS meeting is the Assistant and Associate Deans. Having been an Assistant Dean and then an Associate Dean before becoming “the” Dean, I have a great appreciation for the individuals who do the very important work of the graduate schools/colleges. These are individuals who, along with graduate school/college staff, are in closer communication than

I with graduate students, with graduate program directors, and with graduate secretaries. While I may spend a lot of my time working with the Deans and the Associate Deans of graduate studies of the various academic colleges, I don't always have the time to work with those who are "on the ground" at the level of the graduate programs. The insights and concerns of the assistant/associate deans, as well as staff, are important for graduate school/college strategic planning. The MAGS meeting is an excellent forum to learn about these best practices, challenges, and ideas.

The second of seven values is sharing ideas, strategies, concerns, and programs. This is a variant on the theme of networking, but goes beyond individual discussions in which MAGS meeting participants may engage. Specifically, MAGS is the place to test your new ideas, share your strategies, discuss your concerns, and talk to others about your programs and best practices. It is also the place to find new ideas, new strategies, help others with their concerns, and to gather programs and best practices. Over the years, I found MAGS participants to be open and helpful to me, as well as being interested in what I was doing at Michigan State University. More importantly, MAGS participants will offer constructive criticism, as well as compliments, and these together permit improvement of concepts and projects.

As networks develop, it becomes easier to rely on a set of sage advisors in particular areas of graduate education. You may find that some individuals are really helpful in one area and other individuals from another university have thought a lot about a different area. A MAGS meeting becomes a marketplace of ideas, yet one where you can also test ideas and strategies that you are not quite sure will be fruitful. MAGS participants are generally open and happy to discuss their experiences in relation to your ideas.

A third value is learning what you don't know and new things to worry about. A MAGS meeting is also a good place to discover new things to worry about and to learn what you don't know. Although many of the topics at MAGS are also part of the meeting agenda at CGS, AGS, or CIC conferences, hearing about them in a more local Midwestern context can be very helpful. And, the opportunity to talk with a smaller group of assistant/associate deans can also help focus the new issue or concern past the big picture, which is important, of course, and on to the "devil in the details". How a new concept or concern will relate specifically to graduate students and/or to graduate programs and how to actually put these into practice is an important part of managing change and ensuring success.

An example is the Bologna process (discussed elsewhere in this MAGS Proceedings booklet). While this process in Europe may seem very far away, it is not difficult to come up with specific ways in which this might impact our own graduate program. In this case, it is a "new thing to worry about" and may also be an important new topic to learn about in order to plan for the future.

A fourth critical value is focusing on "Midwestern" issues. While many of the topics at a MAGS meeting (or, indeed, at CGS) are broad in scope, how they may impact the Midwest is an important feature of MAGS workshops and plenary sessions. While almost a joke, but not quite; we talk about the challenges of recruiting students

from the south or west coast given our very “exciting” four-season weather! We can also talk about strategies for recruiting students to smaller campuses or very large campuses in the Midwest, to campuses that are not associated with large cities, and making our own cultural excitement outside of the east or west coasts. Or, we can brainstorm about the challenges of the economic situation in the Midwest and how graduate education can have a positive impact.

A fifth value of MAGS includes broadening our minds. There is usually at least one session at a MAGS meeting that has a more scholarly or intellectual focus. For this meeting, the topic was “entrepreneurship” presented by Dean Suzanne Ortega from the University of Washington (formerly from the University of Missouri). This is not to say that our other MAGS agenda items are not scholarly or intellectual. But this additional plenary permits us to grapple with new issues that may be beyond the usual focus of the graduate school/college. For those of us who were faculty in our previous lives, this is a wonderful opportunity to think deeply and analytically about topics that are not the usual leadership/management topics that occupy most of our time (however important those usual topics may be to our universities).

The sixth value “W & W” is a uniquely MSU label. It means “whine and wine”. And, its importance to our well-being and to our collective productivity should not be minimized or trivialized. This cycles us back to the first point, networking. Graduate schools/colleges are busy places with a broad variety of responsibilities. They differ from the academic colleges in that these colleges have concerns, but they are from a narrower band of disciplines. Graduate school/college personnel span disciplines. Sometimes the issues and problems are difficult to deal with, and even “messy”, as they usually come to us because they were not “fixed” at another level. So, the ability to share stories and commiserate with others who really understand our work can often be very therapeutic. And, frequently one comes away from such a meeting with some new ideas and/or the satisfaction of assisting someone else with a thorny issue.

Actions to Enhance Programming

As part of this plenary session, MAGS participants did some brainstorming on this topic. And, as part of my comments, I offered some suggestions for the MAGS program committee to consider. What follows is a brief summary of all suggestions:

- Sponsor an “information fair” that permits each institution to have a table (or part of a table) to highlight one or two graduate school activities of which they are most proud and want to share. Alternatively, to set up literature that explains their graduate programs and institution to the others. We may be able to recruit students from each others institutions and/or to place newly minted Ph.D. students as faculty.

- Offer some “nuts and bolts” sessions as CGS has. These could be on operational issues that many of us face, even if we are not directly responsible for day-to-day operations: responsible conduct of research and research misconduct,

whistle blowing, legal issues, graduate program review, automation of activities, interdisciplinary, and diversity.

- Invite a liaison from the Higher Learning Commission (accreditation) to attend MAGS meetings. He/she may present at meetings and/or simply be around to better understand graduate education in our universities.

- Invite our chairs of our university graduate councils (or similar organizations) and the president of our council of graduate students (or similar student organization) and focus on a topic that will help them do a good job in their roles in academic governance. A modification of this idea was to invite a few graduate program directors to attend specific professional development/information sessions.

- Offer plenary sessions with a focus on who our current undergraduates are. These students will be applying to graduate school! Who are the “millennials” and what do we need to know about them?

- Sponsor a session on economic development in the Midwest and how graduate education contributes to advancing our states.

- Organize breakfast tables according to themes, so that participants can meet with old friends and new friends to discuss ideas, strategies, concerns, and programs.

- Invite a provost or president to speak about what he/she wants from a graduate school and graduate student staff.

- Host a program staff session based on function, as professional development opportunity. This could be graduate student recruitment, admissions, curricular development, judiciary proceedings, or another topic.

- Host a “new assistant/associate deans institute” that would be similar to the CGS New Deans Institute.

- Have a track for Master’s focused institutions or at least some options devoted to their issues, similar to CGS.

Summary

Clearly, MAGS has value for assistant/associate deans. It also has value for deans. And, it has value for a variety of institutional types. Time is our most precious commodity as administrators, as it is for faculty. Although many of us as deans have the opportunity to attend a variety of national meetings, we are likely to attend those regional meetings that most closely meet our needs in the shortest period of time.

MAGS has served the Midwestern universities well and continues to do so. By taking the time at this meeting to focus self-critically on what the organization does well and what it can do better, the MAGS executive committee demonstrated its leadership. I thank you for the opportunity to share my perspectives and ideas and I look forward to more MAGS meetings in the future.

MAGS and Me

(With apologies to Michael Moore)

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Introduction

In 1989 a painfully young new assistant dean attended his first MAGS meeting at the Westin Hotel in Chicago. The attendees included the Deans of some of the premiere graduate programs in the United States. The scholarly debates over the philosophy and governance of graduate education that had marked MAGS meetings in previous decades were absent. Instead, those debates echoed in the various ways graduate programs were organized and governed, an echo that continues to resonate to this day. MAGS was an organization steeped in tradition, with one exception having held annual meetings at the same hotel in Chicago every year since its inception in 1942. The one exception was that one meeting during World War II was cancelled.

That young assistant dean was the author of this paper, much older and hopefully wiser today. I found MAGS to be a congenial place to try out new ideas, to meet new colleagues, and to learn what worked and didn't work at other institutions. Many valued professional relationships that were initiated at MAGS meetings continue to this day.

During the decade after my initiation to MAGS, I loyally attended meetings, participated in the programming and served on committees. As my administrative duties evolved, there occurred a regrettable lapse in my attendance at MAGS meetings. When I finally was able to return to Chicago in 2006 I found that more than the hotel had changed. The program seemed to have lost some of its luster and the attendance appeared to have dropped dramatically. My reaction to the program was doubtless in part due to having evolved into a jaded elder academic, but there was no escaping the decline in attendance.

Since my own career had enjoyed such great benefits by attending MAGS and meeting colleagues. I drafted a long note to the program committee with numerous suggestions about ways to reinvigorate the annual meeting. I am most pleased to note that almost all of the suggestions I made in that note have been incorporated into this year's meeting, along with many other improvements to the programming

and format. Indeed, the programming at this year's meeting is original in both content and format and is one of the best that I recall. However, the attendance continues to decline.

Actions to Enhance Programming

The leadership of MAGS is surely to be commended for creating a session at the 2007 meeting to discuss the decline in attendance and possible strategies for reversing it. I am complemented indeed to be invited to address this issue and hope that my invitation is not giving voice to the squeaky wheel represented by my reaction to last year's meeting. In this paper, I would like to discuss several strategies MAGS might use to improve meeting attendance and thus reinvigorate the scholarly discussions between graduate deans in our region.

First, and perhaps most significantly, it is reasonable to ask who currently attends MAGS. Historically, MAGS has included assistant and associate deans from comprehensive universities and deans from smaller regional schools. Generally speaking, MAGS was the only professional meeting that the latter were able to attend due to both time and financial constraints. In addition, the annual CGS meeting often tended to focus on issues and needs more pertinent to the comprehensives and often smaller and more focused graduate programs were not well served by the program at the national meetings.

Today, an informal poll of attendees at the 2007 MAGS meeting showed that the overwhelming majority of attendees also attended the annual CGS meeting. This is no doubt in part due to the laudable effort by the leadership of CGS to reach to the broader graduate dean community in designing and developing programming for the national annual meeting. However, there remains a significant difference between the profile of attendees today and that of attendees in prior decades: today's attendees are attending both MAGS and CGS.

In order to survive as an organization, MAGS needs to reverse the decline in membership. It seems elementary that there are at least three ways to reverse this decline. The first would be to redefine the goal of MAGS programming so that it is not a mini-version of CGS but rather focused on common regional issues. The second would be to continue to provide a program that is somewhat or mostly a mini-version of CGS, but reach out to an expanded clientele. The third, probably most viable, is to do develop a strategy that combines these two approaches.

After the founding of CGS, MAGS evolved in the 1960s through the 1980s as the place where graduate programs at comprehensive universities and smaller colleges came together to discuss common issues. The programming recognized this mix and included specialized sessions for the benefit of smaller schools as well as sessions, both formal and informal that brought the diverse regional leaders together to discuss common issues. At the same time, the programming recognized that both financial and time constraints often made it impossible for

the graduate dean of smaller schools to attend the national CGS meeting. Thus a significant part of the programming included a recap of national issues. This was the mix of programming that I confronted at my first MAGS meeting in 1989.

However, by the early 1990s the regional elements of the programming began to diminish and, not surprisingly, the attendance by deans at the smaller graduate programs began to fall off as well. Recognizing this concern, the organization responded by engaging in a direct mail campaign to deans at smaller regional colleges, many of whom were attending neither MAGS nor CGS meetings. In addition to the direct mail initiative, these deans were offered incentives, in the form of discounted memberships, to come back to MAGS meetings. This direct mail outreach was accompanied by a conscious effort on the part of the programming committee to invite as presenters, representatives of smaller graduate programs to learn about the successes and challenges of this group of schools. The committee also reinvestigated the formal and informal interactions between regional leaders in graduate education. The initial response to these changes was favorable and attendance at the meetings seemed to be recovering by 1995. However, 1995 coincides with my personal hiatus with MAGS meetings, so the next twelve years of history will need to be narrated by others.

However, by 2006 it was apparent that the attendees at MAGS meetings were also going to the CGS national meeting and that the leadership of the smaller programs was once again absent. For example, in 1995 at least five graduate deans from schools in Oklahoma attended MAGS; today only OU-Tulsa is represented. In particular, none of the smaller regional schools, all with high quality graduate programs, are attending MAGS.

Thus one recommendation for MAGS is that the organization once again reaches out to those smaller graduate programs who are presently attending no professional meetings in graduate education. While email and other electronic communications are convenient and thus attractive, a direct mail campaign would likely be more effective in informing this absent community about the programming available through MAGS. The initiative in the 1990s included some reorganization of program content and invited speakers with a special view to serving this community. The 2007 MAGS program, while innovative and creative, could surely be tweaked in this direction as well.

Another, possibly underserved, group consists of the staff that supports graduate education. The Western Association has traditionally included special pre-meeting sessions to serve this group. The American Association of Collegiate Registrars and Admissions Officers (AACRAO) continues to have vigorous regional organization that reach out to precisely this tier of professional staff for whom the programming at the national meeting is both inappropriate and prohibitively expensive. MAGS could follow the example of these organizations with special sessions organized by and directed at the professional staff that supports graduate education.

Another possibility is to schedule MAGS with some concurrent event of common regional interest. For example, the Western Name Exchange annual meeting

has long been scheduled concurrently with the California Forum for Diversity in Graduate Education, a regional graduate recruiting event. MAGS schools might productively consider founding a similar exchange and event to improve participation in graduate education across the region.

The student voice is also often absent at graduate professional meetings. One of the most vibrant sessions at the 2006 MAGS was a student presentation on using gaming and virtual reality in recruiting graduate and professional students. Continuing with this kind of innovation should certainly be encouraged. Another excellent feature in the 2007 program is the session on the Ohio Consortium. The programming committee should certainly consider taking advantage of initiative and advocates local to the meeting site in developing programming. Indeed, as many public schools struggle with making the case for graduate education to legislatures, inviting political supporters and skeptics would be a valuable set of meetings. State and local political leaders play a critical regional role in the development, delivery, funding and overall success of our programs and their participation would provide a regional emphasis not possible at the national meetings.

This brief memoir provides some personal reflections on the tradition and possible future strengths of MAGS. The ideas may or may not resonate with the future direction we choose. Graduate education faces many challenges and opportunities. Other nations continue to aspire to the quality and innovation and breadth that graduate education has attained in the US. Events like the Bologna Accord are in recognition of the pre-eminent role of US graduate education in the world. MAGS has a proud history of being at the leading edge of graduate education in the U.S. MAGS can continue in this leading role by bringing what is exciting about our own campuses to this meeting. Our shared experiences will expand all of our horizons and make us all better Deans and more visionary leaders.

The Future Is Now:
Ohio Consortium for
Online Graduate Education
Program in Literacy

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Abstract

The Consortium-Based Literacy Specialist Endorsement Program is an advanced graduate program in literacy education that prepares in-service teachers for the role of school-based professional developer. The one-year program consists of eighteen semester hours that include online coursework and an internship. It exemplifies a strong collaboration among public and private universities and the first-of-its-kind credentialing program in the country. Based on multiple perspectives of stakeholders, the program was successful in the first year. The evaluation results highlighted both strengths and weaknesses and will be used to improve the program in subsequent years.

Overview of the Consortium-Based Literacy Specialist Endorsement Program

The Consortium-Based Literacy Specialist Endorsement Program, first launched in June 2006, aims to prepare in-service teachers for the role of professional developer in Ohio's schools. "Professional developer" refers to a professional educator who plays a key role in improving literacy teaching in schools by providing high quality professional development to teachers and by leading literacy improvement initiatives. This advanced program in graduate education partners seven public and private universities across Ohio in an online delivery of coursework coupled with an internship.

Literacy Specialist Endorsement Credential

The Literacy Specialist Endorsement (LSE) had its roots in the 1997 Ohio Literacy Initiative (OLI) (Ohio Department of Education, 1999) and was instituted in 2001 at the same time that Ohio revised its licensure standards and credentialing system. The state's framework that conceptualizes its vision for improving students' academic achievement, OLI identifies high quality, sustained professional development as one of its primary means to improving student achievement. Toward this end, the state has funded several large-scale initiatives, one of which was the Literacy Specialist Project (see Rosemary, Roskos, & Landreth, 2007). This project launched a network of public and private institutions to partner with local schools in advancing pedagogical content knowledge of in-service teachers. The role of the university reading faculty members who participated in the project was to provide professional development centered on a core curriculum for educators (Roskos, 2000) to experienced teachers with strong literacy educational backgrounds. These experienced teachers, titled literacy specialists, in turn, taught teachers the curriculum at their school sites. Most of the universities that formed the LSE Consortium had been involved in this project for many years and had established a strong collaboration with Ohio Department of Education leaders. Thus, even before the LSE program was launched in 2006, university partnerships were established and the role of literacy specialist was emerging as a school-

based professional developer through the Literacy Specialist Project. Some of the faculty in the Literacy Specialist Project, along with faculty working in similar large scale professional development literacy initiatives, formed a committee to develop the LSE Standards, the next step after the credential was approved. These drew heavily on the Draft Standards for Reading Professional –2003 and were approved by Ohio State Board of Education in January 2003. The Literacy Specialist Endorsement Standards are:

1. Foundational Knowledge and Dispositions,
2. Curriculum, Instructional Strategies, and Materials,
3. Assessment, Diagnosis, and Evaluation,
4. Creating a Literate Environment,
5. Professional Development, and
6. Literacy Research.

With backing of the deans from the partner universities and the Ohio Board of Regents, the next steps for the committee were committing to a consortium approach to offer the program, and designing and developing the program.

Support from Ohio Board of Regents

The Ohio Board of Regents serves as the state's coordinating agency for higher education institutions. The Board of Regents aims to increase access and degree completion, promote efficiency and partnerships, and promote local participation in higher education initiatives. It is responsible for major projects, such as approval of colleges' and universities' degrees and programs, transfer and articulation agreements among campuses and educational policy initiatives in areas such as program accountability and academic standards. The Board of Regents also coordinates budgets and serves as liaison between campuses and policymakers. The Consortium-based Literacy Specialist Program meets many of these objectives by promoting a cooperative partnership among campuses. The program also increases opportunities for access through its online delivery system, therefore, allowing teachers across Ohio the opportunity to pursue their advanced programs in education locally.

The Board of Regents has a strong history of investing in infrastructure to advance these goals. The LSE is an example, serving as a model of building infrastructure for collaboration in graduation education among many campuses. In a time when resources are limited, investments in long-lasting initiatives become very important to building an educated workforce. Another example is the Ohio Learning Network, a resource for Ohioans seeking educational opportunities online. OLN also works with schools and colleges to improve the use of technology in the classroom and builds partnerships with businesses and communities. Thus, the Ohio Board of Regents has pushed for improving efficiency in higher education, lowering costs and reducing duplicate programs. A partnership such as the LSE Consortium addresses those issues by making good use of existing resources such as faculty expertise and making the program accessible throughout the state.

Consortium Agreement

The rationale for offering the program as a consortium of universities, rather than a single institution, was grounded in the following philosophical and pragmatic assertions:

1. Collaboration among reading faculty in the creation and delivery of the program taps each faculty member's expertise, which supports the development of a comprehensive and rigorous program.
2. A comprehensive, rigorous program to prepare literacy specialists leads to raising standards of practice if it can assure strong fidelity to its curriculum and use a common delivery approach.
3. Use of faculty resources is efficient and especially important when faculty resources are constrained.
4. Access to the advanced graduate education program in literacy is made possible to teachers across the state through online delivery of coursework.

