Midwestern Association *of* Graduate Schools

Show Me the Money:

Funding Graduate Education

59th Annual Meeting

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Minneapolis, MN

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**Proceedings of the
59th Annual Meeting
Midwestern Association of Graduate Schools**

Show Me the Money: Funding Graduate Education

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Making the Case for Graduate Education:
External Audiences and New Coalitions

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Abstract

Graduate school advocates face an increasingly complex public policy environment. The national response to the tragic events of September 11th and a growing concern over declining state and federal budgets, among other issues, raise a number of new and interesting challenges for graduate deans and university officials. This paper will provide an overview of the public policy area in which graduate deans operate and provide a series of hands-on recommendations on how best to advance graduate education during these challenging times.

Today, I hope to accomplish five objectives. First, I want to give you a sense of the policy arenas that are in play in graduate education. Second, I want to provide an overview of the policy challenges we face in our community. Third, just in case you are feeling overwhelmed by items one and two, I want to reassure you that you are not alone. CGS, under the leadership of Debra Stewart, has re-ignited the federal relations flame. The Council is more active in Washington, D.C., and has a more targeted federal relations focus than ever before in the organization's long history. In less than a year's time, we have made wonderful progress in representing graduate education, strengthening existing relationships, and reaching out to new partners to advance the graduate education agenda. So the good news is we are implementing a strategic plan that will continue to pay dividends and ensure that graduate education is well represented in Washington, D.C., for years to come.

Having said that, I hope to inspire you to become more politically active – to get more engaged in the political process and to encourage you to think creatively about how your graduate program and your institution can identify and work with new stakeholders and partners to spread the word about the value of graduate education. And lastly, I hope to empower you with tools of action – so that you feel well equipped to manage and operate within the public policy arena.

But before we start, I want to conduct the first ever MAGS Public Opinion Survey. How many of you were at the CGS annual meeting in Washington, D.C., this past December?

Great, quite a few of you. So a number of you will remember that we conducted a public opinion poll. We took ten questions from an ongoing telephone survey the Gallup people do every few weeks to follow shifts in public opinion on a range of issues. We asked everyone who attended the CGS meeting to fill out a survey instrument. We compiled the data and we compared our results to the results from the Gallup poll of the American public. Given the closeness to last November's elections, the questions were largely focused on measuring attitudes about political parties, congressional and presidential leadership, and the future of the nation.

For those of you who were with us, I think you will remember how things turned out. But for all of you who were not in Washington, D.C., let's just say that when compared to the American public on political issues, CGS Deans are the best example of outliers that I have ever seen. We are not simply out there – we are really way out there when compared to the American public. But when you think about it, that's what pluralism and our unique form of democracy are all about.

Rather than put you all through another written survey, I thought I would simply ask a few questions to get us warmed up. Raise your hand to indicate your answer – ready?

Here goes:

- How many of you have written a letter, e-mailed, or called your state legislator or congressman in the last five years? This could be about any topic. How many?

- Of those with their hands raised, how many of you contacted your legislator on an issue that had something to do with graduate education?

- Okay, next, whether you have or have not contacted an elected official, how many of you think that your individual contact would have an impact on the issue of concern to you?

- Next, in thinking about your job as a dean, how many of you think it's within your purview as a dean to have direct contact with your legislators – state or federal – about graduate education?

- Lastly, how many of you think the president or the administration at your university would disapprove of you contacting a legislator on behalf of graduate education?

Well, what do these results tell us?

Approximately one-half of you have contacted a legislator about an issue. A majority of you who did contact an elected official made the contact on an issue related to graduate education. Most of you feel that your contact would have an impact on the legislative process. Only a few of you think it is not within the dean's prerogative to

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make political contacts. Finally, most of you thought your university administration would approve of your direct involvement in political matters concerning the graduate school or university.

Well, I'm impressed. A significant number of you have taken action and believe your action will make a difference. That's very impressive indeed. Once again, however, I have to tell you that your responses to this mini MAGS public opinion poll are very different from those of the average American. A very, very small percentage of the American public takes the time to contact their legislator – so once again we find that graduate deans are outliers.

The thing to remember with this exercise is that, while the general public does not typically communicate with elected officials, members of interest groups do take the time to communicate with their elected officials. Over 84 percent of Washington-based organizations – interest groups, associations, etc. – use letter-writing campaigns to get their message to members of Congress (Cook 1998, 154). So every day members of Congress are getting deluged with finely crafted messages about a host of issues from a host of groups. Some of those communications may be consistent with the graduate education agenda, while others may in fact be in conflict with our agenda. My guess is that most of these contacts with elected officials have nothing to do with our agenda except compete for time and resources of legislators – two very critical elements in the public policy environment.

While I am delighted that so many of you have contacted an elected official, I hope that after today we can boost those numbers a bit and get even more of you engaged in the political process. It is important to get you active, to have your voice out there; in fact, it is important to have a chorus of voices singing loudly about graduate education.

Political scientists have long held that members of Congress are motivated by the quest to get reelected. That is, members of Congress are first and foremost single-minded seekers of reelection (Mayhew 1974, 152). To accomplish their goal of getting reelected, members make a point of responding to constituent concerns. In fact, research strongly suggests that constituent pressures are influential in member voting behavior (Browne 1995).

That's where all of you and other stakeholders in graduate education come into play. While the role of CGS and other higher education associations is important, the difference, in my mind, between maintaining the status quo or even worse, slipping into a policy environment that is more hostile, is the active involvement of all of you – voters and constituents. So if you remember nothing else from today's session, please remember we need a chorus of voices singing about graduate education if we ultimately want to effect change in the policy arena.

Even if you agree with my premise, and I am sure there are many doubting Thomases in the audience, the question is why is your involvement particularly important now? Has something significantly altered the way things operate in Washington, D.C.?

Well, the short answer is that involvement in the political process has always been important. But things **have** changed. Let me outline just a few of these changes. First, since last November, we have had a history-making change in Washington, D.C. As we all know, there is a Republican president and a Republican-dominated Congress. For those of you who have been around awhile, you will remember how dramatically the policy focus shifted in Washington, D.C., in 1994 after the Republicans assumed control of the 104th Congress. Does the name Newt Gingrich ring a bell? And for those of you who study higher education policy, you might recall how the shift in power changed how higher education was viewed. In fact, a federal relations representative for one of the higher education associations likened the new Republican-dominated House and Senate to a "Forrest Gump" Congress: "They don't know anything about our issues and they don't care to learn. It is a daunting task to educate members about programs before they make decisions to cut them" (Cook 1998, 53). At least in this particular person's view, something changed when the leadership changed in favor of the Republican Party.

In many respects, it is too early to tell how this new Congress and administration will work together and what the policy implications may be. I think the early view of the higher education community is one of caution and concern. In any sense, things are different in Washington and I think we have to be mindful of these changes and, in fact, be as proactive as we can be.

Of course September 11th has had a significant impact on the policy environment. Policy makers are taking no chances and as a result our world has changed significantly – and, in my opinion, will continue to change. So we are still waiting to see all of the fallout from September 11th.

Another significant change – and I haven't seen any data on this – but my sense is that the bubble of higher education generally has been pierced. The perception of what we do and what our counterparts do does not seem to me to have the same shiny veneer of the past. We see legislators questioning things that have never been questioned and shining lights in spots that have not been exposed to the light of day before. I'm not passing judgment here and I don't think this is unique to higher education. A wide range of organizations and sectors – from charities to pharmaceutical companies – are experiencing similar scrutiny. It occurs to me that a shift in public perception of this sort intensifies the need to be proactive and responsive in the public policy arena. So your involvement is important at this time because of the kinds of changes that have occurred.

But it is also important to have this chorus of voices singing about graduate education because as we sit here today graduate education is being discussed in a host of policy arenas by a host of political actors. Graduate education and higher education more generally are not immune to the actions of state and federal elected officials. Think about it. Right now, at this very moment, decisions are being made across the country about state budgets and appropriation levels on the floor of your state senate or in the governor's budget office that will have an immediate impact on how higher education and graduate education are funded. White House budgeteers are taking a fresh

look at the FY2004 budget allocations given the new realities of the cost of the war. The U.S. Supreme Court is deliberating the Michigan affirmative action cases. The U.S. Congress and the U.S. Department of Education are assembling recommendations on higher education reauthorization. State governing boards and state agencies are thinking about how to best organize and manage state universities given limited funding. Somewhere right now, someone is thinking about how the organization of a graduate school fits into the larger structure of the university system in a state.

There is one more layer to this picture. In addition to the various governmental institutions, there are other kinds of groups trying to influence graduate education in the policy arena. In the University of Michigan affirmative action cases, for example, there is an organization, the Center for Individual Rights, that is playing a major role in helping the plaintiffs. The Center for Individual Rights is an organization that is driven by an ideological point of view. So interest groups of all kinds play in this arena and have points of view that may or may not follow the graduate education community's way of thinking. The key take away is that these groups, like all groups, have supporters and champions. We are competing with these groups in the policy arena, and we are competing over ideas, approaches, funding, and face time with legislators.

There is no escaping it, ladies and gentlemen, graduate education – like it or not – is in the midst of policy decisions being played out every day across the country at the state and federal level. My hope and my call to arms to all of you today is that we try to influence these decisions collectively and more effectively.

What are the key challenges facing graduate education? I want to focus on three major challenges:

- Federal and state funding
- International issues/research practices
- Successfully communicating the value of education

First, funding – obviously given the title of this conference, "Show Me the Money," all of you think this is a major challenge as well. Let me provide a brief overview of some of the specifics at the federal and state levels.

Just two months ago the Congress and President enacted an omnibus appropriation bill finishing a job that started under the 107th Congress but was never completed. The final $397.4 billion omnibus package includes a .65 percent across-the-board cut in most programs (except for Head Start, veterans' medical care, the Women, Infants, and Children (WIC) nutrition program, and NASA's space shuttle program). But it also includes double digit increases for some of the agencies important to the graduate community.

Funding for the National Science Foundation (NSF) increased by 11 percent or by $521 million for a total budget of $5.3 billion. The National Institutes of Health (NIH) increased by $3.6 billion or 15.5 percent bringing the total budget to $27.1 billion, nearly reaching its doubling target. NASA (SA&T) received $7.3 billion for an increase

of $713 million or an 11 percent increase over FY2002. The Department of Energy's Office of Science received $3.3 billion, increasing its budget by $52 million or less than two percent.

Now the bad news. Both the Javits Fellowships and the Graduate Assistance in Areas of National Need (GAANN) received cuts in appropriations. GAANN's new appropriation is $30.8 million, a 0.6 percent decrease from the FY2002 $31 million appropriation level. The Javits Fellowship program received a 1 percent reduction and is currently funded at $9.9 million, down from $10 million.

Now the for the real federal budget lowlights: if the President's tax cut package is adopted as originally proposed to Congress and enacted into law, the Congressional Budget Office (CBO) predicts a deficit of $287 billion for the rest of FY2003 and $338 billion deficit for fiscal year 2004. To make matters worse, the CBO is predicting that we will be in deficit spending through 2013.

The cumulative total of annual deficits through 2013 is projected to be $1.8 trillion. Some observers caution that the true magnitude of the deficit is far worse than indicated by the CBO. The CBO's projections assume the inclusion of $2.6 trillion taken from the Social Security Trust Fund. If those funds were made inaccessible, as many incumbent members of Congress have pledged, the cumulative total would grow to $4.4 trillion.

The CBO's projections were made before we entered the war and do not include any of the costs associated with our military actions overseas.

At the state level, the news – as you all know – is not much better.

States just filled a $50 billion shortfall to fund the current fiscal year. According to a recent study by the National Conference of State Legislatures, with only two thirds of the states able to calculate the size of their shortfalls, the new shortfall amount exceeds $70 billion. We can only anticipate that the total state budget shortfall at the end of this year will exceed $100 billion.

This conference is aptly titled "Show Me the Money." The bottom line is that there will be fierce competition for funding across the board for several years to come. So, to say the least, if for no other reason, graduate education needs to fight for its seat at the budget table to make sure that draconian cutbacks are not borne solely by the graduate schools.

The second challenge I see impacting the graduate education community deals with international students and visiting scholars.

Of course the first issue that is looming large and near is the implementation of the Student and Exchange Visitor Information System (SEVIS). As of August 1 all F, M, and J visa holders must be entered into SEVIS – over 1 million files. How many of you are ready?

CGS and others in the higher education community have been working hard to mitigate the problems caused by the accelerated schedule the U.S. Congress imposed and get the word out to anybody who will listen. We were pleased to see an editorial in *Federal Computer Weekly* calling on Congress to reconsider its actions. Among other things, the editorial stated that: "As Congress and OMB push for more improvements and reforms, they would do well to occasionally step back, listen to program managers and consider if they are demanding too much while providing too little" (*Federal Computer Weekly*, April 2003).

In addition, there were two Congressional committee hearings held in the last month on the SEVIS issue. CGS signed on to testimony given by David Ward, President of the American Council on Education (ACE).

And lastly, Homeland Security Secretary Tom Ridge noted in a recent address to AAU Presidents that he understood the frustration of implementing SEVIS. He stated:

> We still have problems we have to get through in order to make this work for you and for us. No university official should have to spend countless hours trying to enter the records of one individual student or learn that one of your students' records suddenly popped up on another school's computer. To universities and to those students, these aren't merely glitches or inconveniences. Taken together, we understand they threaten your ability to conduct research and obtain funding and attract the best students you possibly can, and they put your students and researchers at risk of severe delays, or even deportation. We have to work with you to resolve these issues. I'm going to tell you we have some very good people that have come into this department, who understand our mutual interest in getting the SEVIS system to operate to our mutual benefit. (American Association of Universities, April 2003)

Although these are positive signs, and it is somewhat comforting to know that Secretary Ridge understands the problems associated with SEVIS, so far, however, the implementation date of SEVIS has not been changed. So get ready for August 1.

With regard to delays in issuing visas, I think the biggest development has been the recognition that these delays are having a significant impact on our campus research programs. The media and members of Congress are beginning to catch on to the seriousness of this issue. But having said that, it is clear from comments made by officials at the State Department and those recently made by Secretary Ridge that security of our nation takes precedence.

At the same AAU meeting Secretary Ridge said:

> We know that your foreign students are indispensable to America's continued leadership in science and in medicine and in technology. We know that more than 40 percent of doctorates in physical sciences now go to non-U.S. citizens, and we know that nearly half the scientific and medical professionals at the National Institutes of Health are foreign nationals. And as we secure America

from terrorists, we do not want to risk losing the next Enrico Fermi or Albert Einstein. We would be a far poorer nation in many, many ways. And at the same time we cannot go back to where we once were, when homeland security was just an afterthought. With a new purpose, we're working to determine which visitors pose a threat to our safety and provide that information to all levels of law enforcement. We're providing better information to consular officials so visa procedures reflect these threat assessments. And we are working and will continue to work with you to minimize the impact of these changes on schools and researchers. (American Association of Universities, April 2003)

So once again, it is comforting to hear Secretary Ridge talk about the difficulties but my sense is that the delays will be with us for a while. This means we have to keep the Secretary up-to-date on problems and sacrifices we are being forced to make as a result of these delays.

Finally, with regard to research practices, I think our specific challenges are still unknown. We have seen a number of cabinet members and White House officials reaffirm the standing of the National Security Decision Directive 189 which articulates the national policy for controlling the flow of science, technology and engineering information produced in federally funded fundamental research colleges, universities and laboratories. So for these products of fundamental research, i.e., basic and applied research in science and engineering, they remain unrestricted.

There has been no movement on IPASS, Interagency Panel on Advanced Science and Security, although Secretary Ridge referred to IPASS as "the greatest **potential** solution we have for . . . speeding approval or reentry of researchers and students who pose no threat" (American Association of Universities, April 2003). This is unfortunately a potential, but yet unrealized, solution.

It also looks like there may be some willingness to take a second look at the subjects listed on the technology alert list. So subjects like landscape architecture and community development may no longer be included.

While the final word has not been written and we will have to wait and see what, if anything, happens to further restrict our ability to conduct research in our labs, we have, however, seen some proactive work on the part of some of the players in the scientific community. The American Society for Microbiology (ASM), led by CGS dean Ron Atlas from the University of Louisville, has initiated a program of "self-regulation." That is, the ASM has pledged to call to the attention of the public or the appropriate authorities misuses of microbiology, including the use of microbes as biological weapons. I was talking with Ron the other day and he is convinced that this proactive move has preempted harsher, more draconian restrictions that were seriously under consideration. On the whole, we have to wait and see what happens. The question remains: Who will be able to study what information?

The last challenge I would like to raise with you is more of an internal one. How do we communicate the value of graduate education? What is the best way to talk about

graduate education in the policy arenas we operate within? I have a series of questions that I would like to throw out to you for you to consider. Let me begin by asking the basic question: Do we need to talk about the value of graduate education? Do we need to try to assign it some kind of tangible value? In my opinion the answer is yes, of course – but how do we do it? Do we talk about the economic value or some measure of the public good? The Science Coalition was particularly skillful in accomplishing this for the sciences, and as a result we have seen the near doubling of the NIH budget. We can learn a lot from the Science Coalition's advocacy efforts.

Next is how do we currently communicate about graduate education? My sense is that we talk more to each other in the graduate education community than to external audiences. Do we need to consider new audiences and identify new stakeholders interested in graduate education?

Can we communicate better? Of course, but how? What are the tools we should use? As a candidate for Congress, I was always trying to engage the media by holding press conferences, sending out press releases, and trying to get free media coverage to get my message out. Most every political actor tries to use the media to carry their messages for free. Are we in the graduate community doing everything we can to maximize the media and other vehicles to communicate our story? What is our message? To whom are we communicating? Whatever our message is, it needs to be targeted and consistent.

These are important questions and, while I want you to think about these questions, be assured that we at CGS are working hard to provide answers.

Let me tell you a little bit more about what we are doing at CGS to relieve any anxiety you may be experiencing right about now. Simply stated, you are not alone in this effort. CGS is committed to advancing graduate education in the various policy arenas. While your help is crucial to our success, we do recognize that you do have a few other things on your plates.

Here are a few things we have been working on at CGS. CGS has convened a new advisory committee, the Federal Relations Ad-hoc Advisory Committee (FRAAC). The committee will advise CGS Federal Relations staff regarding public policy matters of concern to the graduate community and help develop and implement an effective advocacy strategy.

The first of its kind in CGS history, FRAAC consists of five CGS deans and five federal relations officers drawn from CGS institutions. Having the involvement of both CGS deans and university federal relations representatives on the committee provides unmatched institutional knowledge and the best political know-how available in Washington. It also underscores the important partnership that exists between CGS deans and federal relations offices. At the first meeting just a few weeks ago, FRAAC members made a number of recommendations, including developing a tool kit for advocacy, increasing CGS's visibility on the Hill, and hosting a Hill staff briefing on graduate education.

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Committee members include:

    Cindy Bank, University of Michigan
    Dean Joan Lorden, CGS/NSF Dean in Residence
    Dean Claudia Mitchell-Kernan, University of California Los Angeles
    Dean Suzanne Ortega, University of Missouri, Columbia
    Marda Robillard, Wayne State University
    Gregory Schuckman, University of Central Florida
    Dean Lewis Siegel, Duke University
    Ellen Smith, Columbia University
    Dean Harvey Waterman, Rutgers-The State University
    Nan Wells, Princeton University (retired)

We have already started to build a network of contacts with key members of Congress and staff. Based on the FRAAC committee's recent recommendation, we will focus more heavily on increasing the graduate education community's presence on the Hill.

We are in the process of building our Grassroots Program. CGS conducted an analysis of the new U.S. House of Representatives Committees for the 108th Congress. The purpose of the analysis was to determine the placement of CGS member institutions in key house member districts. A central ingredient of a successful legislative advocacy program is the ability to activate or mobilize interested parties located in targeted congressional districts. As I suggested earlier, members of Congress are more likely to respond to the requests of constituents from their home districts than nonresident contacts. Identifying CGS member institutions in key legislative districts is a first step in building the capability to strategically mobilize CGS members on issues of concern to the graduate education community. The good news is that CGS member institutions are located in over 65 percent of U.S. Congressional districts. This figure does not represent a measure of influence, but rather the potential to reach out to members of Congress based on the location of CGS member institutions. Needless to say, with over 65 percent of the members of the U.S. House of Representatives having a CGS institution located in their congressional districts, the advocacy potential is tremendous. If every CGS institution developed a relationship with their member of Congress, the strength of the collective CGS voice would be an impressive force in the U.S. Congress.

CGS is also well represented on key U.S. House committees. As you can see, CGS member institutions have coverage in important committees surpassing 70 percent. For example, in the House Appropriations Committee, CGS members are located in 73 percent of the committee members' districts, while the Subcommittee on Research, the committee that has oversight and investigative authority on all matters relating to science policy including the Office of Science and Technology Policy, has 63 percent of its committee members with a CGS institution located in a member district.

Again, if we are able to activate CGS members, the potential to communicate our messages and needs will be tremendous.

With regard to federal agencies, we have redoubled our efforts to develop contacts and work with key federal agencies including the Office of Science and Technology Policy, the U.S. Department of Education, INS, and the Department of State. As a direct outgrowth of our work, we will be meeting quarterly with Sally Stroup, Deputy Assistant Secretary for Postsecondary Education, to talk about graduate education, something no other group has currently underway.

It is clear that we cannot represent graduate education without partners. We do not have the resources or the clout to go it alone. We need others to work with us. Therefore, we have been working hard at developing our relationships with other higher education associations. To that end, CGS created the "Grad Group," a group of association representatives interested in graduate education. We meet regularly and coordinate strategies and share information. AAU, NAICU and NASULGC are members.

We have also reached out way beyond our community and met with the U.S. Chamber of Commerce to identify common areas of interest. As a result of that meeting, an invitation was extended to Debra Stewart to address the Chamber's chief policy committee in the fall. The committee is responsible for all the policy decisions of the Chamber and its affiliates. Adding the U.S. Chamber of Commerce to our list of friends would be a big help. You can only imagine the political reach they must have in the White House and in Congress.

Lastly, as my series of questions a moment ago suggest, building our communications capabilities is key. First and foremost we need to communicate better with you. If we are going to ask you to write a letter to your congressman, you need to have all of the information tools at your disposal. In addition, we are evaluating a couple of ideas like creating a newsletter dedicated to highlighting innovative research and other accomplishments on our campuses. We hope to target the newsletter to the media and state and federal elected officials. We have also started to track media, so that we can follow more closely what is being said about graduate education and how we can capitalize on those stories.

Finally, it is clear to me that to distinguish ourselves from all the rest, we need to more actively integrate the research we have at our disposal. Peter Syverson, CGS's research guru, and I have begun to think about how to do this and we look forward to hearing your input as we map out a plan.

So needless to say, you are not alone in this effort. This is truly a partnership among a number of players.

Let me close with a few practical suggestions you can take home to your campuses. If you have a federal relations officer, please work with them. They are an unbelievable resource and my experience tells me they will welcome your involvement. Next think about building a personal relationship with your legislators through campus visits, Hill visits, and district office visits. Meet with them and tell them what you are doing. Tell them that you have five students stranded in China, or that one of your

students just received a GAANN fellowship. It may seem simple, but it is very important. Work your graduate student associations on policy issues. Students are a great resource and legislators respond to students. Maximize opportunities to communicate the value of graduate education in your communities. I am sure you do this with your president or provost, but broaden your scope a bit and think of other audiences. Use this opportunity to build new relationships and new partnerships. And lastly, honor or recognize legislators that are supportive. Send them a thank you note after a favorable vote or work with the student association to hold a "graduate education legislator of the year award." All too often we forget to say thank you – and it is important to do so.

In the end, to be successful at advocating for graduate education – whether it is advocating for more money or less restrictive research practices – ladies and gentlemen, we need you.

Thanks very much for the opportunity to talk with you today.

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Response to Keynote Address

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Good morning and welcome to all of the master's focused institutions who are here. I read over the registrant list last night and discovered there are 14 master's focused institutions here, nine of which are private, three that are also Jesuit institutions. So a special hello to you. I want to thank Suzanne Ortega for inviting me to speak today to represent the voice of master's focused institutions and private institutions. Our challenges are somewhat different than the larger schools', and I think it is important that MAGS represent all of its constituents.

Today I want to spend a bit of time describing who we are (master's focused institutions) and some of our funding challenges, the importance of partnerships in funding, and the importance of research that CGS provides in making the case on our campuses for support for graduate education.

The April 28 issue of *Business Week* has an article titled "Colleges: The Coming Financial Crisis." I want to begin with a few quotes from that article. According to Patrick Callan, president of the National Center for Public Policy and Higher Education, "College costs are rising faster than any other major sector of the economy except health care." However, most colleges don't even know how much they spend to educate a student. The National Commission on the Cost of Higher Education in 1998 concluded "many academic institutions have permitted a veil of obscurity to settle over their financial operations." And the American Council on Education (ACE) analyzed Education Department data and determined that the United States spent about $240 billion on higher education in the 1999-2000 academic year. This finding suggests that the total spending is climbing at a rate of 6% annually, which is more than twice the rate of inflation. All of this comes at a time when the state spending on higher education is in a critical decline.

Lance's opening remarks focused on three challenges: cuts in federal and state dollars, international students, and communicating the value of graduate education. I would like to limit my response to the financial crisis in master's focused and private institutions and communicating the value of graduate education.

In the United States, there are almost 1,700 private institutions of higher education. Many of these schools offer graduate degrees. In most cases master's focused institutions, public or private, are part of an institution that is primarily undergraduate (PUI). Like John Carroll, the makeup of the graduate student body is primarily adult part time students, working full time, with families. The average graduate student is a

woman in her mid thirties with children, working full time. However, the funding for graduate education is very much tied to undergraduate tuition and is somewhat at the mercy of a budget that reflects this emphasis. These institutions tend to be tuition driven and work to achieve an undergraduate student body through an admission process that is becoming more and more competitive. One of the factors that incoming first year students look for are scholarship dollars. PUI's will offer students scholarship packages of institution-based funding and federal and state dollars. These offers are then considered by the students. An important factor for the institution is the tuition discount rate. This is the actual amount of tuition paid by students after the internal scholarships are removed from the actual dollar figure of the tuition. Discount rates can range from 30% to over 50%. Part of tuition increases is to cover the cost of the financial aid packages for students. And it has become a problem in that the more tuition is raised, the more financial aid is needed and so on. As the state and federal dollars diminish, more financial aid from the institution is needed by students. This has a big impact on the support that can be given to graduate education. In some schools the graduate programs are regarded as "cash cows" with little interest in relating the programs to the overall plan or vision of the institution. If they become too expensive or do not provide sufficient income, they are eliminated with little or no consequences for the institution. However, I think that is changing as competition for undergraduates increases and focus on mission becomes more critical.

Mission is very important. At John Carroll the Office of Mission serves an important function in developing and maintaining the focus of the institution. The idea of service is critical to the school and therefore is a factor in determining how the graduate programs fit into the vision of the institution. We have been especially involved in teacher education and our largest graduate program is in education. We currently are working on a grant to develop two new master's programs for teachers in science education and math education.

Increasingly we face competition for students from the state institutions. In Ohio our number one cross-app for undergraduates is Miami of Ohio. This is a recent development. However, the cost is lower and the educational value is seen as similar. So we actually don't mind when the state raises the tuition at their schools as it makes the situation more competitive for us. Locally, we face heavy competition for graduate students. We have three private schools all with lower tuition, one private school with higher tuition and a national reputation, and three state institutions with lower tuition. Programs are similar and, as companies have cut their tuition support for employees, JCU looks to be too expensive. We have little funding for graduate education at John Carroll. There is a scholarship program for teachers, a one third off tuition discount, support from employers, loans (Stafford), and a few small scholarships. We also fund about 70 Graduate Assistants each year.

Next, I want to discuss the importance of partnerships and building coalitions. Partnerships may help fund graduate education but also help to focus on the market so that decisions can be made about what graduate programs are needed or should be continued. An important group to build partnerships is local business and regional organizations. It is especially important to be aware of the economic environment

in the region since most of us have a base of working, adult students from the region. We received a CGS/SLOAN grant to investigate the possibility of Professional master's in the sciences. One of the companies that was very supportive, a biotech firm, just laid off 400 employees and is discussing moving to another area of the country that seems more friendly to their business. Clearly, we need to be working with business and local government to help to build a supportive climate for the region.