The deans and chairs from the consortium institutions unanimously supported the idea of the consortium. First, they saw it as an opportunity to expand their existing graduate programs at a time when graduate enrollment in education is experiencing a downward trend nationally. Second, this program opened the door to developing innovative online programming. The LSE Program is a hybrid of online coursework delivered by each member institution to students statewide and face-to-face supervision in an internship. This structure allows for flexibility in course delivery, while maintaining the important personal contact during the internship. Third, all institutions have the option to embed this program within the structure of existing advanced degree programs.

To formalize the partnership among institutions, a consortium agreement was developed and signed by the deans of each institution. The major points of agreement related to: (a) human resources; (b) programmatic requirements; and (c) fiscal matters. For example, each university agreed to rotate in the teaching of the online courses, assure representation on the advisory board, and provide a university-based program coordinator to facilitate registration, grading, and advising. Each member agreed to use designated titles and descriptions as specified in the ODE approved program and to recognize each other's graduate admission policies and procedures. All agreed that tuition dollars follow the students. Given that the program draws students from all over the state, the students officially enroll in the program at the institution within closest proximity, the "home institution." Each institution is allotted a number of student slots, and, the students paid tuition to the home institution according to that institution's rate.

Program Design and Development

The consortium faculty who developed the program considered several important aspects in its design. Curriculum alignment was a critical consideration in the

evolution of the program. The LSE program is aligned with the Standards for Reading Professionals from the International Reading Association, the professional organization for the field of literacy education. Second, the program is also aligned with the standards of practice for entry-year teachers. This alignment represents a continuum of professional standards of literacy practice from novice teachers to master teachers with specialized expertise. Third, the expectations and student outcomes are also aligned with the State of Ohio Professional Development Standards. Finally, the reading faculty, who originated the consortium, developed the curriculum jointly. Faculty pairs each were responsible for taking the lead on one course, and all faculty members reviewed the courses and provided feedback during the revision process. Although this was challenging and time consuming, the joint effort resulted in a coherent and comprehensive curriculum.

The content and pedagogy of coursework was designed to assist candidates in meeting the LS Endorsement Standards through well-integrated and cumulative learning experiences. Rather than organize the content standard by standard, the courses were developed to align and integrate content from one course to the next and culminate in a rich internship experience. The program was designed as a one year, 18-semester hour graduate program, consisting of five, two credit-hour online courses and eight credits of internship. The courses include: Coaching in Diverse Classrooms; Coaching for Effective Assessment Practice; Pedagogy of Effective Literacy Instruction; Professional Development in Literacy; and Advanced Literacy Research.

Another consideration in the design of the program was responsiveness to external stakeholders. Graduate programs in education require ongoing partnerships with schools to ensure that theory and research shaping the curriculum represents the reality of current practice. To support the real world connections of theory-to-practice, it is important to build relationships between institutions of higher education and P-12 settings. The LSE program provided new venues for these relationships to develop and mature. For example, some institutions in the consortium placed pre-service candidates in the same schools where the graduate students in the LSE program were working. In many cases, the graduate students were teaching at the university as adjunct faculty. These networks of professional relationships contribute to stronger programs and more cohesive professional development for pre-service and in-service teachers.

Program Implementation

Two groups, LSE Program Committee and LSE Advisory Board, guided the implementation of the program. In this section, we describe the initial implementation roles and responsibilities of those groups. We also describe the first year implementation from the student perspective.

The LS Endorsement Committee included a reading faculty representative from each institution. This group had been functioning during the conceptualization of

the program and the development of the standards. Their primary responsibilities are program development, teaching and advising, monitoring student progress, and coordinating the program within their institution's academic structure and policy framework. The members meet bi-monthly to discuss current issues and concerns, work on program revisions, and set procedures and policies for implementing the program and addressing issues.

The first task for the committee was to obtain approval from the graduate curriculum committees at the institutions. This was a unique situation in that the program had been submitted to the Ohio Department of Education by the consortium, but curriculum and course approval was needed at the institutional level. Each institution submitted syllabi as developed by the committee, but under course numbers unique to the institution.

The second implementation task for the committee was to arrange for registration and billing for the graduate students at the home institution, while keeping in mind that the courses would be delivered on a rotating basis by each institution through Blackboard, hosted by John Carroll University. For example, a student at the University of Dayton could be registered for a course that was being taught by a faculty member at the University of Akron and accessed through Blackboard at John Carroll University. The online delivery required close communication among all of the key players. Once each course was completed, the institutional representative was responsible for submitting grades.

The third implementation task was to market the program and recruit students. Each institution contacted their graduates of education programs. Also, the program was marketed through a brochure, which was emailed to prospective candidates who had been working in the statewide professional development projects, and posted to www.literacyspecialist.org. Word of mouth was another viable means of marketing the program. The first cohort was largely comprised of graduate students who had been part of statewide literacy professional development projects.

The Advisory Board consists of a representative from each institution, as well as representatives from the Board of Regents, the Department of Education, two faculty representatives, and two student candidates. The Advisory Board serves to guide and support the goals and efforts of the faculty who comprise the LSE Committee. The Board advises the Committee on policy, implementation, and future directions. Issues discussed at the Advisory Board level included recruiting students, best practice in online programming, and intellectual property rights. The Advisory Board hosts quarterly meetings to discuss operations, policies, curriculum, assessment and resources. During the winter 2007, meeting topics included discussion of successes and challenges (attrition, student workload, use of technology), intellectual property, and marketing the online program.

The student perspective of the program is arguably most important to consider. The students recognized the value of the program on many levels. First, having the opportunity to earn a new credential, the LSE, was a source of pride for them,

an opportunity to learn more and help them to further define their leadership role in schools. Many of the candidates in the first year of the program served as “literacy specialists” in their schools but did not have credential. The program was perceived as a groundbreaking initiative, and the graduate students realized they were contributing to something of national importance in literacy education (International Reading Association, 2005). The rigor of the program was challenging and, for some, the online environment was daunting. As with all graduate students enrolled in advanced programs, the students were balancing personal and professional obligations. On one hand, the idea of a one year credentialing program was compelling – an opportunity for career advancement in a short time frame. On the other hand, meeting personal and professional demands was challenging and difficult.

Evaluation of the Program

Both formative and summative data were used in program evaluation. Students provided feedback to the institutional representatives and to program faculty throughout the first year. The major themes of the formative evaluation were the amount of work in each course and the need for ongoing guidance and feedback from the course instructors. The first immediate adjustment for the first cohort was to expand the course sessions from four to six weeks in fall, 2006. Students experiencing difficulty in completing the coursework were granted extensions on a case-by-case basis. The course revisions for the 2007-2008 cohorts began in March 2007. The LSE Program Committee continued to examine carefully the workload embedded in each course and made appropriate adjustments without compromising the standards and expectations. Table 1 displays attrition data, which suggest that some students faced major difficulties in being able to complete the program.

Table 1

Student attrition of Literacy Specialist Endorsement Program

Number of students beginning program	35
Number of students completing 1st course	35
Number of students completing 2nd course	32
Number of students completing 3rd course	27
Number of students enrolled in 4th course and internship ..	27
Number of students completing program	21

The reasons that students did not continue in the program included: time constraints in not being able to manage well both their job responsibilities and course load (n = 4); health and family issues (n = 5); financial burden (n = 2); and unforeseen change in job situation (n = 3) (e.g., teachers who originally agreed to participate in coaching declined when it came time to engage in the collaboration, and coaching was one of the requirements of the internship).

Students completed online course evaluations after each course. In part one, the students responded to a 40-item survey to evaluate the effectiveness of the course. They rated the items on a scale of 4 = strongly agree; 3 = agree; 0 = neutral; 2 = disagree; to 1 = strongly disagree. To conduct a broad analysis, the evaluation items were collapsed under five broad categories: Content/Learning Activities (nine items); Sense of Personal Engagement (seven items); Sense of Personal Support (six items); Critical Thinking (nine items); and Peer Collaboration (eight items). The percentages of agreement (ratings of 3 or 4) for each category are presented in Table 2.

The course yielding the highest ratings overall was Advanced Literacy Research. In this course, the interns designed action research plans and implemented them in the context of their internship. The questions arose from problems of practice they faced in their everyday work. All of the courses yielded strongest agreement ratings on content and learning activities, and lowest agreement ratings in the category Sense of Personal Engagement. Overall, the percent of agreement in each of the categories of course effectiveness was greater than 54%.

Table 2

Five Broad Categories of Course Effectiveness					
	Content/ Learning Activities (%)	Sense of Personal Engagement (%)	Sense of Personal Support (%)	Critical Thinking (%)	Peer Collaboration (%)
Coaching for Effective Assessment Practice n = 21	82.45	54.49	77.42	74.55	71.26
Pedagogy of Effective Literacy Instruction n = 20	71.35	57.52	70.43	63.28	62.58
Professional Development in Literacy n = 11	92.93	68.18	78.46	75.00	78.16
Advanced Literacy Research n = 14	91.27	83.04	89.29	79.46	85.71

Part two of the evaluation consisted of ranking the common design features of the online environment from most useful (1) to least useful (10). Rankings from 1-5 were considered “moderate to high” and rankings of 6-10 were considered “low

to moderate.” The findings from the evaluations of four courses are displayed in Tables 2 and 3. [The online evaluation was not constructed until after the completion of the second course.]

Table 3 displays the results of this part of the evaluation. Learning Path (detailed outline of each module) and Breaking News (instructor’s announcements) had the most consistent moderate to high rankings across all courses. How students ranked some features tended to be course specific. For example, Exploration Station (Blackboard site where students accessed websites and other resources) was ranked low to moderate for Coaching for Effective Assessment Practice compared to the other courses. In improving the modules, these features of the online modules warrant a closer analysis of the leaning task demands both in terms of technology and cognitive load.

Table 3

Features of Online Environment										
	Discussion Forum		Learning Path		Exploration Station*		Student Portfolio		Breaking News	
	1-5	6-10	1-5	6-10	1-5	6-10	1-5	6-10	1-5	6-10
	% of High and Low Rankings									
Coaching for Effective Assessment Practice n = 21	50	50	76	24	43	57	57	43	86	14
Pedagogy of Effective Literacy Instruction n = 20	78	23	79	23	79	23	73	29	67	33
Professional Development in Literacy n = 11	75	24	75	24	87	12	75	24	85	14
Advanced Literacy Research n = 14	86	14	86	14	NA	NA	43	57	64	36
*Exploration Station was not a feature of the online environment for the Advanced Literacy Research course.										

Part three of the evaluation consisted of two open-ended questions. The following comments are sample responses for these questions:

1. What did you find most beneficial in this course?

I especially like how all of the assignments were designed to scaffold me in my learning and thinking in order to successfully complete the assignments.

Being able to share with others from all over the state.

Everyone has been so supportive and helpful.

2. What could have been improved in this course?

It would be helpful to receive formative feedback from the instructor.

The Curriculum Improvement Plan was useful/not useful. The idea of it is useful.

But being a school-wide building, we've been writing these for years in collaboration with our staffs. This was not the same format we use.

More input from the instructor.

There were times I did not know if I was on the right track or not.

I would have appreciated more response to my postings whether positive or negative.

The evaluation data suggest that the students found the program to be academically rigorous and challenging, perhaps too much so at times. Most of the content of the coursework was seen as valuable; however, some specific assignments were viewed as less valuable. The online environment posed some difficulties in learning the platform, but once the students became familiar with how to negotiate the site, they found it easy to use. The online environment also afforded the opportunity to form new collegial relationships with their peers across the state. Students appreciated the feedback from instructors and were critical of those instructors who were less available and reliable in providing feedback.

Summary

Based on multiple perspectives of stakeholders involved in the program (i.e., program developers, the Board of Regents Assistant Director, and students), the Consortium-Based Literacy Specialist Endorsement Program had a successful first year. It boasts a strong collaboration among public and private universities in launching the first-of-its-kind credentialing program in the country to prepare teachers to serve as school-based professional developers to improve literacy teaching. It represents one state's efforts to offer a new credential that aligns with new standards of practice as defined by the professional organization, the International Reading Association. It represents an effective use of faculty and infrastructure resources through a hybrid of online and face-to-face instruction. The students who completed the program were proud of their accomplishment. Perhaps this sense of accomplishment is best expressed by one of the students, "I applaud all of you for the quality of the coursework. Outstanding! My brain has definitely been revitalized these past nine weeks. Exhausting, but good!"

Next Steps

Evaluation is an essential component of the program and the findings from the first year will be used to revise and refine the program in subsequent years. The LSE Consortium made a two-year commitment to offer the program. During the second year, the member institutions will reexamine their own commitment and consider expansion. Many factors will need to be considered, such as process for expansion, intellectual property, market demand for LSE positions in schools, and school administrator support of the candidates to help assure they can meet the internship requirements. That institutions charge their own tuition rate presents an issue of disparity in program cost within the consortium. Further, the program is designed to be completed in one year, and therefore, the financial burden on students may be greater than if the program spanned more than a year. These are issues that will need to be addressed in the future.

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Overview of the Workshops

Workshop 1: Challenges in Funding and Hiring Graduate Students: The Roles of Graduate Assistants, Teaching Assistants and Research Assistants

Organizer: Mary Beadle, John Carroll University
Panelists: Robin Bowen Rockhurst University
Priscilla Kimboko, Grand Valley State University
William Welburn, University of Illinois at Urbana Champaign

This workshop discussed the various roles that graduate students have in funded positions. Perspectives from a large research institution to a small private university were presented.

Workshop 2: Internationalizing Graduate Education

Organizer: Diana Carlin, University of Kansas
Panelists: Karen Klomparens, Michigan State University
William Weiner, Marquette University

As the world becomes flatter, globalization impacts all aspects of higher education. This workshop provided participants with an opportunity to share problems and solutions in three areas: recruitment, joint degrees, and graduate study/research abroad. Participants were encouraged to bring samples of joint degree programs or other international programs or projects that fit into these categories.

Workshop 3: Professional Science Master's Programs

Organizer: Carol Lynch, Council of Graduate Schools
Panelists: Paul Eloie, University of Dayton
Susan Koch, University of Northern Iowa

Panelists discussed development of programs from the perspective of a dean who was instrumental in creating and supporting five new PSM programs, and a program director of a PSM in Financial Math.

Workshop 4: Supporting Interdisciplinary Initiatives

Panelists: Jeff Feder, University of Notre Dame
 John Mayfield, Iowa State University

Integrating and coordinating faculty efforts across departmental and college lines continues to be hard. The stated purpose of the NSF IGERT program is to help break down barriers to better cooperation. The two panelists discussed whether or not IGERT grants on their campuses were successful in changing the campus cultures and what every university can learn from these experiences.

Challenges in Funding and
Hiring Graduate Students:
The Roles of Graduate Assistants,
Teaching Assistants and Research Assistants
The View from a Private Institution

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Abstract

The financial assistance offered to a graduate student is typically a significant factor in deciding which institution he or she will attend. Private universities do not have access to state funds to support student assistantships, which typically results in a less attractive financial aid package available to potential graduate students. This sometimes results in the private institution, especially smaller universities, losing students to colleges and universities that have more funds to support them in their graduate studies. This portion of the panel presentation describes a variety of strategies used by a small, private university to provide financial assistance to graduate students.

Background

First, please allow me to tell you a little about the university I serve in order to provide a context for our discussion of student assistantships. Rockhurst University is a Masters I, comprehensive, private, Jesuit University. Each year, we have a total of around three thousand students with approximately 800 of those being graduate students. The institution itself is tuition dependent, meaning that a significant portion of our income comes from the tuition our students pay. The graduate student tuition rate is \$575 per semester hour plus fees, however the Education department at the university charges its students \$350 per credit hour to make the program competitive with public university programs in the area. None of the graduate students are eligible for institutional tuition discount. In other words, they pay the full tuition rate and are not eligible for university discounts or other institutional funds to help support their education, other than a handful of scholarships funded by outside donors. All of these scholarships are quite modest.

Most graduate students rely on loans to support themselves during their graduate studies. I have been told by a significant number of graduate students (especially those in the health sciences) that it is not atypical for them to graduate with sixty to eighty thousand dollars of loans which need to be repaid.

Undergraduate students are typically provided some tuition discount as part of their financial aid package. Undergraduate tuition is \$11,000 per semester or \$733 per semester credit hour. Thus, while the listed semester credit hour tuition is lower for our graduate students, once the tuition discount rate for the undergraduates is added, the average undergraduate student pays significantly less each semester than a graduate student.

Federal Work Study

The graduate departments do receive some funds from Federal Work Study programs with our graduate students receiving \$8-9 per hour depending on the job description. Students performing secretarial tasks are paid at the lower end of the range and those whose duties entail research components are paid higher hourly rates. To get these funds for graduate programs is quite similar to engaging in an arm wrestling tournament each year. Undergraduate admissions staff wants the federal work study funds to enhance the tuition packages awarded to undergraduate students at Rockhurst (who are likely already getting institutional and perhaps scholarship funds in addition).

Because a set portion of work study funds must go to community service, those in control of the money are most willing to award graduate student work study funds for community service, as that is a natural component of many of our programs. For example, each year it is easier for the graduate programs to secure funds for students who provide administrative oversight for the Occupational Therapy/Physical Therapy pro-bono clinic. We continue to request more funds on a regular basis, but do not feel we are awarded a fair share.

Funding Graduate Assistantships from Operational Budgets

In several programs, the original program proposal wisely included student assistant funds in the departmental operational budgets. We now regularly recommend new programs write student assistantships into their original budget. However, during tight financial times, that portion of the budget is frequently not approved by upper administration or by the Board, with a promise to “revisit” the issue once the program has a record of making a considerable financial contribution to the university on a regular basis. Given the recent financial situation of most universities, private or public, even if a program can prove a strong, regular contribution, the approval of work study funds can be an up-hill battle. However, several programs have been able to successfully negotiate student assistantships. Compared to other institutions, the funds we have available are miniscule ranging from around ten thousand dollars total in one program (that can house a maximum of 76 students)

and as high as twenty-seven thousand dollars total in a larger program (whose program has 132 students when at full capacity, which averages \$204 per year for student if the funds were split equally between the students).

Each year, faculty in departments with student assistant funds submit proposals outlining the assistance they desire from an individual in a student assistant position. Students apply for the positions and then are interviewed and selected. These students are typically paid \$9-10 per hour depending on the type of work performed. Please note that the rate was dictated by financial aid and the human resources office, in large part to keep the payment in line with those funds paid through the Federal Work Study program. In some instances, students get a paycheck, while for others, the money earned directly goes to the business office to offset tuition costs.

Faculty often hire students from other disciplines as they do not want to risk a student from their department having access to departmental materials. All students are to be educated regarding FERPA and sworn to hold information confidential. Faculty are instructed to not allow student assistants access to other student's information (e.g. a student assistant could not grade papers or transcribe scores from a test into a spreadsheet). Students may assist with a variety of tasks ranging from gathering research data to completing secretarial tasks (typing, filing collating, etc.), while others may be assigned to do laundry (e.g. the physical therapy program uses a lot of towels and hires a student each year to do laundry). The primary complaint from faculty regarding this model is that student availability is sporadic as students prefer to work between classes and oftentimes ask to be excused from their duties during heavy test periods, which often correlate with the time faculty members need their assistance most.