Another critical partnership for us has been local school systems. We not only provide degrees but also workshops for teachers over the summer. Many of these workshops are supported by local grants and funds. We have math and science programs and a literacy program that is being funded through federal state and local dollars. Some of these dollars come our way because we also have Centers on campus that work directly with the schools. Although funded by soft money, these Centers provide direct links to students that we would like to have on our campus. One of the challenges in building these coalitions and working with partnerships is understanding and working with each others' cultures and beliefs about education. I have found this to be a significant challenge with a current partnership that includes the Cleveland Municipal School District, a state institution and a large private institution. Other collaborations may provide resources in another way. I read that Minneapolis/St. Paul has an organization called the Associated Colleges of the Twin Cities. Macalester College and four others collectively buy equipment, supplies and share low enrollment courses. Another group to build a coalition with is alumni. Many are connected to local business and can provide direction and support for needs in the community and money for scholarships and endowment.

Finally, I think the point Lance made on communicating our message is critical and part of that message needs to be addressed by research. The question for us at master's focused institutions is not just "What graduate education?" but "Why graduate education?" at primarily undergraduate institutions (PUI). It is especially important for me and others in similar situations to have the research that is done by CGS be broken out into private and master's focused institutions. This is a strong request to provide us with information so that we can communicate our story in a more direct manner.

It is important to understand the costs of educating graduate students and from where the funding is coming. In conclusion, I took the job as Dean of a graduate school because I saw tremendous potential for graduate education at a master's focused institution. In the Spring of 2000 I was a happy faculty member and when I became Dean, the climate for higher education was already changing and the events of the past three and a half years have made my job much different than I thought. It is very important to be strategic about our choices in a difficult economic climate, and the choices need to be based on mission, the local economy, partnerships with local schools, government, small companies, and other universities. Through these methods, we can reach our potential using available funding and speak with a larger voice about the importance of graduate education in general and, more specifically, at primarily undergraduate institutions.

Revenue Culture Clash: The Institutional Cost of Profitable Programs

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Abstract

This case study examines the place and significance of Graduate and Adult Studies programs at a small Midwestern university which considers itself first and foremost a private liberal arts college. The study explores how to bridge the cultural divide that can separate undergraduate and graduate programming. It also attempts to find avenues with which to translate the rhetoric of institutional mission into operational reality.

Introduction

This paper stems directly from my appointment as Graduate Dean at MidAmerica Nazarene University last summer. Prior to this, in addition to maintaining a full teaching load (at my own request), I had reported directly to the Vice President for Academic Affairs for two years as the institution's Distributed Learning Coordinator. Neither my six years teaching at MNU nor my limited experience in administration prepared me for the task I somewhat naively undertook in the interest of serving my institution. Despite some tense exchanges and encounters, this past year has proved very fruitful to MNU as my office has purposely engaged a heretofore taboo topic: how graduate and adult programs fit within the institution's overall mission and purpose. Every faculty member had opportunity to complete a ten-question survey as well as participate in a public forum on the topic at a faculty meeting. Such an endeavor would doubtlessly prove beneficial to other institutions as well.

Dialogue Need Not Be Dangerous

I want to state early on that, not surprisingly, I have no intention of casting my institution in a negative light. If anything, I want to thank MNU for allowing what, to my knowledge, was the first such open evaluation of Graduate and Adult Studies since their inception over a decade ago.[1] There is an element of risk involved, to be sure, but I find it one worth taking – and challenge other institutions to check the pulse of faculty as it relates to graduate and adult programming. I deeply appreciate the opportunity to discuss this process because I believe it is relative to any higher education

institution, regardless of size or location. If I have stressed anything over the last year, it is that one need not fear open dialogue. So, what prompted the survey and forum at MNU?

First, when accepting the Dean's position, I inherited some baggage that was far heavier than I had envisioned. I have lost track of the number of people who took me aside in the hallways and on the sidewalk to make sure I was in the loop on all manner of issues and concerns. Second, something happened when my role changed from faculty to administration (dare I say from "us" to "them"). Well beyond professional discourtesy, I encountered some outright hostility and brazen disrespect. I had not been subjected to such treatment prior to becoming Graduate Dean (which, as I told faculty in my presentation, doesn't mean people were not saying uncharitable things about me, but they at least were not doing so to my face). Third, given the nature of concerns that had been expressed, I felt that a purposely qualitative as opposed to quantitative study was in order. My goal was to try to get at underlying issues, to be descriptive as opposed to prescriptive. In addition to identifying deep seated concerns, I sought to initiate what I trust will be the beginning of an ongoing discussion. Finally, I put forward the survey to collect some informal data which could enable the institution to be more accountable to our various constituencies – but most of all, to the faculty. At MNU they are the ones empowered by the Board of Trustees to care for the academic integrity of the institution. But they cannot do their part without a process through which they can communicate their frustrations, concerns, success stories, and so on. In other words, the survey was intended to give faculty a voice with which they could register their thoughts on this important area.

Given the comments, both positive and negative, shared with me, I prepared an online survey (intranet only) which was available from December 12, 2002 through February 12, 2003. Respondents had the opportunity to sign their name if they desired as well as request a full text compilation of the results. The survey consisted of ten questions:

1. Estimate Graduate/Adult Studies total revenue?

2. Estimate Graduate/Adult Studies total operating budgets?

3. Estimate Academic Affairs (undergrad and grad/adult) total revenue?

4. Estimate Academic Affairs (undergrad and grad/adult) total operating budgets?

5. How do Graduate/Adult Studies align with and advance MNU's uniqueness? In other words, do you find Graduate/Adult Studies "mission critical"?

6. In your opinion, is too much attention given to Graduate/Adult Studies? If yes, at what expense to other programs or services? In other words, are you comfortable with the current place (as in profile and/or overall visibility) of Graduate/Adult Studies at MNU?

7. How would you rate the academic rigor of Graduate/Adult Studies programming? Please be specific and distinguish between programs if at all possible.

8. How do you respond to the notion that Graduate/Adult Studies is merely a "cash cow"? As a follow-up: what do you think would happen were MNU not to have this revenue?

9. How, if at all, could Graduate/Adult Studies better serve MNU, our numerous student constituencies, greater-Olathe, and our educational region within the Church of the Nazarene?

10. Make any comment you wish.

We had roughly 38% response rate with 30 of 80 faculty participating; 30% (10) of the surveys were signed (but one respondent utilized a pseudonym). Two of the respondents requested a private interview rather than record their comments online. The survey noted that there would be a public discussion of the results which occurred during our April 2003 Faculty Assembly. I presented the basic findings and then opened the floor to comments and concerns (roughly 45 minutes). The survey proved extremely helpful in that it not only collected some meaningful, if anecdotal, data regarding Graduate and Adult Studies at MNU; moreover, it provided a politically-neutral (and much-needed) venue through which faculty could speak frankly to the institution as a whole or to colleagues associated with related programs. These comments, in turn, served as a springboard to a beneficial exchange in the faculty forum.

Cultural Dissonance and Institutional Mission

One of the most obvious results from both the survey and forum is that the institution must rearticulate its mission. Like every other higher education institution, MNU has been trying to navigate the constant wave of changes that seem to be redefining how we operate.

Peter Eckel notes that "the 'economic fundamentals' for many American colleges and universities have changed, creating a new playing field with a different set of fiscal rules." He contends that most universities face fewer resources, rising costs, and greater demand for satisfaction from "customers" as well as accreditors. This translates into greater scrutiny of operational models, individual degree programs, and, as a result, personnel. The bottom line, according to Eckel, is that "the demands of the increasingly influential market to do new things and to set new priorities are difficult to meet without the extra cushion of uncommitted resources that was available in the past" (Eckel 2002, 237). David Garvin would argue that this change has been in process for quite some time. Writing in 1980, he believed the economic impact, while undoubtedly affecting program quality, would be especially noticeable in terms of institutional prestige or perceived reputation. While larger, better known schools would likely thrive, he anticipated that "the lower quality private institutions – especially the large urban universities – [would] be forced to resort to a service strategy, respond-

ing largely to the manpower needs of their local communities in an effort to remain competitive." In other words, Garvin warned that those schools which lacked prestige will place an inordinate focus on enrollment as opposed to programming (Garvin 1980, 62). Economic changes have only been compounded by global demographics. George Keller makes plain that higher education institutions must come to terms with a swiftly aging population, with what he aptly labels "gerontological drift." According to Keller, this phenomenon has already "begun to affect college and university programs, facilities, and pedagogy" (Keller 2001, 221). Reduced to the essentials, Daniel Layzell argues that, in addition to competition from the increasingly aggressive for-profits, "the identification of niche markets and the demand for specialized programs are shaping the way higher education institutions are beginning to think about business" (Layzell 1997, 97). While the faculty at MNU did not speak in these terms per se, they voiced these very concerns.

Let me take just four of the questions and provide four random responses from each (representing both the positive and negative perceptions – all comments are verbatim from the survey).

Q5. How do Graduate/Adult Studies align with and advance MNU's uniqueness? In other words, do you find Graduate/Adult Studies "mission critical"?

1. I think they are evolving into an entity that is more mission centered. It is easy to develop a cloistered attitude that eventually becomes an "us-them" perspective, to the degree that allows us to be self-ostracized. (not much of a witness in my opinion)

2. Absolutely, we are behind in these programs and we need to be creative and aggressive to met the customer needs.

3. The programs should be a natural outcome of our mission and, I think that our mission suggests that we serve the graduate and adult student. However, the programs have been presented by the administration and even the programs themselves as being primarily money generators. This is unfortunate.

4. We are constantly told that we must have the graduate and adult programs to compete because everyone else has it. So it must not be unique. I do not believe that it was what the general church had in mind when MidAmerica was founded. In order for it to serve our mission, it must serve an evangelical purpose. I think this is occurring to a certain extent, but I understand that some professors teaching in the program are not even Christians. If this is the case, how can they have a Christian influence on the students?

Q6. In your opinion, is too much attention given to Graduate/Adult Studies? If yes, at what expense to other programs or services? In other words, are you comfortable with the current place (as in profile and/or overall visibility) of Graduate/Adult Studies at MNU?

1. No, too much attention is NOT given to graduate/adult studies. The market for these programs is local so the visibility of marketing efforts will be more visible in this area then the marketing efforts for the traditional programs. The traditional programs market to a much broader area and so marketing efforts for these programs are not as visible, literally.

2. No, more attention should be focused because its "the wave of the future"

3. Yes. Every meeting I attend, I hear about the wonderful things occurring in the graduate/adult programs. Everything I hear about the traditional programs is negative: We lose money; We are only here because the graduate/adult programs make money for us; We are full of useless and obsolete majors; etc. The Dean [VPAA] announced at a meeting last spring that the only budget increases in academics would go to the graduate/adult programs. With this approach, the traditional programs will continue to get weaker and less competitive.

4. A whole lot of the institution's public face is the graduate and adult programs. Too little effort seems to be put into emphasizing, to the general public, our traditional undergraduate programs. Many of the faculty members in those programs feel neglected in this regard. If we put as much effort into advertising, etc. for the undergraduate programs as we due the graduate and adult, I think those other programs would grow as well.

Q7. How would you rate the academic rigor of Graduate/Adult Studies programming? Please be specific and distinguish between programs if at all possible.

1a. I can only speak specifically about 2 programs. I would say they are not especially rigorous . . . but given the population, maybe that's okay. In working with adult populations, there must be a very good balance between academic rigor and program friendliness.

1b. From feedback I hear it meets expectations and in some respects it is more rigorous than many others.

2. I think the academic rigor element is a struggle for some because of the difference in philosophies of what an academically rigorous classroom experience is supposed to entail.

3. I like the independent study aspects of these type of programs. However, it seems to me that there is a lower accountability for off-campus adults (all these programs) than there is for the traditional programs. Some of the materials submitted (projects, theses), therefore, have varied a great deal in quality, some have been excellent, some, I believe, have not been the appropriate level of work (based on reports and observation)

4. I perceive Adult studies here at MNU as a joke. Why not just give them their degree as soon as we get their money.

Q8. How do you respond to the notion that Graduate/Adult Studies is merely a "cash cow"? As a follow-up: what do you think would happen were MNU not to have this revenue?

1. I am grateful for Graduate/Adult studies for several reasons. a) opportunity for greater, positive exposure of the institution with the community, b) chance for many who did not have a "Christian" academic experience during some or all of their undergraduate schooling to now experience such, c) there is no PR or advertisement better than that of students who have been positively impacted by personal, academic experiences, d) this program is fiscally viable and dynamic. My take on the "cash cow" perspective is that some are resistant to change or that which is out their immediate control or influence. What would happen if this revenue were not available? I would probably have to look for another job as this institution would be in big trouble in my opinion.

2. MNU would struggle significantly without Grad/Adult Studies. If we were truly rigorous in all our programs, traditional as well as Grad/Adult, we would struggle financially. A school like ours is too often driven by finances at the expense of challenging education. But that is reality.

3. A Cash Cow is a good term as far as I am concerned. We could operate MNU at a designated lower level, fewer programs, fewer support staff, and do really well, what we do.

4. Yes, I believe it is a cash cow. But again, it is necessary and I believe they do have an important place for some people. I don't believe they are academic powerhouse type of programs. But I'm not sure any of our programs would classify this way. It seems our goal is about "caring," more than "challenging" in the way of student life.

These comments illustrate a somewhat bi-polar institutional culture. This audience is well aware that the literature on organizational change seems to grow by the hour.[2] It is not possible for me to engage this literature as completely as is warranted. Instead, I wish to note that quite simply, in struggling to remain competitive (or just to keep up at times), MNU has lost touch with itself as an academic community – and a shared sense of mission in particular. MNU is one of the "more than 120 public and private four-year colleges [that have] change[d] their names and become universities" since 1990 (Morphew 2002, 207). Even more destabilizing, change at MidAmerica has been "episodic" as opposed to "continuous." Weick and Quinn articulate the generally negative impact of this change climate:

The basic tension that underlies many discussions of organizational change is that it would not be necessary if people had done their jobs right in the first place. Planned change is usually triggered by the failure of people to create continuously adaptive organizations. Thus, organizational change routinely occurs in the context of failure of some sort (Weick and Quinn 1999, 362).

In other words, then, the survey and forum revealed several deep-seated issues which need to be addressed before the institution can expect to move forward with fresh Graduate and/or Adult Studies programming. Under "Make any comment you wish," two respondents zeroed in on the significance of this fact:

> I believe the graduate and adult programs have a place at MNU, but not at the expense of our traditional programs. I am also concerned that we are putting all of our future into these programs. These programs rely on the pool of students in our immediate area. What happens to MNU when this pool begins to dry up? We must be willing to use our financial resources and manpower to grow all programs.

> Resistance is going to happen. If the governing body has heart-felt belief that a program is a positive, healthy extension of the university then some division may just be par for the course. "Growing pains" might be the term used for what this survey is all about. Natural and normal for a "dynamic" versus "static" entity such as a college or university.

Conclusion

I knew that some of the faculty were concerned about the how Graduate and Adult Studies generated revenue. I also had been warned by well-meaning colleagues that I needed to investigate Graduate and Adult Studies operations generally speaking. Thus, I had very limited objectives in mind with the survey and forum. They were primarily intended as vehicles with which to gather some basic information on how Graduate and Adult Studies are perceived on campus. Central to this process was allowing faculty the ability to speak freely. Above all else, I sought to initiate a fresh and collegial dialogue on a sensitive subject. To a certain degree, the survey and subsequent forum were a success in that they met the basic objectives.

Like many higher educational institutions, MNU has a history of "disjointed dialogue," of trying to fix things too quickly. Faculty need time to mull over and speak in non-threatening settings; moreover, the administration needs to purposely revisit issues to demonstrate that they are of genuine concern. To help move MNU from this rather innocuous beginning to a more productive end, I have offered to personally meet with any division which would like to express concern or seek clearer understanding of any aspect of Graduate or Adult Studies programming next Fall. My intent here is to function as an intermediary of sorts between each end of the question or concern—opening a two-way dialogue, rather than dissecting graduate and adult programs. In doing so, I am confident that my colleagues will find affinities that they did not realize existed.

I was fortunate to inherit programs that were generating sizeable return to the institution, were respected in the community, and were well managed by directors. I had the privilege of simply "putting wood in the firebox" as opposed to "cleaning house" when assuming the position of dean. Even so, the survey and forum showed that

there was more work to be done than I anticipated. I have discovered over the last year that many of the questions and concerns regarding Graduate and Adult Studies really are global in nature. In other words, this survey and forum have proven that the institution as a whole is grappling with common issues: e.g., academic rigor, accelerated programs (including summer school), the role of adjuncts, customer service, load balance, etc. My goal is to move this discussion out of an exclusively Graduate and Adult Studies context to a more encompassing dialogue which will bear fruit for the institution as a whole.

Notes

[1]The author would like to thank Dr. Frank Moore, Vice President of Academic Affairs at MNU both for his openness to this study and his support in helping move the institution to a more positive cultural climate. Thanks also to Mr. Jeremy Menning for his assistance in putting the survey online and to Mrs. Mary Mays for never tiring of my interlibrary loan requests.

[2]For additional sources on institutional change, see: Fullan, M. 2001. *Leading in a culture of change*. San Francisco: Jossey-Bass; Kempner, K. 2003. The search for cultural leaders. *The Review of Higher Education* 26 (Spring):363-385; Kezar, A. and P. D. Eckel. 2002. The effect of institutional culture on change strategies in higher education. *The Journal of Higher Education* 73 (July/August):435-460; Marcus, L.R. 1999. The micropolitics of planning. *The Review of Higher Education* 23 (Fall):45-64; Swenk, J. 1999. Planning failures: Decision cultural clashes, *The Review of Higher Education* 23 (Fall):1-21.

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Funding for Graduate Students: The Model at Mayo Clinic

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Abstract

Mayo Graduate School is one of three degree-granting schools of Mayo Clinic. Its primary mission is to train Ph.D. and M.D./Ph.D. biomedical scientists. When the school was established in 1984, institutional funds were committed to support the stipends and benefits of the 25 Ph.D. and 6 M.D./Ph.D. students accepted each year. This stable support allows Mayo Graduate School to compete for outstanding students and to give these students maximum flexibility and focus on their training. Recently, external funding from NIH and other sources has become increasingly important in sustaining the mission of the graduate school, but the stable institutional support remains strong.

The Context – Mayo Clinic

A brief history

The origins of Mayo Clinic go back to the mid 1800s with the frontier medical practice of William W. Mayo, M.D. Dr. Mayo and his wife emigrated from Manchester, England, and followed the movement of settlers to what was later to become Minnesota. Dr. Mayo established his practice first near St. Peter, Minnesota, and later in Rochester in the southeast corner of the state. The Mayos' two sons, William and Charles, grew up in Rochester and went off to medical school to learn the latest medical advances of their day. In the late 1800s they returned to join their father's practice.

As the medical practice of the Mayos grew they rapidly became known throughout the region for their quality of care and expertise. Patients traveled many miles to be treated and the skills of the Mayo brothers were extraordinary for their day. They began to specialize between the types of cases they treated, realizing the benefits this provided in the long run. Soon they could not treat all of the patients who came to their doors and they had to come up with a way to extend their reach. Contrary to the practices of their day, they decided to focus on recruiting other clinicians with complementary special expertise, as well as to create a system for all to work together as a group rather than as independent practitioners. These concepts of specialization and group practice, so common today, were very novel and ahead of their time. The rest, in short, is history. Through the early part of the 20th century the expertise of the doctors Mayo became legendary throughout the world and the number of

physicians working in their group continued to grow.

Mayo Foundation, the legal name for the non-profit corporation which includes all Mayo activities, was initiated with the life savings of William and Charles Mayo at the time of their retirement. From the humble beginnings of these talented physicians has grown an organization of over 35,000 physicians, scientists and health professionals with activities that reach way beyond the Rochester, Minnesota, campus. In the mid 1980s the decision was made to expand to other regions of the U.S. Smaller, almost full-service Mayo Clinics were opened in Jacksonville, Florida, and Scottsdale, Arizona. Today these sites each include close to 300 physicians and a full complement of allied health professionals. These two sites also continue the Mayo traditions of integrating patient care, research and education.

Education and research at Mayo Clinic

Less well known than the clinical mission of Mayo are the extension resources and engagement with research and education. The core values of discovering new knowledge and contributing to the next generations of clinicians and scientists run as deep as the commitment to quality health care. The Mayo brothers always were testing new procedures and studying whether or not they improved the clinical outcomes. They knew that the highest quality of care could only be given when one was both helping to create and adapting to new advances. A portion of the practice revenue was always set aside for doing research and sending staff around the world to keep abreast of new treatments. They welcomed other physicians to Rochester to learn what they were doing. This flow of clinicians to Rochester demonstrated to the Mayo brothers the importance of continued training even after medical school. Again ahead of their time, the Mayo brothers created some of the first formalized postgraduate training programs, a practice that revolutionized medicine and led to the current model of medical training. Today, there are roughly 1,000 M.D. residents and clinical fellows in training at Mayo.

At the same time, in the early 1920s, the basic science research activities began to grow. In collaboration with the University of Minnesota in Minneapolis, graduate research training was begun. The first Ph.D. degree for work done at Mayo Clinic was granted through the University of Minnesota in 1919. Research training at the post-doctoral level also began. In the 1970s the interest in formal education grew to the point where the decision was made to begin Mayo Medical School. The mission of the medical school was to train young physicians in the Mayo model of medical care, building on the collaborative approach that had become the key to quality of care. Initially Mayo Medical School was a joint venture with the University of Minnesota, but in 1983 Mayo Medical School became an independent school accredited by the Liaison Commission for Medical Education. The size of the school has purposely been kept small, 42 students per year, to allow the highest possible quality of education. Ph.D. degrees were awarded by the University of Minnesota until 1983, when Mayo Graduate School was created as a separate degree granting school. Mayo Foundation was accredited as a free-standing, degree-granting institution by the North Central Association of Schools and Colleges, Commission on Higher Education, in 1984.

The research mission at Mayo also continued to grow throughout this time. Today, there are approximately 150 primary research scientists in Rochester and about ten at each of the Jacksonville and Scottsdale campuses. There also are roughly 500 clinicians with a portion of their time dedicated to clinical studies. Over 400 Ph.D. and M.D. postdoctoral research fellows also play a key role in research. In 2002, the annual research budget was $324 million with $131 million coming from Mayo resources and $193 million from external sources, predominantly the National Institutes of Health (NIH). There are a few key attributes of research at Mayo that contribute to its success. A strong and effective centralized administrative structure provides truly exceptional infrastructure to support research scientists. A series of "Research Core Facilities" (the modern and expensive research technologies needed by all biomedical scientists) are supported by the institution to ensure that everyone has access to them if their research requires them. Salaries and benefits for all levels of research staff, including technical and postdoctoral scientists, are standardized and determined by institutional policy. Thus, everyone has the same access to high quality medical insurance and other benefits. Overall, the design and effectiveness of support for research at Mayo allows for a high efficiency of research productivity which serves as the foundation upon which the graduate school has been built.

Mayo Graduate School

Curriculum of the integrated program

The preceding context is important to an understanding of the unique features of both graduate training and funding of students at Mayo. As indicated earlier, Mayo Graduate School became a Ph.D.-granting school in 1984 and the first Mayo Ph.D. degree was awarded in 1985. Approximately 25-30 new Ph.D. students are accepted into the program in biomedical sciences each year. Six students are also accepted annually into the M.D.-Ph.D. program, which is a combined program with Mayo Medical School. Thus, about 130-135 students are in Ph.D. training at any point in time. Students apply to and enter the Ph.D. Program in Biomedical Sciences without initial commitment to a particular Ph.D. area of specialization. A single Admissions Committee reviews all applications and admits students without regard for their intended area of graduate study. This gives students the latitude to spend the first year getting core knowledge in the various fields before committing to one at the end of their first year. The Core Curriculum includes three required basic science areas and a menu of other options students choose from to build their area of expertise. Laboratory rotations, advanced didactic courses, and qualifying examinations are similar to most biomedical Ph.D. programs.

By the beginning of their second year students choose among eight "tracks" to follow, including:

- Biochemistry and Structural Biology
- Biomedical Engineering
- Cell Biology and Genetics

- Immunology
- Molecular Neuroscience
- Molecular Pharmacology and Experimental Therapeutics
- Tumor Biology
- Virology and Gene Therapy

Graduate faculty usually align with two or three of these tracks based on their research interests as much or more than their departmental affiliation. Students, however, can independently choose their thesis mentors and Ph.D. tracks irrespective of the primary alignment of the mentor with the track in which they are studying. Thus, the Ph.D. program at Mayo is a highly student-centric model giving students maximum flexibility to identify and build their interests.

Financial support for Ph.D. students

Probably the most unique element of the Ph.D. program at Mayo is the school's ability to guarantee a minimum of five years of full support from the Graduate School. When the school was established in 1989 the institutional leadership recognized that if the new school was to compete with the many well-established graduate programs for top students, Mayo Graduate School would have to provide the same level of financial support being given to students by these programs. To accomplish this a separate stipend and benefits budget line was established that provided for the planned size of the graduate school, assuming that students would require 4-6 years to complete the Ph.D. An additional budget line was created to fully support the six students per year who enter the M.D.-Ph.D. program. Support for these students is provided at the graduate school level for the entire 7-9 years it takes to complete both degrees. This generous support allowed for aggressive recruitment and stable support for students. It guaranteed that students would have maximum flexibility to choose their thesis mentors rather than only choosing from those who could support them. It also meant that the Graduate School became a great additional asset for the research mission of Mayo.

External financial support – NIH Training Grants

This "jump-start" for the graduate school by the institution was provided with the expectation that the school and faculty would actively seek extramural funding to replace some of the institutional support and/or allow the school to grow. By far the largest sources of graduate student support in the biomedical sciences are training grants from NIH. NIH is in the business of supporting programs and institutions that have demonstrated they can attract, educate and graduate outstanding Ph.D. students who go on to successful research careers. Some simple math reveals that it will take quite a few years to establish such a track record. With an average time to degree of a little over five years, and average lengths of postdoctoral training extending to almost that length of time, it was anticipated that at least 10-15 years would be needed. That turned out to be an accurate estimate as the first NIH predoctoral training grant was awarded to the immunology program in 1996. Since that time, two additional training grants have been awarded, recognizing the quality of students and their

training, to help support the program.

One of the most prestigious NIH predoctoral awards is the Medical Scientist Training Program (MSTP) from the National Institute of General Medical Sciences. These awards support M.D.-Ph.D. training, usually providing 25-30% of the student costs for programs that are awarded MSTP grants. As an example of how much effort and how much time it can take to compete for NIH training grants, the first application for MSTP funding by Mayo was submitted in 1993. The site visitors for that application recognized the outstanding support being provided by Mayo but found many areas for improvement. Development of the program continued for several years, including a change in leadership in 1994. The next application was submitted in 1998. Again, the site visitors noted many strengths but continued to have concerns over the cohesion of the program. Following three more years of work on the program, a third application was submitted, this time successfully, and the MSTP grant support will begin on July 1, 2003. Patience, persistence, and careful attention to feedback from the peer review system are required.

A Variety of Sources for Funding Graduate Training at Mayo

Although the NIH is the largest and most common support of biomedical Ph.D. students, there are several other sources that have proved valuable for support of students in Mayo Graduate School. Nationally, NSF is the second largest provider of graduate student fellowships, but it seldom supports students in biomedical Ph.D. programs. An occasional Mayo Biomedical Engineering student receives NSF funding. A few private foundations have provided fellowships for Mayo graduate students, but again very infrequently as these are very limited in number. A significant endowment from an individual benefactor provides complete support for one new M.D./Ph.D. student each year for the duration of their training. Demonstrating to individual donors the vital role that young scientists play is definitely something to pursue.

The table below summarizes the sources of funding for Mayo Graduate School students in 2002.

Total Graduate School Budget	$6.20 million
Administrative Costs	$0.60
Student Stipends and Benefits	$5.60
Federal training grants	$0.37
Individual federal fellowships	$0.32
Faculty grants and budgets	$0.23
MD/PhD endowment	$0.25
Indirect costs	$0.04
Mayo Institutional Cost	$5.01 million

Funding for Development of Potential Graduate Students

A major focus of the Mayo Graduate School recruitment and student development effort has been on providing research experiences for undergraduate students. There is no four-year college or university in Rochester, so these efforts have focused on college students from around the U.S. Each summer, 75-90 college students join Mayo faculty research labs for an "immersion" in biomedical research. Summer Undergraduate Research Fellows (SURFs) receive a stipend of $4,000 to support their living expenses for ten weeks. In addition to their research, the SURF program provides seminars, exposure to a wide array of biomedical opportunities, and career advising to help students choose their paths and make informed decisions. Stipend costs alone are in the $300-$360,000 range. Approximately half of these costs are provided by individual faculty mentors and the other half come from a variety of grants from NIH, non-profit foundations, corporate foundations, and individual donors.