There are inequities across departments, many established before I became dean and inherited the issues (I'm sure you all understand). This results in ongoing conversations and efforts to try to provide more equity.

Teaching Assistantships

Rockhurst considers itself first and foremost as a teaching institution. We pride ourselves on having undergraduate students taught by professors with terminal degrees and not by teaching assistants. This fact is pointed out as a distinct benefit during our undergraduate admissions events. While a few of our graduate students assist a professor in a lab, we have no teaching assistants responsible for a course (or even a portion thereof). As such, we have no teaching assistantships.

Research Assistantships

A handful of faculty have grants that have research assistance written in as a component of the grant and students apply for those research assistantships. These grants have typically been funded by professional associations or private

foundations and are typically for one to three years in length. Faculty are successful at securing federal grants on occasion, but not frequently, again leading to fewer options for research assistantships.

Athletic Department Funding

The athletics department funds several graduate assistantships that cover partial to full tuition and sometimes also provide a modest stipend. These go to student athletes who have completed an undergraduate degree but still have another year of eligibility to play, while others serve as assistant coaches. Again, there are usually less than five of these offered each year.

Funding by Business and Industry

Many MBA students, most of whom are part time, receive tuition reimbursement from the companies for which they work. There has been a recent trend for companies to cease this practice or to have cut back on the number of credit hours they will reimburse each semester. This has not significantly influenced overall head count in the major, but has impacted the total semester credit hours generated.

There are cases in the health sciences where a hospital (typically a rural hospital that has difficulty luring therapists to their small town) offers to pay tuition for a graduate student with the promise that the student, once graduated, will come back to work at their facility for a given timeframe. If the student does not complete the program or fails to come and work for the facility, the student must reimburse the facility. This is a wonderful arrangement when it works. There have been a number of instances where large hospitals will “buy out” the contract offering the small hospital what they have paid for the student’s tuition. These larger hospitals are oftentimes in larger cities, which is also an added attraction to recent graduates. Many hospitals offer sign-on bonuses and retention bonuses, especially during times when there are shortages of health care professionals. This can, in turn, help the student pay off their student loans.

Summary

In summary, it is difficult for tuition dependent private universities to compete with public institutions that are able to offer more attractive financial aid packages to their graduate students. The School of Graduate and Professional Studies at Rockhurst University continues to work with university administration, outside donors, hospitals, school districts, etc. to develop sources of financial aid for our graduate students.

Challenges in Funding and Hiring Graduate Students: The Roles of Graduate Assistants, Teaching Assistants and Research Assistants The View from a Private Institution

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Abstract

Grand Valley State University, a young, large regional comprehensive university, has its own culture and processes for funding, allocating, approving and handling graduate assistantships, setting eligibility criteria for students and positions. Some of these unique features of GVSU's culture and processes as well as challenges faced in funding and hiring graduate assistants were presented during this presentation.

Background

Grand Valley State University (GVSU), formed in the 1960s as an innovative liberal education undergraduate college, has evolved into a large masters-focused university, with over 23,000 students (Fall 2006 census), of which approximately 3,700 are graduate students. Nearly 50% of graduate students enroll in only one course per semester, with full-time students at about 800 per semester.

Because of the intense focus on undergraduate education, the graduate programs grew for over 35 years without a central graduate office or administrator, and with a very underdeveloped set of graduate policies, procedures, and services. A graduate dean was hired in 2000, whose role, in part, has been to identify policy areas and services that are lacking and to formulate ways to build a stronger graduate infrastructure to better serve graduate students and ensure the integrity of graduate education. One of these areas of policy refinement and strengthening has been related to graduate assistantships.

Graduate Assistantships at GVSU

Four years ago, a new graduate assistantship policy was approved by the Deans Council (there was no Graduate Council in existence at that time). This policy provides a rationale for offering graduate assistantships, and spells out some of the key criteria for eligibility, stipend and tuition benefits as well as a process for creating and approving new positions and appointing GA's. GVSU's GA policy permits degree-seeking graduate students to serve in research and administrative support positions that "allow them to expand and/or apply their discipline knowledge and skills under supervision" (GVSU, Graduate Assistantship Policy, website -<http://gvsu.edu/gsga/ga/index.cfm?id=F904DFE7-E4DE-B49B-D6C2D2235CF4AB13>). The policy precludes assistantships being used "in lieu of hiring student employees for clerical and office support" (ibid). Furthermore, university culture has prohibited the use of teaching assistantships because GVSU administrators and faculty see the university's popularity with undergraduate students and parents to be a function of GVSU's ability to guarantee that all undergraduate classes are taught by faculty. While the policies were developed and intended for application within the ASA Division, other Divisions, when creating GA positions have used the same procedures.

General Funding/Support

GVSU Academic and Student Affairs Division (ASA) provide 'base funding' for 130 GA positions. Each includes a tuition grant for up to 24 credits per year. These positions are allocated to various colleges and student affairs units in the 'base budget' of that unit. ASA also authorizes tuition grants for 20 'externally-funded' GA positions per year. In addition, the Graduate Dean has funds for 12 one-time only GA positions annually. Academic or Student Affairs departments that desire to create a GA position with departmental budgetary resources must pay both the stipend and the related tuition grant.

Assistantships are the only form of institutional financial aid for graduate students. Most must rely on loans, their own funds, or employer support, when available. As a result, in order to support as many students as possible, some units divide the "full" assistantships (capped at 20 hours/week) into two 'half GA positions. To be eligible for the full positions a student must be enrolled full-time (9 credits) as an admitted, degree-seeking student; half positions (10 hours per week) are open to admitted degree seeking students enrolled for at least five (5) credit hours.

Timing and Distribution of Graduate Assistantships

Currently, every GA position at GVSU has an approved position description. Most GA appointments are for the academic year. Some appointments are longer (typically in student services units) and some units make appointments for one semester at a time. Some departments also hire GA's during the spring/summer semester, if they have unspent stipend or tuition grant authorization. GAs work with faculty as research assistants, in student services roles, and may also provide various forms of support to grant and outreach projects, or to offices across the

campus such as the women's center, the multicultural center, the graduate office, the faculty research and development center, the international student center, athletics, admissions and financial aid, and the assessment and accreditation office, among others.

Graduate Office Role

The approval of new GA position descriptions and the actual GA appointments each year (and/or semester) are processed by the Graduate Office, as is the allocation of the Special Project GA's. Only the Graduate Office can submit GA appointments to the Student Employment/Financial Aid office. All other offices must work with and through the Graduate Office. The Graduate Dean signs every GA appointment.

Ongoing Issues and Concerns

While the number of assistantships may seem high for a masters-focused university, when considered against the number of potentially eligible students and the lack of other graduate student financial support options, programs feel an urgent need to increase the number of assistantships. Stipends were severely low when the policy was adopted, and given the budgetary crisis of the state of Michigan, it took four years for GVSU to get all stipends up to the modest level agreed upon by the deans in 2003. Reconsideration of the stipend and tying it to some market adjustments by discipline has yet to occur. GVSU does not offer any other benefits to GA's as is commonly done at other schools. Tuition grants only cover in-state tuition rates, which is not a problem for the full GA's, but causes difficulties for non-resident (including foreign) students who receive half positions, as they must pay the balance of their tuition (beyond the 6 credits per semester) at the non-resident rate.

There is a need to revisit the allocation of assistantships, in order to tie it more closely to enrollments and productivity of a program. The current inequitable distribution of assistantships is a carry-over from the prior administration that operated on a fairly paternalistic and inconsistent process. As a result, some programs have no assistantships available for their students (e.g., the health professions programs of Occupational Therapy, Physical Therapy, and Physician Assistant Studies), while other programs enjoy a high number of GA positions (College Student Affairs Leadership, which places students throughout the Student Services units, Social Work, and Business). Also a relatively large number of positions are in the non-academic units within the Division of Academic and Student Affairs.

An increasing desire by the graduate programs to provide graduate assistants with opportunities to contribute and develop teaching skills through instructional roles has developed as new science and humanities master's degrees have been initiated. This year the Graduate Council has approved policy changes that will allow GAs to be given instructional assistance roles. The revision also

incorporates a mandatory orientation for any GA given teaching responsibilities, and clarifies and simplifies the procedures. The revised policy must be endorsed by the University Academic Senate and the Provost prior to implementation.

Summary

Since 2003 GVSU has been able to develop a more equitable, consistent set of policies and procedures related to graduate assistantships and have built a coordinated timely appointment process. Expanding the number of positions, the types of work-roles for graduate assistants, the stipend and benefits extended to them will be very difficult in a public university faced with state budget exigencies. However, there is now more willingness to look at assistantships from the perspective of the benefits they provide to graduate students, more advocacy for graduate assistants through the graduate office, Graduate Council, and graduate dean. We expect this to be a high priority matter on the graduate agenda at GVSU well into the future.

Challenges in Funding and
Hiring Graduate Students:
The Roles of Graduate Assistants,
Teaching Assistants and Research Assistants
The View from a Research-1 Institution

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Abstract

Graduate students have much to gain from holding graduate assistantship appointments, including developing skills as researchers and educators. Assistantship programs vary from institution to institution in number, stipend amounts, and benefits, including tuition support. This panel presentation provides a description of programs at a variety of member institutions.

Introduction

The University of Illinois at Urbana-Champaign has approximately 10,000 graduate students, with about 6,000 active assistantships each year. This presentation will provide an overview of how graduate assistantships are administered at the University Of Illinois at Urbana-Champaign, with particular attention to the questions of who decides the policies, who communicates the policies and who monitors compliance with the policies.

Assistantship Categories

A number of units outside of the Graduate College are involved in the administration of assistantships, including the Office of Academic Human Resources, Payroll Office, Office of Student Financial Aid, Registration Services, and Office of Sponsored Programs and Grant Administration. The University has established definitions for each of the four types of assistantship appointments and the Office of Academic Human Resources at <http://www.ahr.uiuc.edu/GEO/Definitions.htm> communicates the definitions and associated duties for each:

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- Graduate assistant
 - Pre-professional graduate assistant
 - Teaching assistant
 - Research assistant

Selection/Supervision

The University is highly decentralized. The funds for hiring assistants reside in the appointing units, with the Graduate College having no oversight on the use of the funds. The Graduate College maintains a listing of positions, but there is no requirement that units post their positions. The listing generally includes those openings that units are unable to fill from their pool of graduate students. The Assistantship Clearinghouse can be viewed at <http://www.grad.uiuc.edu/clearinghouse/>

Assistantship Waivers

University policy dictates that assistants who hold an appointment between 25-67% FTE based on a forty-hour week, for three-fourths of the academic term, are eligible for waivers of tuition and selected fees. Some assistants receive what is termed a “base-rate” waiver, a waiver of the lowest in-state tuition rate, and some receive a full waiver of tuition. The student’s enrolling college, not the appointing unit, determines the type of waiver that accompanies the assistantship. Some colleges are also approved by the University to bill other units that appoint students to waiver-generating assistantships. Research grants are currently charged 37% of the assistantship stipend as tuition indirect cost. The complete waiver policy can be found at <http://www.grad.uiuc.edu/policies/tuitionwaiver.htm>.

Campus Policies

The University has a number of policies that guide the appointment of assistantships. Students must be in good standing to receive assistantships. Students must be enrolled full-time during fall and spring terms to receive assistantships, and the Graduate College considers eight hours as sufficient. This requirement does not meet other full-time policies, such as required by the Office of Student Financial Aid or the Registrar. Students are not required to be enrolled in summer to hold assistantships. Students with assistantships accrue sick leave, but only those with twelve-month appointments accrue vacation. The campus has established a minimum stipend that must be paid, but appointing units may pay above the minimum. There is great variance in the stipend level paid by disciplines, with assistants in science and engineering programs earning around \$20,000 for 50% appointments and assistants in other units earning the minimum, which is currently around \$12,000. While the Graduate College communicates the academic policies, the Office of Academic Human Resources (AHR) is responsible for communicating human resource policies. AHR has developed offer letter templates for units to use and these can be found at <http://www.ahr.uiuc.edu/GEO/GradTemplateTA.htm>

Collective Bargaining Agreement

The University has reached its second three-year agreement with the collective bargaining unit, Graduate Employees Organization (GEO). The GEO represents teaching and graduate assistants with waiver-generating appointments, but does not represent research or pre-professional graduate assistantships. Upon reaching the first agreement, the University decided to extend the same benefits to all assistants with waiver-generating appointments.

Assistantship Issues for International Students

The final topic I would raise as significant for our campus is that of assistantships for international students. Key issues that our campus is addressing include payment issues such as securing social security numbers and the tax treaty process, along with English proficiency requirements and the implications for placement. There is a campus-level committee now in place to consider international teaching assistant policy and practice at our institution.

Summary

The Graduate College serves as the primary office for establishing and communicating graduate assistantship policy at the University of Illinois. This work is conducted in collaboration with units across campus and is designed to provide students with financial support that is meaningful and sufficient. Questions may be directed to the Graduate College, grad@uiuc.edu.

At the University of Iowa, "general fund" resources are derived from state appropriations, tuition revenues and indirect cost returns. Thus the bulk of the TA and RA appointments at Iowa come from the general fund pool. A number of assistantships and fellowships are supported from private donations and the University Foundation, but these appointments are more difficult to track, and we are not certain of the numbers of students supported from private funds.

International Student Recruitment

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Abstract

The recruitment of the brightest graduate students from around the world requires knowledge, a focused strategy, resources, and effective partnerships. As the global context changes and competition for the best graduate students increases, the graduate school/college has an important role to play as an active partner assisting the academic colleges and providing information.

Background

United States graduate programs have been the destinations of choice for students around the world for many decades. Besides their intellectual talents that enhance our research and graduate programs, these students bring a diverse set of perspectives and cultures that enrich our campuses. Universities now face numerous challenges, as well as opportunities, in the recruitment of international students. U.S. graduate schools/colleges need to focus increased systematic efforts to attract the brightest students from other countries, as well as from our own.

Current Trends and Challenges

With the tragic events of September 11, 2001 and the sweeping changes to the U.S. immigration system, there are some lingering negative perceptions regarding SEVIS, Homeland Security, the time needed to secure a Visa, fingerprinting, etc. For most of our universities, SEVIS is now working quite well. Perceptions abroad about whether the U.S. is still a welcoming place may still be a concern. Graduate school/college personnel should remain aware of possible negative perceptions and stay connected with partners in international studies and programs personnel on our campuses. Together, we can project a positive image.

Along with the concerns about the bureaucracy governing immigration, there are also concerns about the culture and communities of our campuses and the surrounding

areas. International students are keenly aware of their status as visitors. They seek a friendly campus and community environment that is welcoming. And, often they also desire a campus and community that does more than just tolerate them; but rather one that seeks to learn more about and to understand and appreciate their cultures. Graduate school/college partnerships with international studies and programs individuals, student groups/clubs, housing and other offices will advance information exchange and sharing of ideas that can promote this appreciation.

There is increasing interest on the part of many European countries, Australia, and New Zealand in attracting more international graduate students. In Europe, the 45 countries that are part of the Bologna process (<http://www.eua.be/>) are focused on improving their graduate educational process, making it easier for students to transfer between institutions, and to emulate what they like about American graduate education. Some universities abroad are also quite explicit about attracting more international students, including those from the U.S. In comments that MSU often hears from international students in some countries, it is clear that the European and other universities that do not require the GRE have an advantage over us in attracting these students to their programs. Prospective students often find the travel time and cost to participate in the GRE to be a serious deterrent, especially if very high quality European universities will accept them without it.

Graduate deans should become familiar with the activities associated with Bologna and keep up with changes. This is a fascinating process that, while not moving as quickly or evenly across countries as the European University Association anticipated, it still promises a level of serious (not so distant) future competition with the U.S. for successfully attracting graduate students from around the world.

English language training is also a perennial issue. Students are anxious to start their academic studies, and do not wish to spend extra time in English courses, even if these may improve their academic progress later. Ensuring that students understand the importance of additional language training for success in their programs and making these programs accessible and friendly are worth the effort. Again, as with so many of these issues, partnerships on campus between the graduate school/college and English language centers/offices can lead to positive change that will benefit the graduate programs and the international students.

Finally, there are increasing expectations from a growing number of countries for Memoranda of Understanding or Agreement that set up formal arrangements for their students to study in the U.S. These can include fellowship support from the countries themselves that range from one or two years to full support, often tied to a request for in-state tuition or special arrangements on campus for a liaison to assist the students once they are on campus. These arrangements often require a sign-off that includes a review from legal counsel, international studies and programs, college deans, as well as the dean of the graduate school/college and a final signature from the Provost or Chancellor/President. Graduate deans may wish to be the conveners of campus dialogues on these arrangements.

Opportunities and Options

The short version of this section is: know your partners! These may be campus partners, community partners, and/or global partners. Your network will be even more critical to success in the future. Examples are briefly included above, and additional examples below emphasize the importance of partners.

Specific support offices for international students, the graduate school, and/or another appropriate office on each campus can allay concerns about SEVIS by ensuring that students understand all of the processes associated with SEVIS and that someone on campus will monitor the necessary reporting and advise students on their responsibilities. If that function is not in the Graduate School, deans should form partnerships with the appropriate office! On the MSU campus, the Graduate School and the Office for International Students and Scholars has an active partnership that is crucial to our success in graduate education and to the success of our international students. This office also plays a key role in facilitating a welcoming and knowledgeable campus community.

Graduate school partnerships with the Registrar, the Office of Financial Aid, the English language training center, the TA training office and/or TA development office, campus international student clubs or organizations, and, of course, the graduate programs themselves are also important for the collective success of a university. Functional partnerships amongst these offices permit frank, and often lively, discussion for improvements (which goes both ways!), opportunities for accolades, sharing of best practices from a wide variety of sources, and effective delivery of services.

Another important partnership to nurture is that with the local community. Graduate Schools and other campus offices that work to establish and maintain community volunteer programs, community churches and other organizations, as well as the Chamber of Commerce, will have an environment that will make it easier to attract international students and to make them feel welcome. And the community partners and others will benefit from opportunities to share experiences with international students. For example, MSU has a program that links international graduate students in education with K-12 teachers in the area to encourage cross-cultural exchange and understanding <http://ed-web3.educ.msu.edu/international/lattice/lattice.htm> as well as a robust community volunteer group <http://www.isp.msu.edu/cvip/>. Both enhance the international student experience, the domestic undergraduate student experience, and the local community surrounding MSU.

International alumni can be valuable partners for recruitment of students, provision of internship sites, and career options. If alumni had a satisfactory experience on your campus while they were students, they are often pleased to assist in a number of activities, including recruitment and internship opportunities. Graduate school/colleges that have responsibilities for development and/or alumni relations for Master's or Ph.D. graduates, as well as those who do not, should partner with the academic colleges and the admissions office to make effective use of existing

campus partnerships and travel abroad.