An additional major effort centered in Mayo Graduate School is the NIH-funded Initiative for Minority Student Development (R 25 GM55252). This award of over $600,000 annually provides student and administrative costs for students at several different levels and types of training, including:

- SURF
- Postbaccalaureate research
- Medical student summer research
- Certificate and Master's in Clinical Research for medical students
- Combined M.D./Ph.D. program with University of Puerto Rico

The postbaccalaureate research component is quite unique in that it allows for recent college graduates to spend one or two years doing mostly research but taking up to one graduate level class each quarter. It is for students who graduate from college not quite sure of or confident enough to jump into Ph.D., M.D. or M.D./Ph.D. programs. The goal of the program is to increase the number of underrepresented minority scientists while recognizing the importance of students finding the best paths for them. Since its inception six years ago, about 95% of those who enter the program end up continuing into graduate or medical training, with about 40% choosing Ph.D. or M.D./Ph.D. training. The other goal of the program is to help students who enter medical school see clinical research as an important and exciting option. A number of the students who went on to medical school appear likely to head in this direction.

Summary

Mayo Clinic and Mayo Graduate School represent a model of support for graduate student training quite different from most universities. The model in many respects is more like a research institute model. Still, many of the same vehicles that support graduate training at universities play an important role at Mayo and the expectations for the school to successfully identify and compete for extramural funding is high.

New Revenue Streams for Support of Graduate Students

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Abstract

This section of the panel discussion lists various federal programs that award graduate felllowships and training grants.

I will just take a moment of your time to provide a quick overview of the major fellowship and traineeship graduate education and postdoctoral programs funded by the federal government. In fiscal year 2003, the federal government provided over a billion dollars of funding for graduate students and postdocs. The National Institutes of Health provided just under 69 percent of all of the funding available, close to $700 million. The National Science Foundation, the second largest source of funds, contributed about 15 percent or nearly $150 million. The Department of Education with its four postsecondary funding programs gave out $74 million dollars in aid to students, ranking third in the list of major sources of funds at 7 percent.

As indicated in the table below, the Department of Defense, EPA, NASA, Department of Agriculture, Department of Energy, and the State Department all have programs targeted to either graduate students or post docs.

In addition to these programs in the various departments, the newly created Department of Homeland Security has just announced the creation of a **new** undergraduate scholarship and graduate fellowship program. The good news is that there is a new funding program for graduate students. The bad news is that students must send the department a written notification of their intention to apply by Wednesday, April 30, 2003, with applications and transcripts to follow no later than Monday, May 19, 2003. This first DHS competition for scholarships and fellowships is for study beginning fall 2003 in areas deemed relevant to the department's mission such as "physical, biological, social, and behavioral sciences, engineering, mathematics, and computer science." DHS materials describe the awards as providing "competitive stipends and tuition allowances." When the program is fully operational, it is expected to support up to 100 new students each year at both the graduate and undergraduate levels. More information on the programs is available at <http://www.orau.gov/dhsed/> .

FY2003 Funding Levels of Major Fellowship and Traineeship Graduate Education and Postdoctoral Programs in the Federal Government
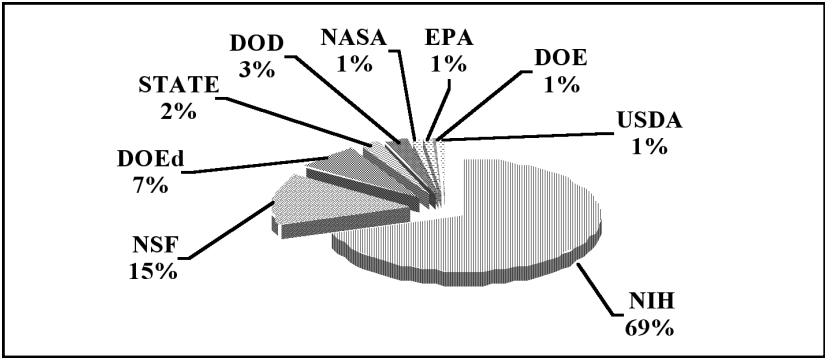
National Institutes of Health (NIH)   **$693 million**
    Ruth L. Kirschstein National Research Service Awards (NRSA) --
        Individual Predoctoral awards + Postdoctoral Awards
    Institutional Research Training Grants --
        Institutional Predoctoral awards + Postdoctoral Awards

National Science Foundation (NSF)   **$149 million**
    Graduate Research Fellowship Program (GRF)
    Graduate Teaching Fellows in K-12 Education (GK12)
    Integrative Graduate Education and Research Training Program (IGERT)
    Vertical Integration of Research and Education in Mathematical Sciences (VIGRE)

United States Department of Education (ED)   **$74 million**
    Foreign Language and Area Studies Fellowship (FLAS)
    Fulbright-Hays Doctoral Dissertation Research Abroad
    Graduate Assistance in Areas of National Need (GAANN)
    Jacob K. Javits Fellowship

United States Department of Defense (DOD)   **$29 million**
    National Defense Science and Engineering Graduate Fellowship Program
    National Security Education Program

Environmental Protection Agency (EPA)   **$10 million**
    Science to Achieve Results (STAR) Program

National Aeronautics and Space Administration (NASA)   **$9 million**
    Earth System Science Fellowship Program
    Graduate Student Research Program (GRSP)

United States Department of Agriculture (USDA)   **$6 million**
    National Needs Graduate Fellowships

United States Department of Energy (DOE) $5 million
   Computational Science Graduate Fellowships

United States Department of State (STATE) $22 million
   Fulbright Grants for Graduate Study and Research Abroad

(Table and data generously provided by American Association of Universities)

Graduate Fellowships as New Revenue Streams into the Graduate School

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Introduction

Unlike professional schools and certificate programs, graduate programs in academic departments are rarely defined as cash cows. In fact, with the stipends, tuition scholarships, and cost of research, graduate schools are a significant reason why universities are non-profit organizations. The function of academic graduate programs is **not** to make money or even to break even. Their function is to generate research and train the next generation of researchers or practitioners. The academic reputation of the university rests on how good these products are. Unfortunately, while the costs of doing graduate education are easy to compute, the benefits are not and when times get tough, graduate programs and graduate schools can be slow-moving targets.

One way to support graduate students is to have them support themselves through outside fellowships or grants. The problem is connecting a good applicant to an appropriate fellowship sponsor. These are the strategies that I have used at Notre Dame to communicate with my graduate students.

- **Newsletter**
  In 1990, a graduate student and I sifted through fellowship information from various sources – flyers, books, databases – and published a short blurb on each relevant funding possibility in a monthly Graduate Fellowship Newsletter. Fellowships with upcoming deadlines were listed in the four-page newsletter that was sent out to every graduate student (circulation 1,500). At the end of the year, the fellowships were sorted and compiled into a book. Annual publication costs for the newsletter, compilation, and student stipend were $11,000. This was about what a good fellowship was bringing in twelve years ago. All I needed was one new fellowship to break even.

- **Database**
  The newsletter was not expensive, but it did kill a lot trees, and students found it tedious to read through long lists of fellowship opportunities that were irrelevant to their research interests. Therefore, in 1998 my graduate student editor put a year's worth of fellowship information into the FileMakerPro software program and developed a searchable, on-line graduate fellowship database.

  Now students could generate a personalized annual compilation of fellowship opportunities. However, it is important for students to know that the database

MAGS

exists, so I still publish a one-page newsletter once a semester to advertise the database and tell (university-funded) graduate students why they should apply for outside funding.

Of course today it is not necessary to generate your own database, if you have the money. The Community of Science, IRIS, RAMS, and web pages for specific grant fellowship opportunities (e.g., NSF, Smithsonian) provide searchable, on-line databases.

In fact, I considered shutting our homemade database down this year but before I did, I asked my current database manager to compare fellowship entries among the several databases. We discovered that each held some unique entries. For instance, a sociology graduate student would find in our database 20 fellowships that do not appear in the Community of Science database, historians would find 16, and physicists, one. So we will keep our database running for a while longer.

Newsletters and databases are obvious and passive means to get a graduate student's attention. More active methods include:

- **Grant Writing Workshops**
  The offices of research and graduate studies jointly conducted these campus-wide workshops for faculty and graduate students. I also get invited by departments to describe the database and give tips on writing fellowships. This personal contact also elicits several office meetings with individual graduate students.

- **Personal Invitation**
  For certain multiyear fellowships, I search through the files for likely winners and personally invite these students to apply. For example, Notre Dame has a university fellowship program that supports the top 10% of incoming classes. I e-mail the first year science and engineering students and historians and philosophers of science early in the fall inviting them to apply for the NSF Graduate Fellowship. I tell them that they have the credentials to win the fellowship and point out the monetary advantages and prestige. I give the web address for the application and the office of research contact for electronic submission of the application. Generally, we get two or three new NSF Fellows a year that way. With the Liebmann Fellowship, I use undergrad credentials, graduate GPA, and recommendations from directors of graduate studies to generate a list of the best third year graduate students in A&L. I invite them to apply, walk them through the process, and edit their purpose statement. Generally, we get two fellowships for every three nominations in this selective competition.

- **Grant Writing Fellowships**
  What better way for a graduate student to learn the art of writing a grant than to assist faculty members in their search for sponsors, the collection of preliminary data, the search through the literature for information, and the actual writing and editing of the proposal? This is what I hoped four years ago when I started the

competition for summer fellowships for graduate students. Judging from the end-of-summer reports submitted by students and the number of proposals submitted by faculty, this program has been quite successful.

Have any of the aforementioned activities worked?   In this uncontrolled experiment, all I can say is that there are more fellowships on our campus today than in 1990.

Outside Fellowships

Academic Year
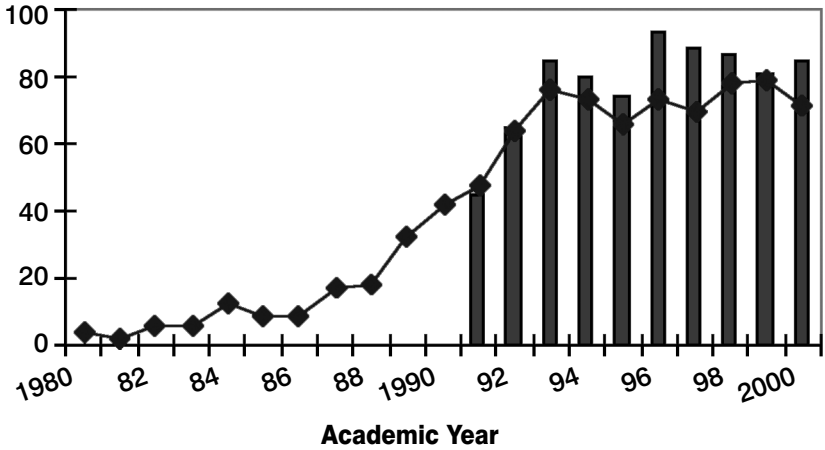
Widening Gaps in Graduate Education

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Abstract

In the closing decades of the twentieth century, the landscape of graduate education underwent significant change. The students, the educational experience, and the research experience changed in ways that prompted calls for innovation and reform. This paper briefly considers some of the salient changes in the graduate landscape and discusses some of the gaps that have emerged as a result of these changes. Gaps between career aspirations and the reality of academic life, gaps in student support, and gaps between student expectations and the graduate experience are discussed.

The Changing Landscape

Graduate education has grown from a small, elite enterprise to one in which hundreds of institutions participate and graduate tens of thousands of doctoral students and hundreds of thousands of master's students each year. There are more institutions participating, more students earning degrees, and more degrees being offered in different fields than ever before in the history of the enterprise.

Students

The students seeking graduate education have also changed. The population has become more diverse than ever before. The data on students in the sciences and engineering is most detailed and illustrates the changes that occurred in the student population in the closing decades of the twentieth century. For example, in 1980: 71% of graduate students in science and engineering were
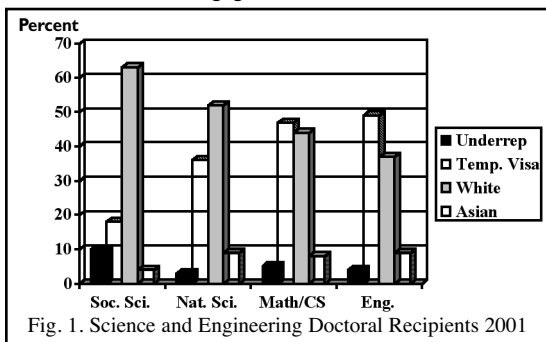
Fig. 1. Science and Engineering Doctoral Recipients 2001

males and 14.8% were foreign nationals (NSF 1998). This can be compared to the data for 2001 when 58% were male, 31% were on temporary visas, and 15.9% were U.S. minorities, including Asians (NSF 2003a). International students on temporary visas have been drawn to the U.S. in large numbers for graduate degrees in natural science, mathematics and computer science, and engineering (Fig. 1) (NSF 2003b). Between 1985 and 2000,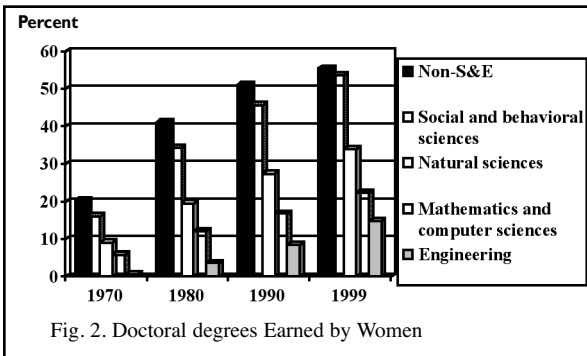 Chinese students alone earned over 26,500 doctoral degrees in biological science, engineering, and physical science. The number of doctoral degrees awarded to Chinese students grew from 185 per year to 3,000 degrees per year during this period (NSF 2002). The vast majority planned to remain in the U.S. and many have taken positions at universities. The participation of women in graduate education has also grown to make up a substantial portion of the graduate population, particularly in the social sciences and non-science and engineering fields (Fig. 2). At this point, a substantial amount of the growth in graduate enrollment is among women (NSF 2002).

The Educational Experience

The educational experience of graduate students has also changed in ways that have become familiar to graduate deans. The time to complete the Ph.D. has gotten longer in all fields. We do not have very good agreement on why. Surveys of graduate students conclude that better information is needed for prospective students and suggest that students are unprepared for the length of time they will be enrolled (Golde and Dore 2001). In the sciences, the lengthening time to degree has been coupled with a dramatic increase in the postdoctoral population. In many fields, the Ph.D. is no longer considered sufficient training. This has occurred primarily in the life sciences and is a phenomenon that is primarily confined to the biomedical sciences (COSEPUP 2000). Postdoctoral experiences have lengthened and one might argue that in some fields, the postdoctoral experience has become a destination rather than a temporary extension of training. For over a decade, the majority of postdoctoral scholars have been international and the time that these individuals spend in postdoctoral positions is generally longer than that of U.S. citizens. As large teams of investigators form, the question that must be addressed is whether under these circumstances, the postdoctoral experience is still training or whether postdoctoral scholars have become a new class of highly trained but underpaid investigators.

Fig. 2. Doctoral degrees Earned by Women

Legend: Non-S&E; Social and behavioral sciences; Natural sciences; Mathematics and computer sciences; Engineering

The Research Experience

Particularly in the sciences, the research experience of doctoral students is changing. Larger research teams, evident in the increase in multi-authored papers, bring together complementary skills and resources that may create an exceptional environment for students. The pace at which new information is being generated is such that the expectations for publications have increased, even for graduate students (Freeman et al. 2001). As the science and technology capacity of the rest of the world continues to grow, there is a decrease in the cost of research at a distance and the marketplace for people and ideas has become global. The U.S. has benefited from the educational systems in the rest of the world, but other countries are aggressively building their own institutions and creating incentives to keep their own graduates and attract international students (NSF 2002). Although the U.S. remains an attractive destination for the world's students, it is not clear that our programs prepare U.S. students for competition in a world market.

Reform and Innovation

Periods of change are periods that can stimulate innovation. This has been the case in graduate education, particularly in the last decade. Projects such as "Re-envisioning the Ph.D." and studies like the 1995 COSEPUP report (COSEPUP 1995) and others have stimulated new thinking about doctoral education. Students are increasingly being offered more choices and broader preparation. Promising practices such as Preparing Future Faculty programs (PFF) have started to alter the preparation of students who enter the professoriate by providing training in pedagogy and exposure to institutions other than those in which they are receiving their doctoral training. New models for graduate education are emerging out of federally funded experiments like the Integrative Graduate Education and Research Traineeships (IGERT) program that are promoting interdisciplinary training and increased attention to professional skills and employment opportunities. Private foundations like Sloan, Carnegie, and Wilson are asking fundamental questions about what is being taught and what is being learned. It is too early to tell whether any of these innovations will take hold on a broad scale; however, they are stimulating new thinking about both master's and doctoral education.

Gaps

The innovations in graduate education are balanced by gaps that have emerged or widened in recent years. Three that are of significant concern are the gaps between the career aspirations of many graduate students and the realities of academic life; the gaps in student support both between science and engineering and other disciplines and among institutions; and the gaps between student expectations and the graduate experience. Some of these gaps are addressed by the innovations in graduate education. In the absence of broad dissemination of working models, however, it is not clear that there has been substantial progress in closing the gaps.

Career aspirations

Doctoral education has generally been viewed as preparation for the professoriate, although in the sciences and engineering, non-academic jobs are increasingly the norm (COSEPUP 1995). Students who enter graduate programs continue to express an interest in academic careers. The reality is that academic opportunities have not kept pace with the production of doctoral graduates. Over a twenty-year period from 1975-1995, the total number of faculty employed increased by 47% (U.S. Department of Education 1998). The largest percentage increases, however, were in part time and non-tenure earning positions. The new full time faculty hired decreased as a percent of the total as did the non-tenured faculty hired in tenure track positions. As students increasingly head toward non-academic careers, they have criticized their graduate training for failing to prepare them for the jobs they do get (Golde and Dore 2001).

The trends in the life sciences have been the object of recent study and highlight the gap that has developed between the training and aspirations of students and career outcomes (National Research Council 1998). As biomedical scientists have been trained in increasing numbers, their time to degree has increased so that the average age of a Ph.D. recipient is 32 years. After postdoctoral appointments lasting 3-5 years, these graduates assume permanent employment between 35 and 40 years of age and academia is no longer the primary employer. The increasing number of postdoctoral scholars is a measure of the need for young scientists in this area, but the protracted training periods and the decline in the proportion of graduates obtaining faculty positions at research universities suggests that there is a mismatch between the educational mission of our programs and the structure of research at our institutions.

Student support

Student support is a second area in which significant gaps have appeared. With the exception of relatively small programs such as the Javits Fellowships, support of students from federal agency fellowships and traineeships is limited almost exclusively to students in science and engineering. The two major sources of support for these students are the National Science Foundation (NSF) and the National Institutes of Health (NIH). The stipend levels that these agencies provide has increased steadily over the past two decades, although the trend has not been smooth when expressed as constant dollars (Lorden and Slimowitz 2002). The extent to which federal fellowships drive other sources of support such as research assistantships and teaching assistantships is not known. Training grants, at least in some areas like the biomedical sciences, do appear to be quite influential in establishing support levels in programs and have been described as the *de facto* wage standard in this area.

The question of the right level for graduate student support has not been the subject of a national discussion. Graduate programs increase stipends and provide benefits like health insurance to graduate students in a competition for recruiting the best students or as part of a negotiated labor agreement. Given the changing population of students, increasing student debt, the lengthening time to degree, and the uncertainty of employment associated with doctoral study, a more coherent examination of what

students need is in order. Economist Richard Freeman has compared support for entry-level positions in different fields (Freeman 2003). Between 1975 and 1999, the wages of beginning postdoctoral fellows on NRSA awards have effectively declined and are substantially below those of individuals in a variety of professional and technical positions as well as those in areas such as finance, insurance and real estate. Thus, many graduate students completing study in the sciences in which a postdoctoral appointment is required can expect at least several additional years of relatively low support. For U.S. citizens, this long period of training at comparatively low wages may be unattractive when many other occupations lead more quickly and in some cases, more certainly, to better paying permanent positions.

For predoctoral students, there are clear disciplinary differences in the level, type, and likelihood of support (U.S. Department of Education 2002). Doctoral students in the humanities and social sciences are nearly twenty percent less likely to be supported than those in the sciences (Fig. 3). This discrepancy is even greater at the master's level. Research assistantships are generally more lucrative than teaching assistantships and are more common in the sciences and engineering than in the social sciences and humanities. Regardless of the type of assistantship, students in the humanities and social sciences receive less funding on average than their counterparts in science and engineering.
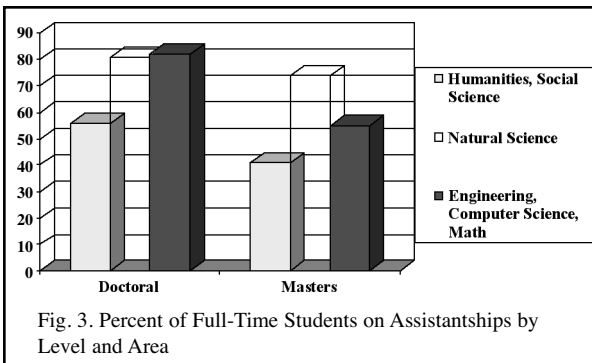
Fig. 3. Percent of Full-Time Students on Assistantships by Level and Area

With the threat of international terrorism and the demand for security, there is a particular need to attract excellent students into the social and behavioral sciences and the humanities and to support those areas of study that will provide insight into human behavior and culture. Even without the pressures of improving homeland security, there are many areas of research in which there is a need for participation of social scientists and humanists on interdisciplinary teams. The many policy issues that accompany scientific advances demand interdisciplinary training of individuals from a wide variety of disciplines. Yet, our standard funding mechanisms almost certainly guarantee that there will be inequities in support. The dollar gap in these cases may lead to an intellectual gap.

Institutional differences in types and amounts of support lead to gaps between public and private institutions (U.S. Department of Education 2002). Average levels of support for doctoral students at private institutions exceed those at public institutions with the greatest difference in the level of support for students on fellowships. As we seek to broaden the participation of underrepresented groups in graduate education and institutions strive to achieve a diverse student body, differences in funding can be

expected to have an impact on the access of financially needy students to graduate education.

Student expectations and the graduate experience

A third gap is the gap between student expectations and the graduate education experience. One factor contributing to gaps between student expectation and student experience is the opacity of the graduate experience. Unlike professional programs, doctoral programs do not generally publish information about student outcomes (Freeman et al. 2001). Essays written for the Carnegie Initiative on the Doctorate Study of English by faculty and available at the Carnegie website reflect on the lack of understanding successful individuals faced in beginning their graduate careers. These comments are echoed in surveys by current students (NAGPS 2000) and others (Lovitts 2001). Graduate deans must ask what we understand about our students and what our students understand about graduate education. Doctoral programs have not routinely provided information about what is required for success or what the career prospects might be for graduates from specific programs. For students who are first generation college students, the lack of transparency may be particularly nettlesome.

Conclusions

Students surveyed in recent years have been consistent in what they have asked of graduate education. Students seek curricular breadth, opportunities for interdisciplinary study, information about process and outcomes, attention to their development as professionals, effective career placement and guidance for both academic and non-academic careers. Students embarking on graduate education should know what they can realistically expect in tuition aid, stipends, and health insurance. While it may not be possible for individual programs or institutions to eradicate the gaps in graduate education, provision of candid, up-to-date information about career outcomes, support, and the student experience would allow students to make reasonable choices about their future. Acknowledging that students will use their education in a variety of career settings and giving students the flexibility and encouragement needed to explore career options will help students who choose graduate education close some gaps. Graduate schools are in a unique position within institutions to provide the leadership needed to confront and begin to close the gaps in graduate education.

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Widening Gaps

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Abstract

The representation of minority populations, namely African American, Native American, and Hispanic populations, in academe continues to be below the representation of these groups in the general population. Indeed, the gap between these two measures may be widening.

According to the Survey of Earned Doctorates, African Americans, Hispanics, and Native Americans earned 5.9%, 4.1%, and 0.6%, respectively, of the doctoral degrees awarded to U.S. citizens in 2000. These figures are in contrast to the 12%, 13%, and 1.0%, respectively, found in the general population of these groups. Inclusion among post-secondary faculty, where these groups represent 4.9%, 2.6%, and 0.4%, respectively, is even more disparate.

Efforts to increase the level of participation of these groups dramatically are critical to developing the intellectual potential of our citizens, critical to supplying the talent needed to support our information and technology based economy, and critical to maintaining a stable society.

My intent is to present data on minority participation in higher education, as students and as faculty, and to thereby elicit comments and discussion.

What we want to focus on is "Widening Gaps." More specifically, I want to address areas where the trends do not point toward creating equity in the preparation and participation of minority populations in higher education and, in fact, may represent widening gaps. I will concentrate on four areas: doctoral degree awards, post-secondary faculty, drop out rates, and post-secondary enrollment.

First, let us take a brief look at the Census 2000 data as a basis for comparisons that I will be making later. Current statistics indicate that about 12% of the U.S. population is African American, about 13% is Hispanic, 3.6% is Asian American, and 1% is Native American/Pacific Islander/Alaskan Native. In considering these figures, we are aware of the many problems associated with the placement of individuals in these different categories and the definition of these groups, but for the sake of this presentation, we will assume that these number are valid, or at least in the right ballpark.

Because we are primarily concerned here with graduate education, it is also important to keep in mind that the various ethnic/racial groups have very different age distributions. I should note that I will refer to the Hispanic population specifically a number of times because it is the largest minority group, it is the fastest growing sector of the population, and furthermore, there is insufficient time to discuss each group individually. But most of what applies to the Hispanic population also applies to the other minority groups in terms of educational issues.

The Hispanic population, with a median age of 27 years, is a very young population. The median age of the Native American population is 29 years, for African Americans it is 31 years, and for Asian Americans it is 32 years. On the other hand, the White, non-Hispanic population has a median age of 39 years. Thus, we might note that the majority of Hispanics are not old enough to have completed a typical doctoral program.

The first gap we can look at is the disparity between the number of minority doctorate recipients and the population base. Between 1988 and 2000, the number of doctoral degrees earned by African Americans increased from 3.5% to 5.9% of all doctoral degrees awarded to U.S. citizens; for Hispanics the increase was from 2.6% to 4.1%; for Asian Americans it was 2.6% to 5.1%; and for American Indians it was 0.4% to 0.6%. For non-minority White Americans, the number decreased from 89% to 82%. So there has been an increase in the number of doctoral degrees awarded to members of underrepresented groups over the years.

The gains, however, may not be as large as they appear to be. For example, the population base of Hispanics has increased during that same period (1988 to 2000) by about 4-5 percentage points. So what is seen as a gain of 1.5% in the level of doctoral degree awards may actually be more of a staying even or even losing ground.

The next gap we can look at is the disparity between the number of minority faculty at various types of colleges and universities, including two-year colleges, and the general population. For comparison, I will provide data for 1993 and 1999. Only Asian American faculty are represented at or above the level of the general population, 5.5% of the faculty vs. 3.6% of the general population. Representation is particularly low for Hispanics and African Americans: 2.6% of all faculty vs. 13% of the general population and 4.9% vs. 12% of the general population, respectively. It is also notable that the numbers increased only marginally between 1993 and 1999 and if one looks even further back, the numbers are still very similar. So while the number of minorities receiving doctorates has increased significantly in the last 10-12 years, there has not been a concomitant increase in faculty representation, and this is a serious concern.

We can also look at where these faculty members are with respect to the type of institution. African Americans make up about the same proportion of faculty at two-year and four-year public institutions (9-10%), but Hispanics represent a significantly higher proportion of faculty at two-year institutions than in four-year institutions, ~6% vs. ~4%, respectively. In addition, 26% of all Hispanic faculty are at two-year colleges, the highest proportion for all groups.

There are also serious gaps in high school completion, bachelor's degree attainment, and graduate enrollment between the various racial and ethnic groups. Hispanics drop out from high school at the alarming rate of 28%! That is simply not acceptable; it represents a severe crisis in our educational system.