There are national organizations that assist universities with international issues. NAFSA (<http://www.nafsa.org>) is the Association of International Educators (NAFSA is an acronym for the former organizational title, National Association of Foreign Student Advisors). NAFSA provides annual meetings that deal with recruitment, retention, resources, networks and other activities in support of international students and education. The World Education Services (WES <http://www.wes.org/>) provides transcript evaluation and other services related to equivalency of international degrees. There are also organized tours in some countries that can be useful for institutions without an alumni base. Graduate schools/colleges should have at least one staff member whose responsibility is to partner with other offices on campus and stay aware of trends and issues related to international students.

An increasing number of developing countries have discovered the importance of graduate education to their economic and societal well-being. Accordingly, they are establishing fellowship funds to support their students to come to the U.S. and elsewhere to pursue graduate degrees. Vietnam, Thailand, Malaysia, Philippines, Kuwait, Saudi Arabia, and Turkey are some of the more recent examples. Some provide a full fellowship until the student completes his/her degree. Others expect a match of university support for their students. Some request (and expect) in-state tuition and others are more concerned with a liaison on campus once students arrive. Most desire an MOU or MOA to formally recognize the partnership between the country and the university. These are important topics for the graduate dean to discuss with appropriate administrators and graduate programs. What is your university willing and able to provide in order to attract these sponsored students?

In order to better serve applicants from these countries, MSU hired a Ph.D. level individual with international experience to assist with these sponsored students. She was jointly hired (and funded) by the MSU Graduate School, Office of Admissions, and Office for International Students and Scholars. Her responsibilities include recruitment trips to a select group of countries to talk directly with potential applicants, as well as administrators on the campus, follow up with the applicants and graduate program personnel to ensure complete applications and the completed funding plan, and selected activities to support admitted students with selection of housing and other details prior to and after arrival on campus. This is a new position and will be evaluated in 2 years.

General Advice

Develop a strategy for marketing your graduate programs. This will require serious conversations across the campus. The graduate dean may convene the meetings or want campus partners in order to expand interest and credibility of the process. What are your best niche programs for which you will have a competitive advantage in attracting international students? In which countries will you invest

your time and effort? This may be part of a university level strategy based on where faculty are already conducting research, where the university has sufficient alumni to provide a basis of knowledge for applicants, or where the university wishes to develop stronger ties in the future. Or these may be strategies tied to a set of discrete graduate programs.

Finally, two short, pithy bits of advice on recruitment of international students from Peter Briggs, the Director of MSU's Office for International Students and Scholars:

- "Speed is your friend".
- "Relationships matter".

International Graduate Opportunities

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Introduction

International opportunities for graduate education have steadily increased. In 2006 American students studied abroad in record numbers. There were 205,933 students or an increase of 8% over the previous year. This movement has increased over the past few decades with a growth factor of 144% in the last decade alone. In particular, there has been a growing interest in Asia and South America. It is clear that studying abroad is no longer just the “junior year abroad” phenomena and now involves graduate students and takes on various forms.

Of those going abroad, 45% of U.S. students study in Western Europe with the United Kingdom, Italy, Spain, and France being most popular. There is also a 35% increase in the number of U.S. students going to China. There are increasing numbers of students going to South American countries such as Argentina and Brazil. India is also increasingly becoming a country of destination.

While in the past students spent a year abroad, today the largest growth area is short-term study. Fifty-six percent of U.S. students elected summer, January term, and other programs less than one semester. The “semester abroad” model attracts 38% of students while only 6% of students study abroad for a full academic year.

Below are a series of figures that describe the enrollment patterns, locations, and funding sources for students attending universities in the U.S. and for U.S. students going abroad (UNESCO Institute of Statistics online database).

Figure 1: International Students in U.S. and Total U.S. Enrollment

Academic Year	International Students	Total Enrollment	Percent
2003-2004	572,509	13,383,553	4.3
2004-2005	565,039	13,994,869	4.0
2005-2006	564,766	14,528,728	3.9

The total number of international students enrolling in programs in the U.S. has declined somewhat over the past several years but now is starting to increase.

Figure 2: Host Regions of Study Abroad Students

Host Region	2004-2005 by Percent
Europe	60.4
Latin America	14.3
Asia	8.1
Oceania	6.7
Multiple Regions	5.5
Africa	3.5
Middle East	1.0
North America	0.5

Europe remains the destination of choice with Latin America in second place.

Figure 3: Leading Destinations of U. S. Study Abroad

Destination	2004-2005 % of All Study Abroad
United Kingdom	15.6
Italy	12.1
Spain	10.1
France	7.5
Australia	5.2
Mexico	4.5
Germany	3.2
Ireland	3.1
Costa Rica	2.5
Japan	2.4
Austria	1.3

The UK, Italy, and Spain attracted the most students in 2004-2005.

Figure 4: Percent of U. S. Study Abroad Student by Academic Classification

Academic Level	2001-2002	2002-2003	2003-2004	2004-2005
Juniors	40.7	38.0	34.7	35.8
Seniors	20.4	20.2	19.3	19.6
BA Unspecified	11.0	15.3	16.3	15.2
Master's	4.7	4.8	4.1	3.4
Grad Professional	-	-	1.6	1.7
Doctoral	0.7	0.9	0.5	0.4
Grad Unspecified	3.3	3.4	2.4	3.4

It is clear that juniors and seniors make up the highest percentage of students who study abroad.

Figure 5: All International Students by Primary Source of Funds in 2005-2006

<u>Primary Source of Funds</u>	<u>Number of International Students</u>	<u>Percent</u>
Personal and Family	358,318	63.4
U.S. College or University	146,211	25.9
Home Government/University	14,476	2.6
U.S. Government	2,501	0.4
U. S. Private Sponsor	8,367	1.5
Foreign Private Sponsor	8,661	1.5
International Organization	1,527	0.2
Current Employment	21,745	3.9
Other Sources	3,161	0.6

Personal and Family income make up the majority of funding for all international students with the College or University providing the second highest percentage.

Figure 6: Primary Source of Funding for Graduate Students in 2005-2006

<u>Primary Source of Funds</u>	<u>Percent of Graduate Students</u>
Personal and Family	46.1
U.S. College or University	46.5
Home Government/University	2.7
U.S. Government	0.6
U. S. Private Sponsor	1.0
Foreign Private Sponsor	1.5
International Organization	0.3
Current Employment	0.9
Other Sources	0.5

For graduate students, the college or university plays an increased role in helping to fund U.S. students studying abroad.

Figure 7: International Students by Field of Study in 2005-2006

<u>Field of Study</u>	<u>Number of International Students</u>	<u>Percent of Total</u>
Agriculture	7,883	1.4
Business and Managmnt	100,881	17.9
Education	16,546	2.9
Engineering	88,460	15.7
Fine and Applied Arts	29,509	5.2
Health Professions	27,124	4.8
Humanities	16,480	2.9
Mathematics & Computer Science	45,518	8.1
Physical and Life Sciences	50,168	8.9
Social Sciences	46,132	8.2
Other	59,404	10.5
Undeclared	17,888	3.2
Optional Practical Training	41,535	7.4

The two top fields of study are Business and Management, and Engineering. This is followed by Physical and Life Sciences, Social Sciences, and Mathematics and Computer Sciences.

Current Status

In 1999 there were 1.68 million international students worldwide (UNESCO Institute of Statistics online). This number is projected to grow to 7.2 million international students by 2025 (Boehm, Davis, Meares, and Pearce, 2002). International graduate students make up almost half of the total enrollment in the science and engineering fields (NSB, 2006). The total number of applicants to graduate in programs in these fields dropped in 2003–04 and 2004–05, but recovered in 2005–06 (CGS, 2004, 2005, 2006).

Current Statistics

China makes up 14 percent of the total worldwide international student population (UNESCO, 2006). In 2004, China was the largest sending country, with 343,126 students studying outside of their home country. China also is emerging as a top host country as international student enrollment grew 213 percent from 1999 to 2005 (MOE China, n.d.).

Among the top six host countries, the United States had the weakest growth in international student enrollment from 1999–2000 to 2004–05. While international student enrollment grew by nearly 17 percent in the United States, it grew by 29 percent in the United Kingdom, 46 percent in Germany, 81 percent in France, 42 percent in Australia, and 108 percent in Japan.

International Competition

There is much competition for international students. The United Kingdom, France, and Japan increased international enrollment from Asia by over 90 percent from 1999 to 2004. Over the same period, international Asian students enrolled in the United States increased by 26 percent. Competitor countries have implemented various strategies to recruit international students, including using national marketing strategies, aligning immigration policies with recruiting goals, offering more programs in English, and creating regional education hubs.

CGS Survey

In a survey conducted by CGS, it was reported that total international graduate enrollment in the U.S. grew 1% in 2006. While this gain seems small, it is a vast improvement over the 2005 survey results, which reported a 3% decline in total international students. India, China, and Korea ranked as the top three countries of origin for international students in the United States. In fall 2006, students from these three nations accounted for 53% of all non-U.S. citizen graduate students at

responding institutions.

About 73% of international graduate students enrolled in business, engineering, social sciences, physical sciences, and life sciences. Engineering and business gained in total number of international graduate students (3% and 1%, respectively) in 2006. The other fields showed declines in total international graduate enrollment. The largest declines were in education (9%), humanities and arts (7%), and physical sciences (-4%).

Between 2005 and 2006, the total number of graduate students from India was up 8%, after a 4% decline one year earlier. However, total enrollment from China and Korea declined 2% and 3%, respectively.

While there was a small overall increase in total enrollment, the number of first-time international students rose 12% between fall 2005 and 2006. The 12% gain in first-time international student enrollment is a substantial increase over prior CGS surveys, which found that total first-time enrollment fell 6% in 2004 and grew only 1% in 2005. First-time enrollment from India grew at the fastest rate in 2006 (32%), followed by China (20%) and Korea (5%).

International Student Enrollment Survey (AACC, AASCU, ACE, AAU, CGS, IIE, 2006)

In the fall of 2006 a joint survey was conducted to examine international student enrollment. Of all responding institutions, 52% (or 475 respondents) reported an increase, 20% (180) reported a decline, and 28% (250) reported level enrollments. The previous year, 40% reported an increase, 26% a decline, and 34% level enrollments. Of the responding Research/Doctoral institutions, 65% (139 responding institutions) reported an increase, 13% (27 institutions) reported declines, and 23% (49 institutions) reported level enrollments.

The U.S. Compared to European Systems

There have been fundamental differences between the systems in many of the European and U.S. universities. The U.S. institutions set degree requirements in terms of credits that are typically distributed over a period of four years. Most BA and BS programs require a minimum of 120 semester credits including general education. General education is more unique to the U.S. than to the European system where students tend to concentrate on their field of study. In many European countries secondary education provides the general education background and may be of longer duration than in the U.S.

The Bologna Process

The Bologna Process refers to an Inter-governmental initiative of 45 countries that has attempted to harmonize their higher education systems and increase mobility

of students, scholars, and professionals in Europe. The process uses portable academic credits known as the European Credit Transfer System (ECTS). In many countries, this results in a three year bachelor's degree. There has been a great deal of debate on whether or not the three year bachelor's degree model of the Bologna Process is comparable to a U.S. Degree. The question often asked is whether it provides adequate preparation for graduate studies at U.S. institutions.

History of the Bologna Accord

The Bologna process began in 1998 when the ministers of higher education of France, Italy, the United Kingdom and Germany signed the Sorbonne Declaration in Paris on harmonization of the European educational system. In 1999 a number of smaller countries participated in a further meeting in Bologna, Italy to adopt easily readable and comparable degrees based on two cycles (bachelor's and Master's degrees). The Prague Communiqué in 2001 reaffirmed the commitment to the objectives of the Bologna Process and pledged to expand to other parts of the world. In 2003 with the Berlin Communiqué, specific goals were set and ministers stressed quality assurance and that every student graduating as of 2005 should automatically receive a "Diploma Supplement", which would identify the content of the degree. In 2005, in Bergen, Norway, a meeting was held to prepare reports on the progress of the accord and discuss further implementation. Participating members meet every two years to assess progress and will meet again in England in 2007.

The Bologna Process has developed three phases that consist of a three-cycle degree structure to replace traditional degrees. This includes a Bachelor's degree with at least a 3 year degree program, a Master's as second degree, and a capstone degree with a high level of mastery typically described as a Ph.D. Along with these levels is a system of credits to demonstrate progress, the diploma supplement with degree and credit information, as well as description of the educational system in English and in the national language of the student. The Bologna Process is intended to also develop a system of quality assurance or accreditation.

An example of the impact of the Bologna Process can be seen in the experience that Germany has recently gone through. During the latter half of June, 2006 the "Germany Today Program" sponsored a trip of Graduate Deans to learn about the German and European systems. The graduate deans visited Bonn; Tübingen; Berlin; and Strasbourg, France to learn about the educational systems. In the past, the German educational system was a fluid process that did not consist of bachelor, master, and Ph.D. Instead there was less structure and students would remain in their courses of study until they felt ready for an examination. At the doctoral level the number of courses was minimal and instead students were integrated into their professor's research activities with high dependence on one single professor known as the doktorvater. Today with the Bologna accord, structure is being instituted that now more closely parallels the bachelor's, master's, and doctoral degrees found in the U.S. with a specified number of credits required at each level.

Continued Study by CGS

The Council of Graduate Schools in 2003 conducted a survey regarding the acceptance of the Bologna Process. The survey included 480 university members that produced 90 percent of the doctoral degrees represented by CGS. In 2006 a follow up study by CGS examined the current U.S. Graduate Admission Practices in evaluating three year degrees. Between the first and second survey, acceptance of the three year degree was found to be growing. In the 2006 survey regarding degrees from Europe the following was found:

- 18% of universities do not accept the 3 year degree (down from 29% in the earlier study)
- 4% provide provisional acceptance (as compared to 9% in the earlier study)
- 49% provide evaluation for equivalency
- 29% make a determination of the individual's competency to succeed

The proportion of respondents who indicated that institutions were now using approaches that could result in their evaluation of applications from prospective students with Bologna degrees increased from 71% in 2005 to 82% in 2006. The percentage who said they would not consider admission applications from international students with only three-year bachelor's degrees fell from 29% to 18%, and the graduate schools that offer only provisional acceptance of international students with these degrees declined from 9% to 4%.

One goal of the Bologna Process is to make Europe a more attractive destination for international student mobility. The creation of a European higher education area through the Bologna Process will certainly affect the movement of international students. Since the initiative is still unfolding, its full impact is unknown.

International Student Exchange Models

There are various models that are often used to stimulate international exchange of students. The first is a bilateral graduate student exchange agreement. It is a memorandum of agreement between a U.S. institution and a foreign institution for exchange of students. This type of agreement often begins with faculty from one university visiting the other institution. After learning about each other's programs, an affiliation agreement is written to facilitate an exchange. Of consideration is the method needed to finance such an exchange. One successful approach that has been developed is to have the students from each university pay their own university its typical tuition fee. In this way differences in tuition rates between countries do not become a barrier.

A second exchange approach is to embed overseas academic components into graduate programs. In this model, some courses in a graduate program are offered abroad. Students are allowed to take the courses at a foreign university. During their time overseas they are supported financially through Graduate Assistantships.

The assistantships are either front or end loaded meaning that the students work for their department either before they go overseas or after they return.

A third approach is to develop a research experience abroad during which students are able to work on their Theses or Dissertations during the summer months. Often this opens up opportunities for students to comb through the national archives or work in a research laboratory.

A final model is the use of private vendors who are paid to develop an arrangement between universities and to provide support during the exchange. This is typically used in situations where a university has not established a relationship with a foreign university and must rely on a third party to establish an exchange.

International Faculty Exchange Models

In addition to student exchange programs, there are also faculty exchange program opportunities. One approach is the development of a visiting professor program. Most often these are short term exchanges since faculty are reluctant to be away from their research and their families over extended periods of time. Short term visits between U.S. and European faculty members may be facilitated by the complementary schedules of the universities. It is often the case that differences in vacation periods make it possible for faculty at one institution to provide lectures at the other institution during their break periods. Some faculty have had the experience of team teaching a course for 3 weeks at the end of their semester in a foreign country.

Another approach may be the development of a faculty visitation program to conduct research and work on publications with foreign faculty. In this model, a faculty member may take a period during the summer to work abroad. Often faculty will bring graduate students with them to engage in the research activity.

A third approach is a full academic year exchange. In order for such an approach to work, there must be a salary buyout to replace the faculty member. Such a buyout may come from an international fund at the university, or from the department or college. There are also funding sources independent of the university that may support this kind of exchange.

General Funding Opportunities

There are various organizations that may consider funding international programs of study. They include the following:

- Academy for Educational Developments
- American Architectural Foundation
- ASHOKA—Innovators for the Public
- CIC Foreign Language Enhancement Program (FLEP)
- Council on Foreign Relations

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- Crowley Program in International Human Rights
 - Democracy Fellow Program
 - Emerging Market Development Advisors Program
 - Ford Foundation
 - Grantsnet Fellowship Database
 - Institute of Current World Affairs
 - Institute of International Education
 - International Dissertation Field Research Fellowship
 - International Education Research Foundation
 - National Science Foundation—NATO
 - Rotary Foundation
 - Social Science Research Council

Recruitment Recommendations

Effective recruitment of international students requires a careful planning process. First and foremost, conditions at the home institution must accommodate international students. The institution must have an understanding of the culture of the international students. It is this understanding of the culture that makes the university acceptable to international students. For example, for some students it may be necessary to plan a space to be open for meditation or other religious activity. Another example may be the type of food that is served. The food plan in the dorms must accommodate the needs of international students.

In regard to courses, to be attractive to international students, the university must have a curriculum that is relevant to international students. Therefore professors must teach international students how to translate the material into a framework that is meaningful for them.

In general the university must have its “house in order” before invitations are sent out to international students. An unfavorable atmosphere will poison the pool of prospective students. The friendliness of the website is important, and the response of the university to inquiries or applications must be timely and must be tailored to the needs of the students. International students often have a tight network and false starts by a university will result in a negative reputation that will soon be known by many international applicants.

Some universities have found it useful to hire a consultant to help the university understand the culture of potential international students and prepare for their assimilation. The consultant may be able to help with the design of the website, prepare for the types of questions students will ask, and how to best answer those questions. The consultant can also help the university develop an international recruitment plan.

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Professional Science Master's Programs

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Abstract

Professional Science Master's (PSM) programs were originated in 1997 under an initiative of the Alfred P. Sloan Foundation with grants to research universities. Beginning in 2001, the Council of Graduate Schools partnered with the Sloan Foundation to extend the development of PSM programs to "master's focused" institutions. PSM programs at two such institutions are featured here.

We will first provide an overview of the PSM and the CGS initiative, and then discuss PSM programs from the perspective of two members of the CGS PSM Advisory Board: a dean who was instrumental in creating and supporting five new PSM programs and a program director who developed a PSM in Financial Mathematics.

PSM: Overview

The PSM is a self-contained master's degree designed to prepare students for a variety of career options in business, government or non-profit organizations. The degree combines advanced science/math coursework with an appropriate array of professional skill-development activities, resulting in graduates highly valued by employers and prepared to progress toward leadership roles. The

PSM differs from alternative options in that it contains considerably more science and/or mathematics than does the MBA, is often interdisciplinary, includes more professional development training than a PhD (so the degree is often referred to as “science plus”), involves connections of students and faculty with potential employers, and typically involves students in a “real-world” capstone project (sometimes as a member of a team) in lieu of a research thesis.