A recent report from the Pew Hispanic Center reveals a number of interesting observations. For example, 10% of all Latina/o high school graduates are enrolled in higher education compared to 7% for the general population, according to data for 1997-2000. In fact, second generation Hispanics enroll in college at almost the same rate as White, non-Hispanics, 42% vs. 46% of 18-24 year olds. Unfortunately, this rate is significantly lower for first-generation (26%) and third-generation (36%) Hispanics. But the important point is that while these students may be enrolling at about the same rate as non-minority students, they graduate with a bachelor's degree at a much lower rate, 16% for Hispanics vs. 37% for non-Hispanic Whites. Undoubtedly, an important factor is the fact that Hispanics enroll in 2-year colleges disproportionately and many do not continue to 4-year programs to complete a bachelor's degree. Other possible factors are poor preparation in primary and secondary schools, financial pressures, and initial enrollment at a later age than non-minority students.

And finally, we know that there is a gap between the rates at which non-minority and minority students enroll in graduate programs. Non-minority White students enroll in graduate programs at a rate of 3.8% compared to 1.9% for Hispanics among 25-34 year-olds.

So why are these gaps important and why should we care about closing them? For one thing there is another gap, outside academe, that I have not mentioned, and that is the gap between the supply and demand for leaders in research and development at the highest levels in industry. Corporate America is seriously concerned about its ability to fill critical positions in science and technology with domestic talent. Their interest is two-fold: to have a readily accessible labor pool that is appropriately prepared to do the work that needs to be done; and also to help reach the economic markets represented by these individuals. In fact, they have sought and gained approval from Congress for increasing the number of H-1 visa permits so that they can fill those positions with imported talent because the domestic labor pool is inadequate to fill their needs. It is important that we continue to attract talent from abroad, but it is also critical that we develop the talent we have here. It is critical for the social, political, and economic stability of our country.

We also need to consider that if we are to continue to develop our graduate programs, we will be forced to look more and more toward recruiting minority students into these programs. In recent years, the growth of graduate programs in the U.S. has been due mainly to the increase in domestic minority students and international students. And we are facing new challenges in attracting international students. On reason for this is the result of the PATRIOT Act and the increasing difficulty for international students in obtaining the necessary visas for enrollment in our graduate programs. But perhaps a greater concern is that more and more countries now have developed their educational and research enterprises to levels that are competitive

with ours. So they will increasingly look to retaining and developing their talent at home.

Therefore, in my opinion, there is no choice but to continue to seek ways to do a vastly better job of preparing our minority students for advanced study, from kindergarten to bachelor degrees, to graduate degrees and employment in the academic, and corporate, sectors. As was said earlier at this conference, we must get back to convincing all Americans that education is a public benefit to the nation, not an individual benefit.

In closing, I would like to quote from *The Creation of the Future – The Role of the American University*, by Frank Rhodes.

> "Universities, confronting the changing world at the beginning of the new millennium, are not after all unlike the dinosaurs contemplating the looming asteroid at the end of the Cretaceous Period … I do not believe universities face extinction, but I do believe that the price of their effectiveness – if not their survival – will be their readiness to embrace changes, some of them quite sweeping, none of which they will welcome, and several of which they will regard as corrosive and even destructive."

Widening Gaps

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Let me say first that I very much appreciate the privilege of being able to speak to you today, and I would like now to thank the Midwest Association of Graduate Schools, as well as Deans Wheeler and Murphy from the University of Illinois, for the opportunity.

At dinner last night, a graduate dean asked me if I thought graduate education would survive these budgetary troubles, and I had this weird feeling of dislocation – he was at once talking about me and my academic future, and about something larger. The question, while unsettling, got me thinking: "What's my stake in the ideas and circumstances that shape the future of graduate education?" It reminded me of a symposium recently held at the University of Illinois at Urbana-Champaign where I gave a talk asserting the need for an understanding of graduate work and training that went beyond the prospect of working as faculty scholars in Research I institutions. But if I were to give that talk now, it would be different. I would still assert the need for graduate programs to be flexible in the way in which they characterize and support graduate students' professional and intellectual choices, but now I would contextualize what some call the "unarticulated pressures" of graduate schools within the framework presented here at this conference. I would communicate how public and legislative ideas of the function and use of graduate education "trickle down" through administrators, department heads, and faculty advisors. I might ask graduate students to understand that they need to see how their ideas about graduate school are in dialogue (and sometimes conflict) with these other ideas.

Thinking about the three award winners last night, all excellent scholars (but which would you least want to put in a room full of state legislators who are voting on the annual appropriations bill for your institution?) and in thinking about the theme of "Widening Gaps," I think a significant widening gap is the gap in understanding the role and function of graduate schools between the insiders and outsiders of the institution (which isn't a new phenomenon), and also the widening gap in communication between administrators and graduate students, who have very little idea of what's going on. And when I say communicating, I'm not talking about those "Shock and Awe" memos that come down from above saying simply that the funding is drying up; I think a money pinch of this magnitude might require administrators, directors of graduate programs, and/or faculty members to sit down with graduate students and jointly discuss how these tensions surrounding graduate education translate into particular values and actions within departments; how these pressures subtly influence notions of achievement and success within a graduate program. Part of the issue is

the difficulty of working within an academic culture that often seeks to remove itself; for decades, universities have had the benefit of an implicit cultural understanding of the value of graduate education. But the money is going, and now it's time to make the implicit more explicit in order to fight for what remains. When administrators fight for the continued vitality of graduate studies at their institutions or in their legislatures, they are fighting for many things all at once: academic integrity, the right to define the value and purpose of a graduate education, but they are also fighting for individual graduate students, for people like me. You might want to figure out a way we can help. I don't think it's too much to ask graduate students to help explain how their work enriches the lives of the people around them. Especially when the money people seem to be demanding it.

The Not-Me Syndrome: Gaps in Graduate Students' Professional Expectations

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Students in the humanities, the physical sciences, and other fields may begin their graduate education with little knowledge of the realities of the job market – a rigged game of musical chairs with many more players than seats. As they learn these realities, they often resort to a form of denial: others will suffer, but Not Me. Over time, the contradiction between market realities and individual ambitions manifests itself in an astonishing array of psychic defenses, strategies of deferral, and reliance on prescribed psychotropic drugs. Graduate college administrators can address this gap, and bolster the case for more money they must make to local and national administrators, as well as the general public, by reminding all parties that one constant of graduate education in any department or field is a commitment to ethical thinking. As every day's recounting of public scandals reminds us, ethical thinking is in critically short supply. If higher education is to remain a public trust guaranteeing the future and collective health of the American republic, rather than a commodity to be purchased by those who can afford it, it must reaffirm its commitment to ethical thinking, both internally and in its relations with the public. This reaffirmation also serves to remind graduate students what they are good **for**, so they can recognize ways to further this ethical dimension outside as well as inside the academy.

Supporting the Graduate School

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Abstract

Graduate schools may encounter skepticism about the value of the services they provide and conjectures that these services could be provided more cheaply and efficiently – and with less regulatory overhead – by individual departments and colleges. To be perceived as adding value, graduate schools must contribute – and be recognized by other parts of the university as contributing – in three major areas. They must develop sensible and innovative procedures that enhance the efficiency and effectiveness of the graduate programs in the colleges and departments. They must help students, faculty, and programs achieve – and recognize the importance of – high standards in all areas. And they must develop strong working partnerships with all parts of the university.

Graduate Schools are sometimes faced with skepticism about the value of the services they provide and the possibility that these services could be provided more cheaply and efficiently – and with less unnecessary regulatory overhead – by local units such as departments and colleges. This skepticism is amplified in times of budget crisis, in which we now find ourselves. This presentation attempts to address these concerns from the point of view of the University of Minnesota.

What We Do

The Graduate School at the University of Minnesota, like that at most comparable universities, provides an extensive variety of services for students and faculty. For students, we administer the application and admissions process (though admissions decisions are made by the programs), pay special attention to recruiting a diverse student body, track student progress toward their degrees, award fellowships, negotiate health insurance benefits, and help to provide education in generalizable professional skills, career services, counseling, and troubleshooting. We also administer the Undergraduate Research Opportunities Program (UROP) and the Office of Postdoctoral Affairs.

For faculty and departmental and college administrators, we carry out external and internal graduate program and course reviews; oversee data management and gener-

ate reports on applications, admissions, matriculations, time to degree, demographics, etc.; provide competitive research support and faculty fellowships; referee external grant and fellowship competitions when an institution can submit only one or two applications; and oversee research centers and the University Press. We also provide training and advice to Directors of Graduate Study, share best practices among graduate programs, and provide opportunities for networking and conflict resolution.

These are remarkably extensive lists of services, which would be essentially impossible for individual departments and colleges to provide on their own without much greater total investments of faculty and staff time than expended by the Graduate School. At the same time, we recognize that many of these activities are carried out in partnership with the academic units.

Sources Of Funding

Our funding comes from the state (O&M), endowments and annual giving, and application fees. We receive a fixed allocation from the Provost's office, not tied to tuition or ICR. (All tuition and half of the ICR goes to the colleges that generate them.) We are also fortunate to have substantial licensing revenue from sales of the anti-AIDS drug Ziagen. The first $45 million of these revenues are being devoted, through a vehicle termed the 21st Century Fund, to matching of donations of $25,000 or more for graduate fellowships.

The types, approximate numbers, and approximate annual dollar values of support for graduate fellowships and program support, and for UROP, are shown in Table 1.

Table 1
Fellowships and Grad Program Support

Type	Number	($1,000)
Graduate School Fellowships	120	2,600
Tuition fellowships	≈ 250	1,500
Block grant fellowship allocations		1,600
Endowed fellowships	≈ 30	
3M Fellowships	to 48	6,000
21st Century Fund (matching to $45M)		to 2,000
Interdisciplinary grad programs		380
Undergraduate Research Opportunities Program	≥ 400	707

The annual expenditures for various types of faculty research support and fellowships are shown in Table 2.

Table 2
Faculty Research Support

Type	($1,000)
Grants-in-Aid of Research	2,560
Summer Research Fellowships	182
Interdisciplinary Research Centers	1,000
McKnight Land Grant Professorships (10/yr, 2 yrs)	1,000
Distinguished McKnight Professorships (4/yr, 5 yrs)	400

A Valued Service, Not a Bureaucratic Impediment

Despite the many important services that the Graduate School provides, and the relative economy with which it provides them, we must continually be wary that we are not looked upon as an officious, over-regulating bureaucracy. We try to pay careful attention to three aspects of our service: efficient and innovative operations, high standards, and strong partnerships with other units.

Enhance Efficiency of Grad School Processes

The internet and the web have allowed some remarkable enhancements in the speed and efficiency of graduate school processes, and we have tried to take full advantage of these mechanisms. We now have on-line applications, registration, and degree progress transactions, which not only speed processes but relieve on-campus students from the need to physically come to the Graduate School.

We are embarking on a document imaging initiative, which should facilitate even more the moving of applications to programs and departments, to let them make admissions and financial aid decisions as soon as possible, and to obviate the need to move paper application folders among admissions committee reviewers in departments. Document imaging will eventually involve scanning all existing paper records, which will mean an enormous decrease in storage space and an increase in accessibility.

We are testing the feasibility of electronic dissertation submission. Not only does this hold the potential for streamlining the thesis approval and archiving process, but it also should enable the inclusion of multimedia material in dissertations.

We are revising the Graduate School website, with links to graduate programs and departments, to DGSs and faculty, to graduate program statistics and reports, and to forms and policies. These revisions will make it much easier for prospective students to find information about programs to which they may wish to apply, and for current students and faculty to get detailed information about the procedures and performance of their programs.

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Much of our most important service, however, occurs person-to-person rather than on the web. One notable example is in Graduate School help with foreign student issues: translating and verifying transcripts, interpreting the changes in ETS/GRE procedures, filing the I-20 forms through SEVIS that are required to start the visa application process for admitted students, working with our International Students and Scholars Services office on problems encountered by foreign students, etc.

In all of these areas, and in others not named, the Graduate School contributes central support, expertise, and innovation. It does so efficiently, with low overhead, and with a level of uniform quality that many of our graduate programs would be hard-pressed to duplicate. If the Graduate School did not provide these services, individual colleges and departments would have to replicate them, greatly increasing their workload and cost.

Reinforce and Reward High Standards

Graduate programs vary widely across the university. Some coincide almost exactly with departments and are well supported by departmental staff and resources. Some are highly multidisciplinary, involving faculty and students from many departments and colleges, and have shifting and uncertain patterns of support. Some are large and stable, with long-term staff assisting the Director of Graduate Studies. Others are small and unstable, with little experienced staff support. An important function of the Graduate School is to maintain uniform standards across programs, providing advice and assistance where needed, while accommodating special program characteristics. We develop programs to mentor new Directors of Graduate Study and to share best practices among graduate programs. We pay careful attention to quality and feasibility of new program and course proposals, and organize – in concert with the collegiate deans – helpful external reviews of grad programs and departments.

Graduate programs also vary in the quality of the service that they provide graduate students. Some are well structured and supportive, while others are neglectful. The Graduate School attempts to assure that all graduate students have a positive experience. We provide templates for graduate program handbooks, and we work with the Council of Graduate Students to develop and disseminate effective strategies for dealing with the graduate experience. We help programs provide their students with generalizable professional skills, and we develop expectations and provide assistance in Responsible Conduct of Research programs for students and faculty. We encourage high aspirations and reward top performance by sponsoring awards for top students, faculty, DGSs and their assistants.

Not least, the Graduate School – working with the Provost – helps to maintain attention on graduate education, particularly important when colleges, in times of budgetary stress, may increase their emphasis on high enrollment undergraduate courses to increase tuition revenue.

Make Partnerships

The Graduate School is a unique college: It has no faculty of its own, and although graduate students are formally registered in the Graduate School, their real homes are in the departments. Therefore, the Graduate School can do nothing without partnerships with other parts of the university.

Working with the Provost

One key partnership is with the Executive Vice President and Provost (EVPP). At the University of Minnesota, the Dean of the Graduate School is also Vice Provost for Research – a common arrangement at many universities. This enables the Dean to connect to the colleges via the Provost's office, representing graduate education and research in the compact meetings between the Provost and the collegiate deans. It also provides a mechanism for the Graduate School to partner with the Provost's office on major college and intercollegiate initiatives, leveraging resources across the University. In this way the Graduate School is not operating in isolation when it advocates for new interdisciplinary programs but rather is part of an integrated structure that fully takes college and institutional priorities into account.