Representatives from the targeted employment sector are much more involved in PSM programs than in traditional graduate programs. They advise PSM faculty so that the degree requirements meet the needs of the employers, they may mentor PSM students either formally, as a co-advisor or internship supervisor, or informally. In addition, they may provide tuition for current or prospective employees, they provide internship opportunities for students, and as they get to know the program and the faculty, they serve as champions for universities in terms of a commitment to local and regional economic and workforce development.

Why a new degree?

Science at U.S. colleges and universities is generally viewed as strong, and our PhDs still considered the best in the world. However, a BA or BS in science is not sufficient basis for a career in a scientific or technical field, and for many the PhD is viewed as taking too long, with uncertain employment prospects at the end. Empirically we have observed a declining interest by U.S. students in obtaining a PhD, and less than 20% of majors continue in science or mathematics as graduate students.

Students want a degree that will allow them to enter a satisfying profession and that will provide a salary comparable to other professionals (e.g. those with an MBA). Many aspire to a career in science, but also want a work situation that is compatible with family life.

Although many employers, especially in highly technical industries, continue to need PhDs, they are generally not needed in large numbers. However, employers still want workers with advanced science education, but also want more than just science and mathematics. These additional professional development skills, often called the “plus” components, may include such things as business basics, project management, teamwork, non-technical communication, research/business ethics and regulatory issues.

The PSM degree meets all these needs.

The CGS/Sloan PSM Initiative

The current CGS PSM project consolidates multiple PSM expansion and promotional activities under one umbrella with the goal of institutionalizing and promoting the PSM degree as a regular feature of graduate education. To achieve

this goal we have the following objectives:

- Sustaining and improving existing PSM programs.
- Assisting in the development of new PSM programs.
- Significantly increase the number of students enrolled in PSM programs.
- Expand funding for PSM programs to NSF and other federal agencies.
- Increase the number and variety of employment-sector champions of the PSM.
- Gain support for PSM by states through work with the National Council of State Legislatures and the National Governors organization.
- Advocate for PSM program support in federal legislation.

Why Should You Establish PSM Programs?

The bulk of new job creation is outside academia, and PSM programs prepare students for work in emerging and existing technical fields. In addition, most if not all universities have a commitment to outreach. PSM programs fall within this mission, as they provide well educated graduates who will apply their skills to fill critical jobs.

States should consider supporting PSM programs, in part because master's degree recipients are typically less mobile than are PhD recipients. Nationally, about two-thirds of science and engineering master's degree graduates are employed within the state in which they earned the degree, whereas only about one fourth of science and engineering doctoral recipients stay in the state where they received their degree.

PSM programs provide a way for motivated science students to remain in their field without getting a PhD, and the university can both provide students with rewarding career options while addressing local workforce needs.

Professional Science Masters Programs: A Dean's Perspective

Introduction

The University of Northern Iowa (UNI) is a comprehensive institution located in Cedar Falls, Iowa—approximately 200 miles (300 km) west of Chicago. Over 12,000 students, including about 1,500 graduate students currently study at UNI, which is one of three Regents public universities in the state. UNI awards approximately 500 graduate degrees in a broad variety of programs each year.

During 2005-2006, the Graduate College at UNI led a comprehensive campus-wide graduate education strategic planning process, the intent of which was to develop an institution-wide strategic direction for graduate education at UNI that would align with the university's overall mission and that would take full advantage

of the university's strengths and opportunities in the state and the region. The final version of the UNI Graduate Education Strategic Plan, "Personal Goals, Personalized Excellence", was endorsed unanimously by all of the Colleges and other divisions of the university and set firmly in place the university's commitment to several Professional Science Masters programs that were already envisioned (www.grad.uni.edu/_files/content/strategicplan.pdf).

The Graduate College and College of Natural Sciences at UNI have collaborated to develop and oversee UNI's five PSM programs: Applied Physics, Industrial Mathematics, Applied Chemistry & Biochemistry, Biotechnology, and Ecosystem Management. These new graduate programs are particularly relevant for graduate education at an institution like UNI (as opposed to a research-extensive university), where the focused mission of graduate education is to provide selected programs of advanced study that prepare successful practitioners, scholars and professional leaders to serve the state and region.

Feasibility Study and Development

In 2004 and 2005, grants from the Sloan Foundation, administered through the Council of Graduate Schools (CGS), funded planning and implementation activities for the PSM degree programs at UNI. As a result, PSM Advisory Boards were established and a one-day conference provided industrial and corporate leaders in Iowa the chance to learn about the PSM concept, provide input regarding their workforce needs and shape UNI's PSM goals. In March 2006, the Iowa Board of Regents approved UNI's five PSM programs, and the first PSM students matriculated in August 2006. Three of the five programs began admitting students during 2006; the remaining two will do so for the 2007-2008 academic year.

The following timeline illustrates UNI's PSM implementation process to date:

- December, '03 – CGS/Sloan meeting
- April, '04 - \$10,000 Sloan planning grant for Applied Physics and Industrial Mathematics
- June-Dec, '04 – Planning process continues
- April, '05 - \$45,000 Sloan implementation grant
- March, '06 – Iowa Board of Regents approves 5 UNI PSMs
- August, '06 – first PSM student enrolled
- August, '07 – first PSM graduate in Applied Physics ... with job offer

As is the case with any new academic program, resources are an ongoing challenge. The CGS/Sloan grants have been essential to the development of the UNI PSM programs, not only for the important financial support, but also for the excellent planning process that was provided and for the community of PSM advocates across the country that has been created to support the PSM initiatives. Both the Graduate College and the College of Natural Sciences at UNI have been extremely committed to the PSM programs from the outset of planning, with the two Deans working together to plan for the allocation of faculty lines, assistantships and other resources to the programs within a relatively austere budget environment. I also

serve as one of five Graduate Deans on the National PSM Advisory Board, which provides input to CGS regarding the PSM initiative.

Funding the Programs

The estimated cost for implementation of the five PSM programs at UNI from 2004-2009 is \$1.6 million. In addition to the Sloan grants for planning and implementation, the programs have received external support from Deere and Company (\$94,000) and the Roy J. Carver Charitable Trust (\$129,000), as well as some state funding under the auspices of an economic development initiative (the Battelle fund, \$372,000).

Corporate and industrial partners have provided advice and support from the earliest stages of PSM program planning at UNI. Corporate advice continues through the PSM Advisory Boards that are proactive in helping direct program emphases and in providing programmatic 'course corrections' during regularly scheduled meetings. The PSM programs depend on this partnership and no program can thrive in the absence of corporate support—whether in hiring or promoting PSM graduates.

Deere and Company, an international corporation with headquarters in Moline, Illinois, has been a major support to the UNI PSM programs. Deere manufactures, distributes and finances a full line of equipment for use in agriculture, forestry, lawn and grounds care; its engines are used in tractors as well as boats. Waterloo, Iowa—part of the metropolitan area around UNI—is home to five Deere engineering and construction plants. Engineers and workers at all five sites have been encouraged by Deere to enroll in UNI's PSM programs. Several Deere employees are in the first cohort of students in the Industrial Mathematics and the Applied Physics PSM programs. The PSM in Industrial Mathematics—with two tracks, in Continuous Quality Improvement and in Mathematical Computing and Modeling—has benefited in particular from Deere's advice and financial support.

Cambrex Corporation, an international concern with over 2000 employees, is an innovative life sciences company dedicated to providing products and services that accelerate the discovery and commercialization of therapeutics. It has a Charles City, Iowa, plant located about 40 miles north of UNI. Cambrex has been proactive in supporting the UNI PSM programs, particularly the PSM in Applied Chemistry and Biochemistry. Cambrex has a record of employing undergraduate interns from UNI, and the company views PSM graduates as a source of interns and future employees. Two managers from the Charles City plant participated in the PSM Seminar in October 2006, and they subsequently provided a statistical analysis project for a PSM Applied Physics student.

The Iowa Department of Natural Resources is a state agency responsible for maintaining state parks and forests, protecting the environment, and managing energy, fish, wildlife, and land and water resources in Iowa. Its involvement in helping design the PSM in Ecosystem Management highlights the interest of

state and federal agencies in PSM programs. In particular, the Ecosystem Management program views government environmental agencies, such as the U.S. Environmental Protection Agency, and private environmental organizations, like the Nature Conservancy, as likely employers of its PSM graduates.

Challenges

As UNI's Professional Science Master's programs continue to develop, we face several challenges that seem to be typical of PSM programs across the country. The first challenge is leadership. Every PSM program needs a strong leader who will enthusiastically educate faculty within the department and a variety of constituents outside the department, who will advocate for support for the program in all appropriate venues and who will work well with others through the planning, implementing and sustaining processes. Ongoing collaboration with business and industry, a constant willingness to step outside the lab into the "real world", is also a challenge because it is a non-traditional role for science academics. Curriculum is an ongoing challenge, in part because developing curriculum with significant input from the future employers of graduates goes against the traditional "we know what's best for our students" approach that is often the norm in faculty decision-making about curriculum. Resources, as previously discussed, are always a challenge in an environment where there are competing needs. Finally, recruitment of students to new PSM programs is challenging when there is not yet a record of success

Summary

Whether in Iowa, the U.S., or the wider world, PSM programs offer a new way for universities to partner with corporations in a direct and collaborative way to ensure a steady supply of scientific and technical talent in the workforce and to contribute to economic development in the region. We have a positive vision for the future of PSM programs at UNI and we anticipate that our PSM programs will produce business leaders for Iowa, the Midwest and beyond who know both science and technology and who will be able to contribute skills that are critically important to their enterprises' global competitiveness.

Note: Susan Koch has left the Graduate Dean position at UNI and is now Provost at Northern Michigan University. For more information about UNI's PSM programs, contact Dr. Cliff Chancey, Head, Department of Physics and PSM Coordinator at c.chancey@uni.edu.

The Professional Science Master's Degree: A Program Director's Perspective

Introduction

The University of Dayton (UD) is a comprehensive university with approximately 6,500 undergraduate students and 2,200 graduate students. The School of Education supports a large graduate program. The School of Engineering supports Master's and Ph.D. programs, the School of Business Administration supports an MBA program, and the College of Arts and Sciences supports select graduate programs. Most programs offer the master's degree as the highest degree. Undergraduate education is the focus of UD; graduate programs that enhance undergraduate education are highly valued.

Program Feasibility Study and Development

In 2002, the Department of Mathematics, with support of the Department of Economics & Finance, developed a CGS/Sloan Foundation funded PSM program, the Master in Financial Mathematics (MFM) program.

The Department of Mathematics has a long history of offering master's programs since the 1960s. The department now offers the Master of Science in Applied Mathematics. However, with engineering and computer science programs at the University of Dayton, Wright State University and at the Air Force Institute of Technology (Dayton is home to the Wright Patterson Air Force Base), the M.S. program in Applied Mathematics at UD was frankly overmatched locally and regionally.

In 2001, Dr. Katy Marre, long-time graduate dean at UD, introduced the Department of Mathematics to the CGS/Sloan Foundation initiative to develop PSM programs. The departmental faculty had only limited experience with applied problems in financial mathematics; however, as veterans of applied mathematics applications in the engineering industry, the faculty members were well aware that there was only one financial engineering program in the entire State of Ohio. Following serious discussion with finance faculty members from the Department of Economics & Finance, UD decided to submit a proposal for a feasibility study. Both the proposal for the feasibility study and the proposal for an implementation grant that followed were successful. The funds for the feasibility study and for implementation have been a necessary ingredient for the initial success of the MFM program, and have made it possible to offer the program.

Dr. Marre worked in concert with the Department of Mathematics to develop the PSM concept as it applies to UD; she worked with the faculty members through the processes of the feasibility study, the implementation proposal, and through the on-campus and the state approval processes. We take this opportunity to thank

her for her vision, her faith in the Department of Mathematics, her valuable insight and knowledge, and for all the hard work she provided. Her impact has also been a necessary ingredient for the initial success of the program.

The first class of four students was admitted in the Fall term, 2004. Three of those four students successfully graduated. The first MFM diploma was earned in May, 2006; by May 2007, a total of eight students will have been graduated.

Curriculum

The program requires successful completion of 33 credit hours, or 11 courses. Of these, the student takes 6 required mathematics courses. These are courses in partial differential equations, Ito calculus and methods of financial mathematics, stochastic processes, numerical analysis, time series analysis, and methods of computational finance. The student takes two required finance courses, housed in the MBA program. One is an introduction to financial analysis; the other leaps directly into the theory of financial derivatives and risk management. The curriculum contains two electives. Most students satisfy the electives requirement with two more finance courses in the MBA program. There is a stochastic optimization course in the management science program, housed in the School of Engineering that has served as an elective for several students. As a capstone requirement, project oriented research is contained in a three credit hour course.

The program developers recognize that an internship experience must be an integral part of an outstanding PSM program. The MFM program at UD meets this goal with mixed success. Not all students have successfully obtained an internship; it is premature to require an internship for successful completion of the program.

"Plus" Components

The MBA coursework provides a valuable, and the most apparent, plus component to the program. The course in financial derivatives and risk management, on the other hand, was designed specifically for the program and provides rigorous theory in financial trading. However, the other MBA courses provide the student with a broad background in finance and the opportunity to learn in a professional environment with professional students.

Other plus component opportunities will develop as a result of the connection with the MBA program. For example, a Chicago trader who actively supports the UD MBA program has become an active supporter of the MFM program. He speaks to the students, he brings interviewers from his firm, and students visit on-site for internship interviews. Two MFM graduates have obtained entry level positions with his firm. For another example, the MBA program recently acquired a software program to simulate live trading. This is state-of-the-art equipment; MFM students have been invited to take a course next year that will test this new

software program.

As the MFM program matures, more subtle plus components have been recognized. Some of these components are being developed while others are still in the future. Consider the capstone research component. Students who obtain internships are expected to develop their projects from problems they address during the internship. The student works with an advisor from the corporation and an advisor from the university. This concept produces a diverse research team and has great potential; some very interesting work has been produced in this way. Students who do not obtain an internship find themselves working with an advisor from mathematics and an advisor from finance, again forming at least an interdisciplinary research team. So far, these projects have focused on developing trading strategies and there is great potential here as well.

Consider also the interview process. The MFM students spend a great deal of time seeking interviews or being interviewed. The process begins with seeking an internship and then quickly moves to the interview process for the entry level position. This has become a valuable plus component, if not a hard lesson learned. In many cases, following extensive searches on the internet, the interview process begins with a phone interview followed by an on-site interview. In some cases, candidates must take an exam to earn an on-site interview. In a specific example, each fall, the International Association of Financial Engineers, NYU's Courant Institute, and as of last year, the Society of Industrial and Applied Mathematicians, co-host a career fair in New York City. There is prestige associated with this Career Fair; students can attend only if their graduate program has been invited to send attendees. The MFM program contacted the Career Fair two years ago to seek an institutional invitation. Internet materials for the MFM program were submitted. When the MFM program was asked for more supporting materials, internet materials for the PSM concept, <http://www.sciencemasters.com/>, were submitted. An invitation followed the submission of the supporting PSM concept materials. This interview opportunity provides an outstanding plus component for the MFM students. Invitees include financial mathematics programs at famous programs such as those at Carnegie Mellon, NYU, and others. UD students fly in, spend the day interviewing employers from Wall Street, meet their peers from other financial mathematics programs and come home with a valuable eye opening experience. The interview process will be revisited in the final section.

Up-sides to Program

With this MFM program, UD offers a terminal master's program that can be marketed with integrity. Of our eight graduates as of May 2007, two have entry level positions with trading firms, one recently joined a hedging group for an international bank, one found a position in government and relocated to the Washington D.C. area, and one joined an insurance company. The insurance company hired the student as an intern and then created an entry level position upon the student's graduation. We believe this tells us that the program is meeting the needs of its

students and employers. With respect to the other three graduates, one kept her same position, one has initially chosen marriage and family life over a career in financial mathematics, and only one, an international student seeking a sponsor, has experienced real difficulties on the job market.

The growing MFM program has dramatically impacted student recruitment. The number of applications has increased by at least a factor of three. The quality of the applicants has also increased dramatically; high entrance requirements were set and these requirements have been easy to maintain. UD provides the Department of Mathematics a total of six graduate assistantships, so for years, the department has carried precisely six full-time graduate students. By the second year of the implementation of the MFM program, there were nine full-time graduate students in the MFM program. Currently, there are fourteen full-time students enrolled. Three of these fourteen are MAS students; three of the department's graduate assistantships are used to provide support for the remaining eleven full-time MFM students. It should be noted that accepted students seek their own financial support to earn this master's degree. This was a stated goal for the MFM program; it has developed as a reality.

The MFM program itself has stimulated new collaborations at the University of Dayton. First, the program has stimulated collaborations between Mathematics and Finance faculty members. Collaborations among faculty members in these two areas include curriculum development and in research. Second, the MFM program is stimulating collaborations between faculty members (Mathematics and Finance) and researchers in the financial services industry. Both sets of collaborations represent entirely new collaborations for the Department of Mathematics and UD.

The Sloan Foundation requires that a PSM designated program develop, cultivate and maintain an Advisory Board. This was one of the intimidating challenges, as our faculty had little experience talking to industry. It has also proved to be one of the truly rewarding experiences. The members of the Advisory Board provide valuable input with respect to curriculum and desired outcomes of the program. They give insight to appropriate prerequisites of the program. They provide internships, identify research problems, assist in securing entry level positions for graduates, and they facilitate the networking of students and faculty members with corporate partners. Finally, they provide access to industry researchers and encourage the collaborations. The program director maintains close contact with the members of the Advisory Board. In addition, the program and the department host at least one social/business event annually gathering students, faculty members, administrators, and corporate partners. This continual interaction is most valuable to all parties.

Almost by accident, the MFM program has produced diversity benefits with respect to both gender and underrepresented minorities. Among the first eight graduates of the program, five are women and three are African Americans. There are no Hispanic students or Native American students enrolled at present in the program. Our departmental graduate committee is aware of issues related to diversity and

the need to attract minority students into the program. Qualified students who are diverse with respect to gender or race are interested in the program, and when they show interest, the departmental graduate committee is prepared to recruit these students. The Graduate School provides partial support for well-qualified applicants representing underrepresented minorities. However, it must be the case that such applicants find value in this MFM program as they seek to develop exciting career opportunities. The program is ever alert to seek such applicants. The planning documents articulated marketing plans to enhance diversity. These plans have not become reality in the dimensions envisioned because resources to implement them are not currently available. However, as resources become available, the marketing plans will be implemented.

Demanding Sides to Program

The previous section illustrates some of the positive aspects of the MFM program and the PSM concept. The maintenance and sustainability of such a program are key issues. Most programs require a champion and our MFM program is no exception. Sustainability and continued quality growth remain clear goals for this program. Maintenance features include marketing, recruitment of students, placement of students, continual cultivation of Advisory Board members, continual development of corporate relations, and working through administrative arrangements across academic units. The administrative features of the PSM concept have not yet been as well thought out as one might wish they were. The professional aspect of the PSM is similar in many ways to other professional programs. For instance, a PSM program models the curriculum, the student experience, and the outcomes to compete with professional school models; yet, the PSM program does not offer an administrative model that competes with professional school models. It is to be expected that PSM programs will have various administrative features reflecting participating disciplines, but if data about PSM administrative models was collected, it would not only provide invaluable information to existing programs but also jump start new programs with key information about best practices in PSM administration.

We have developed this MFM program with a great deal of thought and creativity focused on establishing a strong program and on sustaining it. The MFM program is marketed and packaged in a variety of ways to take full advantage of opportunities. It offers several options to students. It can be a two-year program for students on assistantships. It can be a twelve-month program for appropriately qualified students. It can also represent the fifth year of a five-year BS/MFM program. Moreover, three certificate programs have been developed with the program to attract three specific groups of potential students: the corporate professional who sees value in certification and who is not willing to commit to a masters degree; the MBA finance concentration student who sees value in the additional computational certification; and the Management Science graduate student who sees value in certification in risk management.

It is typical that PSM programs have tough curricular demands; the MFM program shares this characteristic. A common criticism of the PSM concept among faculty members is that the plus component comes at the expense of good solid academic preparation. This has not turned out to be the case for us. In the first section of this paper, the specific curriculum of the MFM program is outlined. You will notice that it is very compact and full. The mathematics component is focused and intense. The course in financial derivatives and risk management is very rigorous and the other finance courses give breadth to the student's background. However, we still feel there is more we can do.

Future Challenges and Developments

Some initiatives that we must be mindful of are listed. The following list is not meant to be exhaustive and is not ranked in order of importance.

- Improve the curriculum. Some of the plus components, envisioned in the planning stage, have not become reality. The program lacks plus components such as ethics, legal aspects, principles of accounting, or writing skills. The program lacks curricular components such as economics or optimization (mathematical or numerical).
- Become more active in placement of graduates. Developing the Advisory Board and developing corporate relations are good first steps. Effective mechanisms to support students as they prepare for the grueling interview process, internship or entry level position, must be developed.
- Develop the certificate program concept. There is potential to attract students from the corporate sector, the MBA finance concentration, or the management science program who want to add value to their graduate degrees without pursuing a second master's degree. This potential has not yet been fully tapped.
- Develop corporate and alumni relations to produce internships, research projects, tuition support, and career opportunities. Currently, students come on board and then internships are sought. Ideally, an internship or a tuition scholarship would be available to offer during the recruitment process. The program has identified this as one goal.
- Learn to incorporate the testing and certification methods of professional societies into the program so that these assessment tools complement the program. Such assessment tools include the actuarial examinations of the Society of Actuaries, the examinations for the Certificate of Financial Analysts (CFA), and the examination of the Global Association of the Risk Professionals (GARP). This kind of alignment would make for efficiencies that students would find very attractive. Incorporating these assessment tools into the program would be a plus in recruitment for the program.

There is a new professional organization, the National PSM Association (NPSMA), being developed. As there are common demands on PSM programs and program directors, NPSMA should be a valuable resource to all PSM program directors. NPSMA can also serve to help connect the PSM programs and the employers.

Supporting Interdisciplinary Initiatives
Trials and Tribulations of Integrative
Graduate Training in the Era of the IGERT

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Abstract

The University of Notre Dame's new Ph.D. program studying Global Linkages of Biology, the Environment, and Society (GLOBES) takes a team-based, interdisciplinary approach to addressing pressing world problems. Launched in fall 2006 by an Integrative Graduate Education and Research Traineeship (IGERT) grant from the National Science Foundation, the GLOBES program brings together teams of graduate students and faculty mentors from across Notre Dame's College of Science, College of Arts and Letters, and Law School to collaborate on environmental and global health research projects. Here, we describe key features of the GLOBES curriculum and discuss our successes and challenges in implementing and sustaining the program. To learn more about GLOBES visit our website at globes.nd.edu.

Introduction: The IGERT Program for Interdisciplinary Graduate Education

The National Science Foundation's (NSF) Integrative Graduate Education

Traineeship (IGERT) program is celebrating its tenth anniversary. The nation-wide competitive grants program was developed by NSF to meet the challenges of training the next generation of U.S. Ph.D. students to be leaders in science and engineering. The goal of the IGERT program is to catalyze a culture change in graduate education for students, faculty, and institutions alike. Renewable awards of 5 years and up to \$ 3.2 million dollars are given by NSF to establish innovative graduate training programs that create fertile environments for collaborative research that transcend traditional disciplinary boundaries. These funds provide for graduate fellowship stipends, cost of education expenses, and some travel and research funds for students. IGERT programs are expected to impart in their students deep knowledge in chosen disciplines, strong interdisciplinary backgrounds, and the technical, professional, ethical, and personal skills to forge new frontiers in science and engineering. The program is also intended to facilitate diversity in student participation and preparation, and to contribute to a world-class, broadly inclusive and globally engaged science and engineering workforce.

The Notre Dame GLOBES Program

In the summer of 2005, the College of Science, the College of Arts and Letters, and the Law School at the University of Notre Dame jointly received an IGERT award to launch a new interdisciplinary program in Global Linkages of Biology, the Environment, and Society (GLOBES). The first cohort of eight GLOBES students entered the program in the fall of 2006 and has just completed their first academic year of study. The second cohort of seven new students will embark on their five-year GLOBES Ph. D. program this coming fall. Here, we discuss the goals of the GLOBES program, its thematic basis, features of the program's structural organization, key elements of the GLOBES training and research curriculum, and our experiences to date in year one of the program. Our conversation highlights both the successes and difficulties we have experienced in starting and sustaining a culture change in interdisciplinary education at Notre Dame.

Goals and Thematic Basis of Notre Dame's GLOBES Program

The goals of the GLOBES program are two-fold. First, GLOBES cuts across traditional academic boundaries at Notre Dame, integrating the collective skills of the University's biologists, social scientists, and legal scholars in a team-based approach to solve pressing problems in human and global health including environmental degradation, and the spread of infectious disease and invasive species. Second, GLOBES is dedicated to imparting the next generation of Notre Dame graduate students, as well as undergraduates, with knowledge, technical tools, and experience to combat world challenges in socially responsible and ethically sound ways.

The central theme of the GLOBES program is that threats to human health and global well-being are often linked to a deteriorating environment of our own doing, and these detrimental effects are often inequitably borne by the poor. Progress

in the fight against poverty, disease, and environmental degradation therefore dictates that complimentary teams of biologists, social scientists, ethicists, policy experts, legal scholars, and local citizens work together to design and implement meaningful and lasting solutions to world problems.

The team-based approach to world problem solving emphasized by GLOBES is a main-stay of industry. Corporate executives know that good decisions about long-term planning are never the result of considering a single, isolated facet of a problem. For example, no contemporary auto executive would leave mechanical engineers alone in charge of designing new car models; a design team would have members with expertise in engineering, design, materials, finance, marketing, labor, information systems, and a host of other specialized fields.

As problem-solvers in the life sciences face similar difficulties as industry, GLOBES is designed to emulate the successful corporate model by providing a platform and resources for the formation of rapid response working teams of Notre Dame faculty and students to attack specific human and environmental health issues. The power of this integrative approach is exemplified through efforts to control infectious disease, one focus of GLOBES study. Biologists can resolve the cellular (causative) and genetic basis for infectious diseases, information critical for devising vaccines, genetically modified organisms, and drugs to slow disease spread. However, these advances may be ineffective if they are divorced from understanding epidemiology - the ecological, social, economic, and political factors influencing pathogen and host contact.

We believe that one reason for our success in being granted an IGERT award was our emphasis on the critical need for team problem solving to combat world problems. A second reason was Notre Dame's distinctive blend of faculty with expertise in the environment, infectious disease, social sciences (anthropology, economics and econometrics, philosophy, theology, history), policy, and law. A third element was the University's Catholic mission and social outreach to alleviate human pain and suffering, including a number of Centers and Institutes on campus dedicated to environmental justice, science technology, and world peace that were eager to partner with GLOBES. A fourth factor was a proposed education, evaluation, and management plan that integrated and realistically balanced the demands of a student's Ph. D. dissertation and faculty departmental commitments, with the value-added, team-based research and joint teaching components of GLOBES. A final important factor was the sense that the faculty and administration of Notre Dame were fully committed to participating and making the GLOBES program a success. What was proposed to get done could and would get done.

GLOBES Organization

GLOBES is managed by a director (Jeffrey Feder) and an executive committee composed of the IGERT principal investigators, representing each of the major academic units involved in the program, as well as a student representative. The

committee is in charge of admissions and curriculum planning, as well as providing approval for resources to conduct team-based research projects. All decisions are democratic and involve a number of meetings, discussions, and focus groups, inviting participation from all GLOBES faculty. Although GLOBES has a director, the job entails being more of a vocal cheerleader who invigorates activity and builds consensus, rather than being an overbearing authoritarian. Day to day operations of GLOBES is run by an administrative coordinator Virginia Anderson, who provides the students and faculty with ready answers to questions and needs. GLOBES also has an education coordinator, Ken Filchak. Ken helps organize team-taught courses and modules, is in charge of program evaluation, and together with Virginia, helps plan and schedule GLOBES seminars, symposium, and conferences. There is also an external oversight board comprised of academic and community leaders from outside GLOBES and the University that meets yearly to advise the program.

Mentoring and communication are two critical elements to a program's success. Frequent formal and informal meetings of GLOBES students with faculty and of faculty with themselves is important to maintain a common focus, assess student progress, and keep the program on track. We have also found that the shared experiences of a cohort of students going through the program also helps build a sense of community, the pursuit of common goals, and an intellectual and social mentoring safety net.

GLOBES Curriculum

GLOBES graduate students enroll in a home department in which they pursue and are awarded their Ph.D. degrees. Diplomas will note the involvement of the students in GLOBES and they will receive a certificate of graduation upon completing the program. Participating Notre Dame departments in GLOBES include Biological Sciences, Economics and Econometrics, History, Philosophy, History and Philosophy of Science, Theology, and the Law School. The Department of Anthropology is also an active participant in GLOBES but does not have a Ph.D. program.

In addition to taking courses in their home Ph.D. programs to fulfill departmental requirements, GLOBES fellows also participate in:

- A series of interdisciplinary gateway courses, as well as specialty classes, covering basic topics from genetics, ecology, evolution, climate change, health, history, philosophy, economics, and human culture.
- Summer and break period modules providing hands-on experience in techniques ranging from genomics and ecological field methods to policy and environmental law, and from economics to ethics and risk analysis.
- Training on campus and in Washington, D.C. to hone teaching, communication, policy, and leadership skills.
- Student-led seminars and symposia organized around seminal GLOBES topics dealing with issues in human and environmental health.
- Real World Practicum field research projects that organize students and faculty into interdisciplinary teams researching environmental health, infectious

diseases, and invasive species on-site in North America, China, Africa, Haiti, and Bali.

- An independent dissertation research project. We consider the independent dissertation research to be important for student development and career options in establishing academic credentials in a particular specialty area. GLOBES fellows are also required to have multidisciplinary thesis committees comprised of at least one and preferably two faculty members from outside their home department. They must have at least one chapter in their dissertations devoted to an interdisciplinary synthesis of ideas.

All GLOBES courses, as well as modules, seminars, and symposia, are open to graduate students and faculty from across the entire University, as well as to motivated undergraduates. We consider it important that GLOBES program offerings be inclusive and appealing to attract a diverse base. In this way, the activities become more fertile ground for cross-pollination and discussion, generating new ideas and making for potentially new collaborations and team-building in unforeseen areas. The inclusiveness of courses also helps alleviate some of the problem of GLOBES fellows being viewed as a class of privileged Ph.D. students within home departments. Care and attention must be constantly given to avoid non-fellowship students feeling that they are second-tier participants in GLOBES. The program has only so many graduate stipends to offer, but its goal is to benefit all students with increased educational opportunities, not just GLOBES fellows.

Interdisciplinary Courses

We feel that flexibility in developing Ph.D. programs for individual students is essential, and that a single rigid model does not work for all. We therefore attempt to strike a balance between required lecture classes and electives in the curriculum. In the sciences, of the eight required lecture classes for the Ph.D. degree, four represent new team-taught GLOBES interdisciplinary courses and four are elective classes providing students the opportunity to pursue their own specialty areas. Our goal is to develop in students both the depth of knowledge they require to succeed in their particular field of interest and a broad interdisciplinary background for them to move comfortably across fields to contribute to the solution of multifaceted environmental and global health problems, wherein the future lies. Requirements vary for graduate students in the Arts and Letters, depending upon their home department. For example, in Economics and Econometrics students are required to take a formal set of courses and pass a series of qualifying exams in the first two years of the program before being formally admitted as Ph.D. candidates. In this case, Economics and Econometrics students in the GLOBES program take the GLOBES classes on a reduced credit or audit basis, so as not to be overwhelmed with formal coursework at the start of their graduate careers. In other cases, such as the Law School, students are not formally fellows in the program but are participants, and receive no stipend support. There are no formal requirements for law students and they can pick and choose freely what GLOBES courses to attend depending upon their interests and schedules.

Team-taught interdisciplinary classes are at the core of the new GLOBES curriculum, instilling both the foundational principles of the biological, environmental, and social sciences, as well as engaging in a broader interdisciplinary dialogue. We have currently developed five new GLOBES courses. In the fall of 2006, David Lodge (Dept. Biological Sciences) initiated the GLOBES curriculum, bringing together a team of 22 professors from 12 different departments as part of a gateway course entitled "Environment, Human well-being and Governance." The course conveyed basic concepts from multiple disciplines that are central to understanding globalization from economic, environmental, human health, and governance perspectives. Teams of students also developed and made presentations of potential Real World Practicum projects to the class. In the spring of 2007, Chris Hamlin (Dept. History) taught the second GLOBES course entitled "History of Health and Environmental Studies" along with Drs. Lodge and Feder. In addition to providing students with an understanding of the history of the issues and previous attempts to solve environmental and global health problems, the Real World Practicum teams were required to write their potential projects in NSF grant format and develop the broader impact dimensions of their proposals. This coming fall 2007 will feature two new courses "Human Culture, Genes, and the Environment" (Agustin Fuentes [Anthropology], Hope Hollocher [Biological Sciences]) and "Humans and the Global Environment: Coevolution or Mutual Destruction?" (Jessica Hellmann [Biological Sciences], Mark Schurr [Anthropology]). This will be followed in the spring of 2008 by "Population and Disease Ecology" (Gary Belovsky [Biological Sciences]) and a one credit shortened course in "Evolutionary Medicine" (Feder and James McKenna [Anthropology]). We envision all the GLOBES classes to be given on a three-year rotating basis for all students to have the opportunity to take the course during the formal curriculum period of their Ph.D. programs.

Intensive Training Modules on Selective Topics

GLOBES offers intensive one-week modules during the summer and break periods to train students in laboratory and field applications of genetic and economic-based techniques, as well as in specific policy issues and the ethical implications of their research. The first module entitled "Environmental Genomics" was taught this May by a group of eight faculty in our new Jordan Hall of Science center. The module covered topics of DNA sequencing and genotyping techniques, phylogenetic analysis, population genetics, coalescence theory and test for natural selection at the molecular level, immunology, microarrays proteomics, bioinformatics and genetic data basis. In the spring/summer of 2008 the second module, "Ecosystems Analysis and Modeling" (Gary Lamberti and Jen Tank [Biological Sciences]) will be conducted, while "Environmental Valuation, Risk Assessment, Ethics, Biodiversity, and Law" will be held in 2009 (Rich Jensen and Tom Gresik [Dept. Economics and Econometrics], John Nagle and Alex Camacho [Law School], Gerry McKenny and Matt Ashley [Theology], and Kristin Shrader-Frechette [Philosophy]). In addition to these on campus activities, a Policy and Leadership Module is also planned that will consist of a one-week trip to Washington, D.C. Fellows will attend a consultation and training session for communicating with policy makers, visit congressional office(s), attend congressional hearings on environmental bills, and

meet with directors and staff of other various government and non-government agencies. Opportunities will also be arranged for fellows particularly interested in policy-related issues to schedule meetings related to potential future internships on U.S. delegations to international environmental and health conferences.

Seminars, Symposium, and Conferences on Subjects of General Interest

Seminars, symposium, and conferences are a regular feature of GLOBES involving invited keynote speakers and special events organized around central, IGERT-related themes. Students are encouraged to take active leads in selecting speakers and topics.

During the past year, GLOBES seminars concentrated on the evolution and intelligent design debate and its relationship to faith and religion. GLOBES sponsored talks by NY Times and noted science author Carl Zimmer and Dr. Ken Miller from Brown University. Zimmer's visit culminated in an article on assisted migration in the NY Times Science section, a topic that has been brought to national attention by GLOBES faculty members Drs. Jason McLachlan and Jessica Hellmann. In addition GLOBES and our Film, Television, and Theater Dept. co-hosted Dr. Randy Olsen for a showing of his film "Flock of Dodos: The Evolution and Intelligent Design Circus." The movie showing was followed by a panel discussion with audience participation involving Dr. Olsen and faculty from our Biological Sciences, Philosophy, and Theology Departments. The event has catalyzed plans for a more extensive series of discussion on the campus about the issues and challenges at the interface of science and faith.

GLOBES ran the Notre Dame Environment, Education, and Research Conference in November 2006. The conference featured talks from Dr. Austin Demby, Director of the Global AIDS Program for the Centers for Disease Control and Prevention (CDC) based in Malawi, Southern Africa; Douglass Rohrman, a partner with the Chicago law firm of Lord, Bissell & Brook, LLC, who for more than 35 years has been involved in a broad spectrum of environmental assignments, covering regulatory, real estate and corporate and litigation matters; and Peter Annin, a journalist and associate director of the Institutes for Journalism and Natural Resources who has reported on natural resource and environmental topics for more than a decade including a recently released book "The Great Lakes Water Wars".

In March 2006, GLOBES also hosted a meeting with two Millennium Village (MV) officials from Uganda (Dr. David Siriri [member of the World Agroforestry Association and current scientific director of an MV in Uganda at Rhuira] and Dr. Johnson Nkuuhe [United Nations Country Coordinator for MV in Uganda]), as well as Notre Dame (Rev. Robert Dowd [Dept. Political Science]). The meeting provided an opportunity for GLOBES faculty and students to receive first-hand information and discuss research Real World Practicum ideas/projects that may be applicable to the needs of MV projects.

Workshops Honing Career Skills

GLOBES fellows are required to attend a series of workshops aimed at improving and polishing their teaching, communication, and leadership skills to accomplish their career goals.

The GLOBES program directly addresses a typical deficiency of many new Ph.D.s by providing them with formal training in effective teaching. The two-day mandatory workshop is run by educational coordinator Ken Filchak in concert with the University's Kaneb Center for Teaching and Learning. The workshop is given immediately preceding the required minimum of two semesters of teaching assistantship students must fulfill for the Ph.D. degree in year two of GLOBES. Teaching evaluations from undergraduate students, laboratory coordinators, and faculty course instructors are used to assess the teaching skills and progress of the fellows.

GLOBES students also must attend a Media Communications Workshop held on the Notre Dame campus. The first module is scheduled for 2008 and will be led by Nancy Baron, a zoologist, science writer, Outreach Director for SeaWeb and COMPASS (Communication Partnership for Science and the Sea) and communications trainer for the Aldo Leopold Leadership program. Baron works with environmental scientists to help them translate their work effectively to journalists, the public, and policy makers. The two-day module organized by Baron will include sessions with local and national journalists, and one-on-one practice sessions in interviewing, press conference speaking, and writing press releases.

In the fifth and final year of the Ph.D. program, after completing their Real World Practicum and Media Communications Workshop, GLOBES fellows will participate in an Outreach Service Program to discuss their research and leadership experiences with high school students, local and state government officials, and the press. These contacts will provide a comparative measure for the students and faculty to assess the progress of fellows in attaining their goals as effective communicators to non-scientific audiences.

Real World Practicum

The Real World Projects are an important part of the GLOBES experience, providing the context in which the earlier skills and ways of thinking are applied in collaborative teams to conduct an interdisciplinary research project of societal significance. In many cases, these projects have an international flavor and involve the interaction of the environment, human activity, and health.

The Real World Practicum projects are intended to augment, not replace, the independent dissertation work required of students for their Ph.D. degrees in their home departments. However, since at least one chapter of a student's dissertation must be interdisciplinary in nature, the Real World Practicum offers one means to accomplish this requirement. Students in the Real-World projects also have the

option of expanding an original aspect of their team project into their dissertation, or of developing a Ph.D. project in a related or different area.

Our first year cohort of GLOBES students have organized themselves into teams and devised plans for researching the first set of topics including environmental and disease-related implications of agricultural practices in Africa, risk assessment of aquaculture in Tanzania and Uganda, co-evolution of schistosomiasis and snail hosts in China, and the ecological, economic, and ethical implication of assisted migration to combat global warming-related extinction.

Successes and Challenges of GLOBES and Integrated Graduate Education

In the first year of the GLOBES program we have learned several lessons in pioneering a new interdisciplinary program in environmental and global health at Notre Dame. Student recruitment and curriculum development were our initial major challenges in starting GLOBES. We received official notification of our IGERT award from NSF in July 2005. This left us little time if we were to begin the program in the fall of 2005. We decided instead that it would be better to start GLOBES in the fall of 2006 and spend a year advertising widely to attract a quality applicant pool and build a stronger and better integrated curriculum.

With respect to recruiting, we quickly established a web site (www.globes.nd.edu), prepared brochures and posters, and broadcasted the program widely on all relevant list servers and to all our colleagues. We have met with increasing success in these regards. For the fall 2006 class, we received 17 applications and made nine fellowship offers. Eight students accepted our fellowship offers, comprising a well-rounded class of four women and four men, with two students coming from traditionally underrepresented groups in the sciences. Seven of the eight students entered the Biological Sciences Dept. and one the Economics and Econometrics Dept. The second recruiting effort saw a significant increase in applications to 45. Ten fellowship offers were made with seven acceptances (four women and three men, with two students from underrepresented groups). Offers to students outside Biological Sciences increased to three; however, none of the offers to Arts & Letters students were accepted. Our experience has shown that it took at least a year for our message to get out and resonate with a large applicant pool. We have had little difficulty attracting women and candidates from underrepresented groups, a problem for many IGERTs and graduate programs, in general. This may stem from the nature of the GLOBES program integrating the biological and social sciences to address world problems and from Notre Dame's Catholic character, reputation, and mission to alleviate human pain and suffering. We have yet to achieve the relative balance of about ¼ Biology to ¼ Arts and Letters students we would like to have in the program. It has taken longer for our message to reach prospective students in the social sciences. We have seen a marked increase in the number and quality of our applicants in Arts and Letters, and feel that we will be more successful in our third cohort with increased effort and coordination of

recruitment activities between the colleges.

We believe that the additional year of planning paid huge dividends with respect to curriculum development. One major benefit was that extra thought could be put into designing the courses to be more inclusive and appeal to a broader clientele of students and faculty. The added time also allowed for greater leeway in course scheduling, letting us navigate around faculty commitments to plan a more cohesive curriculum. Perhaps most importantly, the year allowed solutions to be found to issues regarding team teaching and departmental credit. By cross listing GLOBES courses with different registration numbers for participating departments and colleges, all academic units got credit for the classes.

Aside from the usual growing pains in teaching new courses, we still face two difficulties regarding the GLOBES curriculum. The first relates to differences in the academic culture and requirements among GLOBES departments. The second regards tensions with respect to the relationship of the Real World Practicum projects to independent dissertation research. As discussed above, our response to the challenge of varying departmental requirements is flexibility. A rigid sequence of required courses to be completed in a set timeline is not possible. Instead, we must tailor the program for the circumstances and needs of individual students to achieve maximal benefit. This can involve reducing credit and expected assignments in certain classes or adjusting the sequence and/or timeline that a student takes GLOBES courses.

The issue of the Real World practicum is perhaps more complicated and centers as much on the research commitments of major professors as the students. Faculty who are advising a GLOBES fellow can feel conflicted in that they may often need for the student to work on a specific, externally funded research project. However, students are also committed to spending part of their time on a team-based Real World Practicum project. The resolution of these competing time constraints again requires creativity and flexibility in finding ways that the Real World Practicum be as seamless and integrated as possible with the thesis dissertation, providing both the student and major professor with increased publication productivity and new sources of funding. The Real World Practicum tension is most pronounced for junior faculty who are under pressure to quickly establish a track record of independent scholarship and grantsmanship for tenure. The long-term solution is for Universities to gain a greater appreciation of the value of interdisciplinary research and education in regards to the tenure system and rewards equation. This will take time and would benefit from input from government agencies such as NSF.

The tension of the Real World Practicum reflects a broader set of difficulties facing inter-disciplinary programs: acceptance within the academic and administrative infrastructure of the university as a positive academic development that warrants nurturing. Without unwavering support from the faculty and significant buy-in from the administration, an interdisciplinary program will not thrive, even if it may provide substantial long-term benefits. Many faculty do not yet fully appreciate

the value-added nature of interdisciplinary programs to themselves and to the university. Being the products of a more narrow disciplinary academic and granting system where individuality has traditionally been held in high esteem and reward, some faculty find it difficult to accept that significant gain can be achieved from interdisciplinary pursuits. However, many current problems in both basic and applied research could benefit and, in certain cases, only be solved through the combined wisdom and expertise of individuals with knowledge spanning multiple fields. This does not entail lessening the importance of disciplines or departments, but rather developing more effective mechanisms to integrate the strengths of these fields to strike a more productive balance between disciplinary and interdisciplinary endeavors. It is important to stress, that interdisciplinary research and education is not for everyone. But platforms should be developed to allow those interested in contributing to interdisciplinary problem solving to have the opportunity to do so and be recognized for their contributions and rewarded when successful. Administrators are also critical in helping build these dynamic platforms and realizing that it will take time for faculty to learn how to use these platforms most effectively to increase their productivity.

The Ultimate IGERT Challenge: Long-Term Sustainability

The final great challenge for GLOBES and all IGERT awards is how to sustain the momentum of the interdisciplinary programs after the five-year NSF granting period ends. Renewal of IGERT grants is possible, but as is the case for initial awards, the process is highly competitive and a renewal should not be counted upon. Thus, almost as soon as a program is started, serious attention must be given to finding new sources of funding to assure its continuance. If not, then after a few years many faculty may feel that investing considerable effort in continuing to build the program is not in their best interests, as the rewards will be ephemeral and all will return to the status quo when the program ends. This puts IGERTs like GLOBES in a difficult position as it often takes time to see the gains in visibility and recruitment, enhanced education and research accomplishment, and increased external grant support resulting from the program. Therefore, during critical time periods when politicking for support, tangible metrics of success may only just be starting to materialize. In addition, IGERT investigators are in many instances thrust into positions of having to act as intermediate level administrators without portfolio. If no dean or department chair is an active member of the IGERT, the power that investigators can directly wield to institute infrastructural change and campaign for support can be limited. Moreover, the management structure of most universities is more likely to continue the status quo, as performance is often judged solely by accomplishments within defined units overseen by an administrator. In such circumstances, it is vital to have the blessing of the highest levels of the University's administration from the program's inception to have a chance to make a lasting impact on graduate education. If, as in the case of GLOBES, the program has the benefit of expounding a central theme of the University's mission, then this can be pivotal for partnering with the upper administration and development offices in seeking benefactors to help permanently endow the activities of the program.

A Path Worth Traveling?

In conclusion, we frequently ask ourselves whether or not the trials and tribulations of GLOBES have been worth all the effort? Our answer to date is a resounding yes. Despite the speed bumps and growing pains in establishing GLOBES, and the worries about sustaining the program, it is the team of students and colleagues that have made all the difference in the world. There is a collective sense that we are blazing new trails outside our normal comfort zones in both research and education. In addition, we are witnessing the positive effects of GLOBES on our students. The students have gained the tools and ability to world problem solve in ways that vastly exceed our own capacities. Whatever small contributions Notre Dame's GLOBES program can make to understanding and improving the human condition and environment is hope for a better future.

Acknowledgements

We would like to thank all the faculty, staff, students, and administrators at Notre Dame who through their efforts have and are continuing to make GLOBES possible and realize its potential.

Supporting Interdisciplinary Initiatives The Interdepartmental Program Climate and the IGERT Impact at Iowa State University.

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Abstract

Integrating and coordinating faculty efforts across departmental and college lines continues to be hard. The stated purpose of the NSF IGERT program is to help break down barriers to better cooperation. The two panelists will discuss whether or not IGERT grants on their campuses are succeeding in changing the campus cultures and what every university can learn from these experiences.

Iowa State has a long and mixed history of encouraging interdisciplinary graduate programs. In 1999, we were fortunate to obtain an NSF IGERT award in Computational Molecular Biology. The questions I pose are, what long lasting impact did this award have and what lessons can be learned by other institutions from our experience?

ISU Graduate Profile

In the spring of 2007 ISU enrolled 4583 graduate students, of whom 35% were PhD students. There are 116 graduate programs, 57 departments, and 7 academic colleges (plus the Graduate College). Of the 116 graduate programs, 21 are classified as interdepartmental (18% of programs). These enrolled 920 students (23% of degree seeking graduate students). Thus, interdepartmental programs are 21% larger, on average (40 vs. 33) than departmentally based programs. The programs tend to fall into two types; college based professional masters programs, and PhD programs that span several colleges. It is this latter group that is the focus of this report. Most are in the life sciences.

ISU has approximately 20 departments whose faculty expertise intersects in a major way with the life sciences. In spite of this number, departmental divisions never seem to coincide with current research interests of faculty. Starting back in 1961 a group of faculty organized an interdepartmental "Cell Biology" program because

at that time no single department focused on cell biology. Over the years, this was followed by the formation of other interdepartmental programs, and today there are 12 interdepartmental graduate programs in the life sciences, each drawing faculty from six or more departments. In the last 10 years, the interdepartmental model has expanded to include the quantitative sciences. The IGERT grant facilitated the acceptance of this mode of graduate education outside of the life sciences.

Enrollment growth in all interdepartmental graduate programs over the past 10 years is shown in Figure 1. Roughly, the number of students in these programs doubled from 1996 to 2004. During this same time period, department based graduate program enrollment was stagnant. This success was due to both the greater agility of interdepartmental programs to structure themselves in ways that mirror fields currently in vogue and nurturing by the Graduate College. In 2004, the Associate Dean position whose responsibility was to oversee interdepartmental programs was eliminated in a budget cutting move. It is not known if the plateau of program growth beginning at this time is a direct consequence of this reduced support. Certainly the pace of new program development has slowed.

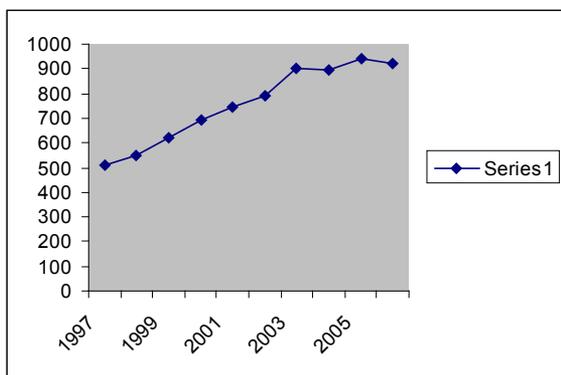


Figure 1. Enrollment in interdepartmental graduate programs from 1997 to 2006.

BCB/Computational Molecular Biology

In the late 1990s realization that DNA sequencing data was outstripping the ability to analyze it led to conversations between molecular biologists and math faculty on campus. This led to the Iowa Computational Biology [virtual] Laboratory, which rapidly spun off two formal activities: the Bioinformatics and Computational Biology (BCB) graduate program, and an IGERT proposal in Computational Molecular Biology.

The grant proposal was successful and gave the associated BCB program greatly increased credibility inside and outside the university. In particular, grant successes as well as the outstanding students recruited by the program have given the program credibility with faculty and administrators outside of the life

sciences. BCB expanded the interdepartmental model into previously unreceptive areas of Electrical Engineering, Computer Science, Math, and Statistics. The BCB graduate program and IGERT have fostered many successful collaborations between biologists and computational types. One measure of this is that the currently active grant funding of BCB faculty exceeds \$70 million.

Two of the more recently developed interdepartmental programs are also the most interdisciplinary. Bioinformatics and Computational Biology (BCB), was begun in 1999 and draws faculty from 17 departments.

Following the success of BCB, another highly interdisciplinary program, Human Computer Interaction, was initiated in 2003 without the benefit of a major training grant. HCI currently enrolls 45 students and draws faculty from 19 departments ranging from Mechanical and Electrical Engineering to Business, Education, and Religion.

Lessons for everyone

The first lesson is that interdisciplinary programs can work but they must satisfy a need not being met by existing program and departmental structure. The second lesson is that in research intensive fields, such programs cannot be designed by central administrators. They must satisfy the needs of research active faculty.

Three factors dictate success or failure of the programs:

1. The ability to attract superior graduate students.
2. The availability of adequate funding.
3. Oversight and encouragement by someone in the Graduate School whose job it is to encourage and nurture new initiatives

Our experience is that large grants, such as an IGERT are helpful, but not necessary if infrastructure funding can be arranged from other sources.

The reasons interdepartmental programs benefit the university are severalfold:

1. They encourage interdisciplinary research
2. They bring prestige to the university
3. They bring faculty to the university who otherwise might not come
4. They lead to increased faculty grant success
5. They bring in superior graduate students

Update on the Revised GRE® General Test

David G. Payne, Ph.D.
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Abstract

ETS recently announced that the launch of the revised Graduate Record Examinations® (GRE®) General Test has been cancelled and instead the current General Test will continue to be offered. The decision was made in consultation with the Executive Committee of the GRE Board. The primary reason for canceling the launch of the revised GRE General Test was concern about ensuring adequate access for test takers. While ETS and the GRE Board remain committed to improving the test, on balance, we believe the potential risk to testing access outweighed the benefits of immediately moving to the new format. In this session, GRE staff will discuss the reasons the revised test was cancelled and the value of the continuation of the current General Test.

Decision to Cancel the Revised GRE General Test

In April 2007, ETS announced that the launch of the revised GRE General Test was cancelled. The overall goal in deciding to cancel the revised General Test was to serve the best interests of test takers and score users. ETS decided to cancel the revised test because full access to the test for all students could not be confidently assured. This presentation provides a brief review of the factors that led to the decision to cancel the revised General Test, what ETS is doing to ensure access for all candidates and scores reported to all graduate schools, and how ETS plans to address the issues that the GRE Board has identified as priorities for the GRE Program.

Key Aspects of the Revised General Test Launch

The revised General Test was scheduled to be launched in September 2007. The content of the Verbal and Quantitative sections of the revised test included new question types and these changes required that new score scales on the Verbal and Quantitative sections be introduced. Changes were also being made

to the Analytical Writing section and the name of this section was being changed to “Critical Thinking and Analytical Writing”. In addition, the General Test was changing from a computer-adaptive test administered on a continuous basis to an Internet-based linear test administered on fixed test dates.

Launching the revised General Test involved meeting many important targets. Currently, the General Test is administered to approximately 550,000 individuals on an annual basis. The September 2007 administrations were critical for setting the new score scales for the Verbal and Quantitative sections, and a total of 30,000 test takers were needed for the scaling effort. In addition, 6,000 test takers were required for every test administration for statistical reasons (e.g., equating). ETS needed to be able to accommodate approximately 170,000 domestic test takers in fall 2007.

ETS projections showed that the size of the Internet-based test center network and the number of planned administration dates together would result in significant numbers of domestic test takers who would have difficulty testing in fall 2007. As a result, ETS modified the launch plans to add additional capacity and developed a contingency plan to deal with both the projected shortfall and the unanticipated shortfalls that we were certain would occur.

Modifications to GRE Launch Plans to Meet Test Taker Needs

In order to meet market shortfalls, six extra test dates were added between October 20 and December 20, 2007. The addition of these extra administrations reduced seat shortfalls from 73,000 to 18,000 and reduced markets with shortfalls from 169 to 88.

In addition, ETS planned to have laptop-enabled testing centers in large metropolitan areas. Approximately 1,300 laptops were anticipated for deployment around the United States.

Ensuring Test Taker Access: GRE Contingency Plans

A paper-based version of the revised General Test was being developed as a contingency plan to meet capacity needs. The paper-based test would be used only when and where needed. The advantage of a paper-based test is that it can be used in small administrations as well as large administrations, it does not require additional Internet-based testing centers, and ETS has extensive experience with large paper-based tests.

The Risks for the Revised GRE General Test Grew Too Large

Initial assumptions about the availability of institutional computer labs turned out to be overly optimistic. When viewed in total, the launch plans involved significant

risks that could have major impacts on access. Additional testing dates put more strain on the test center network, the laptop solution required system changes and management of another set of testing sites, and the paper-based tests would have required development of appropriate testing sites, changes in registration, and possible adjustment to score scales. In addition to these risks, feedback from graduate deans and faculty indicated that there could be no disruption in score reporting.

The overall goal was to serve the best interests of test takers and score users. ETS decided to cancel the revised General Test because full access to the test for all students could not be confidently assured. This decision was in the best interests of test takers (access to the test) and score users (uninterrupted reporting of scores). The current GRE General Test is a valid, reliable predictor of preparedness for graduate school study.

The Value of the GRE General Test

The General Test measures skills that graduate deans and faculty have identified as essential to graduate school success, including verbal reasoning, quantitative reasoning, and critical thinking and analytical writing. The General Test provides the only common measures of these skills for comparing the qualifications of applicants from different educational backgrounds and countries of origin. The General Test furnishes independent information to supplement the evaluation of grades and recommendations, and offers a valid predictor of graduate school performance, as confirmed by a recent independent study using 82,000 graduate students and over 1,700 studies containing validity data for GRE tests. In addition, the Analytical Writing section ensures that essay responses are the original work of the examinee.

GRE General Test Validity

The GRE Program recently published the results of analyses of five disciplines (Biology, Chemistry, Education, English, and Psychology) using a new approach to describing the relationship between GRE scores and success in graduate school. These analyses demonstrated that GRE General Test scores supplemented undergraduate grade point average (UGPA) information by showing that within a UGPA quartile, students with high GRE scores were more successful than students with low scores.

Figure 1 shows how GRE General Test scores improve on UGPA information. Among students in the bottom UGPA quartile, those with high GRE scores earn substantially higher grades, on average, than those with low GRE scores. And among students in the bottom GRE quartile, those in the top UGPA quartile get higher grades than those in the bottom UGPA quartile.

Figure 1: Mean First-Year GPA in Clinical Psychology Programs by UGPA and GRE Quartiles

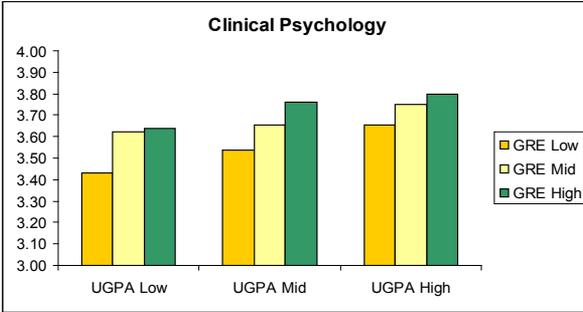
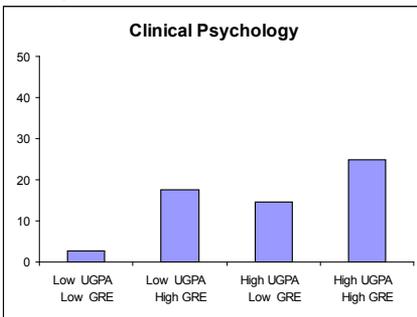


Figure 2 shows the percentage of students with a 4.0 Graduate GPA for high and low GRE quartiles within high and low UGPA quartiles. This figure addresses the question of whether GRE General Test scores help predict who might get a 4.0. If the GRE General Test adds nothing to UGPA, then the two left-most bars should be the same height, indicating that low UGPA quartile students with high or low GRE scores are equally likely to excel. Similarly, if the two right-most bars were the same height, it would suggest that for high UGPA students, GRE scores do not matter. But GRE scores do appear to matter. Figure 2 shows that there are large differences at both low and high UGPA levels.

Figure 2: Percent of Clinical Psychology Students Earning a 4.0 First Year GPA by UGPA and GRE Quartiles.



A recent meta-analysis of non-ETS researchers Nathan Kuncel, Sarah Hezlett and Deniz Ones provide additional positive evidence of the relationship of the GRE General Test to various criteria of graduate school success (Kuncel, Hezlett, and Ones, 2001). The Kuncel et al. meta-analysis analyzed data from a very large data set involving more than 1,753 independent samples based on a pool of more than 80,000 students. The results of the study indicated that:

-
- 1.The GRE General Test is a “generalizably valid predictor of first-year graduate GPA, overall graduate GPA, comprehensive exam scores, publication citation counts and faculty ratings.”
 - 2.The GRE General Test also correlates positively with degree attainment and research productivity.
 - 3.The GRE General Test has better predictive validity than undergraduate grades or letters of recommendation.
 - 4.The GRE Subjects Tests are better predictors of success than either the GRE General Test or undergraduate GPA.

This meta-analysis study is important because these results apply across a range of intended academic majors, across native speakers of English and non-native speakers of English, across traditional and non-traditional students and across master’s and doctoral programs (Kuncel, Wee, Serefin, & Hezlett, In Press).

Enhancing the GRE General Test Going Forward

In June 2007, the GRE Board and ETS staff will discuss steps going forward. It is likely that incremental changes, not wholesale changes, will be made. In addition, staff need to address capacity and access issues; ETS is committed to ensuring access to the GRE test and timely score reporting. And, the Verbal and Quantitative scores scales need to be addressed because the means and distributions for these two measures have drifted apart over time. GRE staff will continue to work with the GRE Board and graduate community to be responsive to needs for information (e.g., noncognitive skills and program “fit”).

Major GRE Program Initiatives

In 2006, the Minority Graduate Education Committee conducted focus groups with students to gather information about the perceptions, concerns and ideas from underrepresented and first generation students about preparing and taking the GRE. Additional focus groups are being planned for the summer of 2007.

ETS is working with Project 1000 on an assessment of noncognitive skills. A pilot was conducted in 2006-07. The results of this pilot will be used to make modifications to the service. An institutional pilot, with a larger selection of institutional participants, will be conducted in 2007-08.

GRE staff is in communication with a small number of states regarding access to their statewide student databases. The goal of this effort is to match the GRE scores from our database with the student records in the state databases to answer questions that the states would like answered and that ETS would like answered (e.g., the predictive validity of the GRE tests).

References

Kuncel, N.R., Hezlett, S.A. and Ones, D.S. (2001). A comprehensive meta-analysis of the predictive validity of the Graduate Record Examinations: Implications for graduate student selection and performance. *Psychological Bulletin*, 127 (1), 162-181.

Kuncel, N.R., Wee, S., Serafin, S. and Hezlett, S.A. (In press). The Validity of the Graduate Record Examination for Master's and Doctoral Programs: A Meta-Analytic Investigation. GRE Research Report. Princeton, NJ: ETS.

MAGS Committee Reports

Auditing Committee Report

The Chair of the committee reviewed the statements of assets, income and distribution, including the state of investments of the Midwest Association of Graduate Schools for the period covering January 1, 2006 to December 31, 2006. In our opinion, the financial statements present fairly, in all material respects, the financial position of the Midwest Association of Graduate Schools as of December 31, 2006.

Philip E. Pope, Chair, Purdue University

Distinguished Master's Thesis Award Committee Report

The Midwestern Association of Graduate Schools
and UMI Dissertations Publishing ProQuest CSA
Distinguished Master's Thesis Awards

Jemil N. Yesuf
Southern Illinois University at Carbondale
Lizette R. Chevalier, Advisor

Determination of Single and Multi-solute Adsorption Isotherms
Using A Nonlinear Error Functions and
Spreadsheet Optimization Technique

Abstract

The present study investigated and determined the ability of existing predictive and correlative models to calculate equilibrium sorption data of Methylene Blue, Rhodamine B, and Malachite Green Oxalate onto a commercially available activated carbon Filtrasorb 400 and an agricultural byproduct made from acid activation of almond shells. Single, bi-solute and tri-solute system experimental data were obtained by concluding batch experiments in their aqueous solutions. Freundlich, Langmuir, Redlich-Peterson, and Toth isotherms coupled with five nonlinear error measures were evaluated in single-solute systems for experimental data derived from two analytical methods, namely the UV spectrophotometer and the TOC analysis.

Results from both analytical methods showed agreement particularly at higher liquid-phase concentrations, and suggested that adsorption onto the two activated carbons is comparable for the basic dyes studied. The results also suggest that the two-parameter equations, namely, the Freundlich and the Langmuir isotherms combined with HYBRID, EABS, and ARE derived optimal parameter sets performed better than the results of combining the three-parameter models with difference errors measures. On the basis of root mean square residual error (RMSR), however, the three-parameter equations of the Redlich-Peterson and the Toth isotherm outperformed the two-parameter equations.

For the three binaries studied, nonlinearly determined single-component parameters of the Freundlich, the Langmuir, and the Redlich-Peterson isotherms coupled with the multi-component forms were used to correlate multi-component experimental data. The empirical extended Freundlich model produced the closest fit to the

binary data in each case. For the ternary sorption system, the extended Langmuir, the extended Langmuir with an interaction factor, and the Redlich-Peterson with an interaction factor were the three multi-component models examined. The latter provide a very close fit to the experimental data of each component followed by the extended Langmuir model with an interaction term. Over all, optimization coupled with nonlinear error regression analysis provided a simple, robust and computationally effective technique of producing optimal fitting parameters for the sorption models from multi-component equilibrium data and single –component optimal parameters.

Mark Zlojutro
University of Kansas
Michael Crawford, Advisor

Mitochondrial DNA Variation in Yakutia:
The Genetic Structure of an Expanding Population

Abstract

Over the past two decades, human mtDNA variation has been characterized in global populations and used as a molecular means of reconstructing human evolutionary history. But how reliable are these reconstructions? This thesis examines this question by analyzing the mtDNA structure of the Yakuts, a Turkic-speaking population of northeastern Siberia whose origin and historical demography are well understood from ethno-historical, archaeological and linguistic evidence. RFLP profiles of 371 Yakut samples from seven communities revealed the predominance of two mtDNA lineages, haplogroups C and D. HVA-I sequences for a sample subset exhibit high diversity levels, fragmented MJ network, and significant deviation in observed high frequency haplotypes from the neutral model. Multivariate analyses show close genetic affinities between the Yakuts and Turkic groups in south Siberia, which is consistent with Yakut ancestry. Coalescent dates of two founder lineages, C4a and D5a, are congruent with the timing of Yakut expansion into northeastern Siberia.

Honorable Mention Awards

Yin-Cheung Miranda Lo, Iowa State University, Simultaneous Chemical and Sensory Characterization of VOCs and Semi-VOCs Emitted from Swine Manure Using SPME and Multidimensional Gas Chromatography-Mass Spectrometry-Olfactometry System. Jacek Koziel and Han van Leeuwen, Advisors

Joshua M. Shields, Michigan Technological University, Initial Effects of Group-selection Harvesting with Yellow Birch (*Betula Alleghaniensis*) Retention on Biodiversity in Northern Hardwoods. Christopher Webster, Advisor

Committee Chair

Maria DiStefano, Truman State University, Chair

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Mary Kite, Ball State University

Cynthia Prosen, Northern Michigan University

Steven Sarratore, Indiana University-Purdue University Fort Wayne

David Wilson, Southern Illinois University-Carbondale

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John Karkheck, Marquette University

Mary Kite, Ball State University

Cynthia Prosen, Northern Michigan University

Steven Sarratore, Indiana University-Purdue University Fort Wayne

David Wilson, Southern Illinois University-Carbondale

Paul Wolf, Air Force Institute of Technology

Membership Committee Report

The Membership Committee received inquiries about MAGS and provided MAGS membership information to two institutions during the past year. Michael Heberling, President of Baker College and Roderic Hewlett, Executive Vice President of Walsh College requested materials and submitted applications. The Membership Committee reviewed the applications and recommended membership to the Executive Committee.

Committee Chair

Edith Raleigh, Madonna University

Committee Members

Marilyn Vogler, Michigan Technological University
Thomas Atkinson, Purdue University
Claire Rammel, Oakland University.

2007 MAGS Member Institutions

Illinois

Bradley University
Chicago State University
Concordia University
DePaul University
Eastern Illinois University
Illinois Institute of Technology
Illinois State University
Institute for Clinical Social Work
Keller Graduate School of Management
Loyola University of Chicago
National-Louis University
Northeastern Illinois University
Northern Illinois University
Northwestern University
Roosevelt University
Rush University
Southern Illinois University at Carbondale
Southern Illinois University at Edwardsville
The University of Chicago
University of Illinois at Chicago
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University of Illinois at Urbana-Champaign
Western Illinois University

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Ball State University
Butler University
Indiana State University
Indiana University
Indiana University Purdue University Indianapolis
Indiana University Purdue University Fort Wayne
Oakland City University
Purdue University
Rose-Hulman Institute of Technology
University of Indianapolis
University of Notre Dame
University of Saint Francis
University of Southern Indiana

Iowa

Iowa State University
Maharishi University of Management
University of Iowa
University of Northern Iowa

Kansas

Emporia State University
Fort Hays State University
Kansas State University
MidAmerica Nazarene University
Newman University
Pittsburg State University
University of Kansas
University of Kansas Medical Center
Wichita State University

Kentucky

Northern Kentucky University
Southern Baptist Theological Seminary
University of Kentucky

Michigan

Andrews University
Calvin College
Central Michigan University
Davenport University
Eastern Michigan University
Grand Valley State University
Kettering University
Madonna University
Michigan State University
Michigan Technological University
Northern Michigan University
Oakland University
University of Michigan
Walsh College of Accountancy and Business
Wayne State University
Western Michigan University

Minnesota

Bemidji State University
College of St. Scholastica
Mayo Graduate School
Minnesota State University, Mankato
Minnesota State University, Moorhead
St. Cloud State University
Saint Mary's University
University of Minnesota
Walden University
Winona State University

Mississippi

Mississippi State University

Missouri

Drury University
Missouri State University
Northwest Missouri State University
Rockhurst University
Saint Louis University
Southeast Missouri State University
Truman State University
University of Central Missouri
University of Missouri - Columbia
University of Missouri - Kansas City
University of Missouri - St. Louis
University of Missouri - Rolla
Washington University in St. Louis
Webster University

Nebraska

Chadron State College
Creighton University
Peru State College
University of Nebraska - Lincoln
University of Nebraska at Kearney
University of Nebraska at Omaha
University of Nebraska Medical Center

North Dakota

North Dakota State University
University of North Dakota

Ohio

Air Force Institute of Technology
Ashland University
Bowling Green State University
Case Western Reserve University
Cleveland State University
Hebrew Union College - Jewish Institute of Religion
John Carroll University
Kent State University
Medical College of Ohio
Miami University
Notre Dame College of Ohio
Ohio University
The Ohio State University

University of Akron
University of Cincinnati
University of Dayton
University of Findlay
University of Toledo
Ursuline College
Wright State University
Xavier University
Youngstown State University

Oklahoma

Oklahoma State University
Southeastern Oklahoma State University
Southwestern Oklahoma State University
University of Central Oklahoma
University of Oklahoma
University of Oklahoma Health Sciences Center
University of Tulsa

South Dakota

Northern State University
South Dakota School of Mines
South Dakota State University
University of South Dakota

Wisconsin

Concordia University
Marquette University
University of Wisconsin - Eau Claire
University of Wisconsin - Green Bay
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University of Wisconsin - Milwaukee
University of Wisconsin - Oshkosh
University of Wisconsin - Platteville
University of Wisconsin - River Falls
University of Wisconsin - Stevens Point
University of Wisconsin - Stout
University of Wisconsin - Superior
University of Wisconsin - Whitewater

Publication Committee Report

The Publication Committee published the *Proceedings of the 62nd Annual Midwestern Association of Graduate Schools Meeting* based on presentations from the conference held April 18 through April 21, 2006, in Chicago, Illinois. The *Proceedings* were printed by Paap Printing of Charleston, IL at a cost of \$1,000 for 250 copies. The 2006 *Proceedings* volume was mailed to all attendees of the 2006 meeting as well as to the dean of each member institution. An archival copy was sent to the Council of Graduate Schools office in Washington, DC, and copies were distributed to attendees of the 2007 meeting in Indianapolis. Plans are currently in place to publish the *Proceedings* of the 63rd Annual Meeting held in Indianapolis, Indiana.

Respectfully submitted,
Robert Augustine, Chair
Dean of the Graduate School
Eastern Illinois University

Committee Members

Frank Einhellig, Missouri State University
Carla J. Coorts, Missouri State University

Treasurer's Report fiscal Year 2006
Period Covered - 04/11/06 to 12/31/06

ASSETS

Checking Account (4-11-06)	52,929.18
Investments	
\$20,000 Seven-Year Note	\$21,505.39
\$10,000 Reinvestment	\$10,470.10
Subtotal Investments	31,975.46

TOTAL ASSETS April 11, 2006 **84,904.67**

REVENUE (4-11-06 to 12-31-06)

Membership Dues for 2005-06	175.00
Membership Due for 2006-2007	6,350.00
Conference Registration	6,000.00
Conference Exhibitors and Sponsorships	4,427.48
Investment Returns	592.48
Subtotal Revenue	17,544.96

DISBURSEMENTS/EXPENSES (4-11-06 to 12-31-07)

Conference Hotel Westin Chicago River North	35,805.41
Other Conference Expenses	4,443.43
2006 Summer Executive Committee Meeting	2,292.31
MAGS Thesis Award	1,500.00
Other Expenses	371.89
Subtotal Disbursements/Expenses	44,413.04

CURRENT ASSETS (12-31-06)

Checking Account (12-31-06)	33,957.66
Investment Account Balance	21,752.48

TOTAL CURRENT ASSETS (12-31-06) **55,710.14**

Secretary/Treasurer
Dennis Nunes, St. Cloud State University

Instructions to Contributors to the Proceedings of the Midwestern Association of Graduate Schools

Proceedings Editor

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Introduction

The instructions and timelines that follow ensure appropriate continuity and timely publication and distribution of the Proceedings of the Midwestern Association of Graduate Schools. These guidelines achieve the goal of consistency but allow freedom for the presentation of the array of topics that constitutes the Proceedings. The Proceedings include the text of keynote and plenary sessions, summaries of workshops, panel presentations and small group discussions, the Association's committee reports, and other items of concern as appropriate to support the goals of the organization. Authors should be aware that the text of oral presentations may need some modifications for clear communication as a publication in the proceedings. They should revise the presentation to make it suitable for publication.

All Manuscripts

All manuscripts must be submitted electronically in Microsoft Word format (.doc) or rich text format (.rtf). PowerPoint or similar presentations are not acceptable. The Publications Committee may edit the manuscript for clarity and formatting.

Keynote and Plenary Manuscripts

Manuscripts for traditionally delivered keynote and plenary presentations should be prepared using these guidelines:

- Title. Use the title published in the Meeting Brochure, typically 10 or fewer words.
- Authorship. Provide your name, title, institution, address, and email address.
- Abstract. The first section should be an abstract of no more than 100 words.

-
- Line Spacing. Single spaced.
 - Paragraphs. Double space between paragraphs; do not indent.
 - Headings. Use of headings to identify main topics is encouraged. Justify headings to the left and in bold.
 - References/citations. Use Chicago Manual of Style documentation style. Your references must be complete; if not, you will be contacted to provide the missing information. The editor cannot complete your references or verify them for accuracy.
 - Length. Limit the manuscript to 10 or fewer single-spaced pages.
 - Figures/artwork. Limit graphs and figures to those supported by Microsoft Office.
 - Reference. A recent edition of the MAGS Proceedings may be observed <http://associations.missouristate.edu/mags/>

Workshop and Panelist Presentations

Manuscripts for workshops and panelist presentations that were delivered as a traditional keynote or plenary session presentations should be prepared according to the Keynote and Plenary Manuscript guidelines outlined above. These manuscripts may include a summary of relevant discussion when a discussion option was included in the presentation. Manuscripts for Workshop or Panel Presentations that used a discussion format should be prepared according to the guidelines for Small Group Discussion Manuscripts outlined below.

Small Group Discussion Manuscripts

The following guidelines apply to interactive meeting sections that are under the direction of a facilitator, who is responsible for formulating key questions for discussion, moderating the discussion session, and providing a written summary for the Proceedings. After the title and authorship (facilitator), the manuscript presented to the Proceedings should start with a statement of the topic and a bulleted list of questions that served as the focus of the discussion. These elements should be followed by a concise summary (250-500 words) inclusive of the salient points, comments, or questions that arose during the group discussion. If desired, references can be included in a standard reference list according to the format specified for other manuscripts in the Proceedings.

Time Table

Manuscripts are due 60 days following the annual meeting. The 2007 deadline is Friday, June 15, 2007

Submission

Provide all materials for publication electronically as specified above to the Chair of the Publications Committee at rmaugustine@eiu.edu.