The position as Vice Provost enables the Graduate Dean to be integrated into central university processes in another important way. The Dean meets regularly with the other EVPP reports, exchanging information on a wide variety of university activities. Thus, for example, the Graduate School can participate in discussion of university efforts regarding the libraries, tuition policy, diversity, and civic engagement – all important for graduate education, but involving a broader institutional context.

Working with the Vice President for Research

The offices of Dean of the Graduate School and Vice President for Research have been recently separated at the University of Minnesota. This arrangement relieves the Dean of excessive attention to regulatory oversight, but maintains cooperation on Responsible Conduct of Research programs. If the Dean and the VP/Research work closely together – as they do at Minnesota – Graduate School Interdisciplinary and Grant-in-Aid funds can partner with matching funds held by the VP/Research, matching funds for start-up and retention packages and taking advantage of external funding opportunities.

Working with Colleges and Departments

Some of the most obvious and important partnerships of the Graduate School are with the colleges and departments. We help to provide graduate student recruiting and fellowship funds. We aid college development efforts by providing a 1:1 match for graduate fellowships from the 21st Century Fund – an inducement which has led thus

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far to approximately $25 million in gifts and pledges to the colleges. Through the compact process, the Graduate School can provide part of the start-up money for new programs, though it is expected that colleges and departments will also contribute, demonstrating the importance that they attribute to these new initiatives. In all of our funding efforts, the Graduate School strives to assure that block grants and other allocations align with college priorities.

On the non-financial front, the Graduate School helps colleges and departments to work through difficult interdisciplinary graduate program issues; and it organizes graduate program reviews, sometimes as part of broader departmental reviews in concert with the college dean(s). We also provide data and reports for various departmental and institutional purposes.

Working with Other Groups

The Graduate School works closely with other university groups, most obviously graduate student organizations. We have negotiated improved health insurance coverage for graduate assistants, and we are currently working with the University Housing Office and local property developers to increase the supply of affordable housing for graduate and professional students. We produce and distribute to all newly admitted students a CD-ROM that provides a useful variety of orientation and historical information about the University of Minnesota. We try to support the Council of Graduate Students by offering advice on navigating the bureaucracy and communicating with their constituents.

Postdoctoral associates and fellows are important parts of the research enterprise at the University of Minnesota. We have recently established – with the financial collaboration of the colleges that employ most of the postdocs – an Office of Postdoctoral Affairs. This Office serves the important function of helping postdocs – who are neither students nor regular employees – connect to university support mechanisms, such as health insurance, access to library and e-mail, dispute resolution, and career development services.

We work with other university offices to provide opportunities for graduate students and postdocs to receive training in generalizable professional skills (e.g., writing grants and dissertations, résumé preparation). And we are working with colleges and departments to afford graduate students and postdocs better access to career service offices and notice of employment opportunities.

Other university offices also provide services to graduate students as well as to other members of the university community, and we try to work closely with them to give seamless support. One such office is the Center for Teaching and Learning Services, which runs the Preparing Future Faculty program and various writing workshops. The Graduate School Outreach Office works with the Office of Multicultural Affairs and with Undergraduate Admissions to address diversity recruiting and pipeline issues. Our office of Graduate Student Services and Progress works with Disability Services

and the Student Dispute Resolution Center to be sure that graduate students and faculty know about, and can avail themselves of, these important resources. Our Office of Admissions works very closely with International Student and Scholar Services to help smooth the way through the increasingly rough path facing international students who wish to study with us.

As one final example of involvement with broader University priorities, the Graduate School has participated actively in the Civic Engagement Initiative and the Council on Public Engagement inaugurated by former Provost, now President, Robert Bruininks. This effort to better connect the public with the University's research and teaching activities is seen as critical for the future of public research universities, and the involvement of the research and education efforts under the aegis of the Graduate School are a crucial part of the effort.

Conclusion

To be perceived as adding value to the university enterprise, to be deemed worthy of stable or increased resources in times of budget difficulty, graduate schools must contribute – and be recognized by other university constituencies as contributing – in three major areas. They must develop sensible and innovative procedures that enhance the efficiency and effectiveness of the graduate programs in the colleges and departments. They must help students, faculty, and programs achieve – and recognize the importance of – high standards in all areas. And they must develop strong working partnerships with all parts of the university. Through these contributions, the Graduate School provides essential service in an economical and efficient way.

The IUPUI Graduate Student Organization: Monetary Support for Graduate Students by Graduate Students

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The Graduate Student Organization (GSO) of Indiana University-Purdue University in Indianapolis provides a link between the graduate office and the graduate students. Overall, the purpose of the Graduate Student Organization is to voice the concerns of the graduate students, while enriching their lives both academically and socially. Representatives from each of the 17 schools across campus meet monthly to discuss issues relevant to graduate and professional students. The GSO addresses concerns such as campus planning, academic affairs, and student health insurance. Our group is unique in that the funding is provided by the graduate students and is used for the graduate students.

The student activity fees paid by the graduate students fund the GSO. Ninety percent of the funds allocated to the GSO are returned back to the graduate schools. The remaining ten percent is used by the GSO to provide graduate students with academic opportunities, activities within the community and university, and to help graduate students meet with students outside of their programs. This past year the GSO was able to assist graduate students and promote the graduate school by participating in the following activities:

Fall Orientation
- WelcomeFest
- Graduate Student Orientation/ Graduate Student Open House
- Explore IUPUI

School and Community Events
- Promoted the IUPUI Jaguars Basketball Team
- Helped decorate the Ronald McDonald House for the holidays
- Donated funds to help lower the cost of the graduation ceremony

Social Events
- Laser Tag
- Broomball
- Celebrated National Graduate and Professional Student Week by hosting a dinner

The GSO Officers served as student representatives on several committees
- Graduate Advisory Committee
- Student Trustee Committee
- Student Advocacy Committee
- Academic Integrity Committee

One of the primary goals of the GSO is to promote academic excellence by providing opportunities for students to enhance their educational experience. To help off-set the cost of expenses such as travel or research, Educational Enhancement Grants are awarded to graduate and professional students in the fall and spring. Last year over $27,000 was awarded and this spring semester we awarded approximately $17,000 to assist students with their research.

In closing, the IUPUI Graduate Student Organization utilizes a novel system to provide leadership positions for students, while benefiting both the graduate students and the graduate office. The GSO provides a forum for students to network with their constituents, and also helps graduate students relay their concerns to the administration and the general student body. Because graduate students fund the GSO, it provides some autonomy, and allows the graduate students to show their influence on the university and the community.

Funding Graduate Education in the Environment of Declining Subsidy in Public Institutions

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Introduction

The continuous decline in subsidy for graduate education in the state of Ohio has forced us to explore various options for supporting graduate education at Kent State University. The subsidy for doctoral education is limited to 10% of the total higher education budget. This 10% subsidy cap is distributed to all doctoral institutions in Ohio based on historical enrollment data gathered in 1995. Institutions with increasing enrollment will not receive any additional subsidy, while those with declining enrollments may suffer a loss of support. Furthermore, new programs may not receive any additional subsidy. The master's programs, however, receive subsidies based on FTE and the disciplines in which students are enrolled.

New Strategies for Enhancing or Supplementing Graduate Education

The situations in other state-supported or state-assisted institutions are no different than those that exist in Ohio. Since I accepted the responsibility as the Vice President for Research and Dean of Graduate Studies, I have explored a number of strategies to fund graduate education. The strategies are listed below with explanations as appropriate. It should be stressed that some of these strategies required approval from the Provost's or President's offices, while others did not. Some of the strategies are still pending approval.

- Incentives to principal investigators and departments for supporting additional graduate students
- Industrial support in lieu of reduced indirect cost
- Health insurance benefits to graduate assistants through an employee benefit package
- Directing a portion of patent and licensing income to supplement stipends
- Directing new subsidy for developing new programs
- Redirecting the part-time fund to support senior graduate students
- Partnership with research institutes
- Endowed fellowships
- Research Challenge Funds: giving precedence to projects that employ graduate assistants

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Incentives to principal investigators and departments

The incentives to principal investigators and departments are designed to secure support for graduate students through extramural funds and other resources available to the departments. These incentives include matching tuition fees for grant-funded students and matching institutional support for additional graduate students as elaborated below.

<u>Tuition fee waiver for grant-funded students.</u> Many principal investigators do not include support for graduate students, especially precandidacy students, in the grant applications. This is primarily due to the fact that the total cost for a graduate student, including stipend and tuition fees, may be close to 75% of that of a postdoctoral fellow. Since these fellows are usually more productive in the research laboratories and the chances for renewal of grant applications are enhanced due to increased productivity, PIs tend to request support for postdoctoral fellows from funding agencies. Tuition waivers from the university funds entice PIs to include research assistants in their budget.

<u>Matching RA support.</u> A second strategy to enhance the number of grant-funded students is to provide a matching fund for a graduate student for every two extramurally funded students. This approach not only helps PIs to increase the human resources for the project, but also helps them to demonstrate the institution's commitment for the proposed project. This 2:1 matching mechanism has also been proposed as an incentive to individual departments. Units and departments that have been successful in obtaining grants have their portions of indirect cost and other incomes that are not traditionally used to support graduate students. Likewise, many units have income from their foundation reserve funds. Graduate students supported through these additional resources from departments will also be qualified for a 2:1 match from our office.

Graduate student support from industrial overhead

Many industries lobby for reduced indirect rates for their grants and contracts. Instead of agreeing to a reduced F&A cost, one might argue for recovering full indirect costs and diverting appropriate portions to support graduate students. Industrial partners certainly see the benefits for additional contribution to the university's GA/TA fund without paying for the full overhead cost. Obviously, this approach requires a close working relationship with the VPR/VCR offices.

Health insurance in employee benefit package

In 2002, KSU introduced a health insurance benefits program for all full time GAs, TAs, and RAs, for up to $450/student. This fund was separately allocated to our GA budget. Beginning in Fall 2003, this benefit will be merged with our employees benefit package. Such an approach will not only reduce our health insurance cost due the institution's group insurance policy, but will also allow us to absorb the future increas-

es of the premium. A close relationship between our office and office of the Vice President for Administration, who oversees the university's budget, was instrumental in creating such a package.

Supplemental stipend from patent and licensing income

At Kent State University, 30% of the net revenue from the patenting and licensing income is dedicated to the "Research and Development Fund." We have created 25 supplemental scholarships, each amounting to $2K. These supplements are intended to recruit talented graduate students and thus enable us to be more competitive.

Direct new subsidy for program development

As indicated earlier, the state of Ohio has a very complex subsidy formula for assisting graduate education. Although no new subsidy can be recovered for expanding doctoral education, assistance for master's education is still calculated by FTE and field of studies. At Kent, we have designed a new approach to allocate all subsidies to the new programs for the first three years and then slowly reduce to a 50% level when each program is firmly established. Furthermore, any increase in enrollment in the master's programs will be treated in a similar fashion. This particular mechanism will not only allow us to create new programs in emerging fields, but will also encourage units to expand their master's enrollment.

Utilization of the part-time fund to support graduate students

Kent State, like many other institutions, supports part-time faculty for teaching undergraduate students. This pool of funds is substantial. We have proposed to divert this fund to support post-candidacy graduate students who are planning to pursue careers in academia. Our senior fellows, who receive intensive training, are highly qualified to teach undergraduate courses, typically more so than many of the part-time instructors. Part-time faculty would not, of course, be eradicated; but with graduate students teaching the majority of undergraduate courses, fewer part-time instructors would need to be hired. This form of support will improve the quality of instruction and enhance our graduate funding.

Partnership with research institutes

Kent State has signed an agreement with Cleveland Clinic Foundation to enhance doctoral education in Biomedical Sciences. This new partnership will allow CCF to recruit graduate students in their laboratories. CCF has over 130 scientists funded by NIH. This partnership will allow us to fund our graduate students through their grants and our faculty would work closely with the clinic in collaborative research projects. Furthermore, such participation by CCF has already attracted high quality graduate students. Moreover, with the help of the clinic, we have already prepared training grants for submission to NIH.

Endowed fellowships for graduate students

Kent State University has recently concluded a $100 million fundraising campaign. During the quiet phase of the next fundraising campaign, we will be working with the Provost and President's offices to dedicate $25 million for the graduate fellowship during the next campaign.

Research Challenge Fund

The Research Challenge Fund is a unique program that was developed by the Ohio Board of Regents to provide seed funds to university researchers for collection of preliminary results, leading to development of new grant proposals. The funds are allocated directly by the OBR and the amount is based on annual research expenditures. This program presents yet another opportunity for extending the support of graduate students. We encourage our PIs to include graduate students in their projects and fund them through the research challenge fund. By simply adding "Graduate Student Assistants" to the list, more PIs will take the initiative to plan their research according to its fullest educational potential.

Workshops

The 2003 MAGS Meeting included the following four workshops:

Workshop 1 – Assessing Graduate Programs through Their Graduates: What Does Count and What Should Count

Organizer: Suzanne Ortega, University of Missouri – Columbia

Dean Suzanne Ortega from the University of Missouri – Columbia used results of a Delphi Survey conducted among 93 Directors of Graduate Studies on her campus as a starting point for a discussion of "most-hated" and "most-loved" indicators of graduate program quality. She was joined by Kim Suedkamp-Wells, Past-president of the National Association of Graduate and Professional Students, who used results from the NAGPS survey to highlight the student perspective.

Ms. Suedkamp-Wells provided a copy of the National Doctoral Program Survey Executive Summary. Dean John Somervill, University of Northern Iowa, who was unable to attend the meeting, provided a written version of his remarks. These documents follow in this section of the *Proceedings*.

Workshop 2 – Ethical Issues in Graduate Education

Organizer: Richard Wheeler, University of Illinois at Urbana-Champaign

Areas in which ethical issues touch graduate education include the application process, the delivery of instruction, mentoring, the use of teaching and research assistants, and the integrity of dissertation research. Lamar Murphy and Richard Wheeler of the University of Illinois-UC led a discussion of the graduate school's role in ethical issues.

Dr. Wheeler and Dr. Murphy provided a written summary of problem-solving tips suggested, also included in this section of the *Proceedings*.

Workshop 3 – The Electronic Graduate School

Organizers: Katy Marre, University of Dayton
Elaine Berland, Washington University

Katy Marre, Associate Vice President for Graduate Studies and Research at the University of Dayton, and Elaine Berland, Associate Dean at Washington University, explored two promising applications for new technologies in graduate research training and graduate applications and admissions.

Dr. Marre and Dr. Berland provided written versions of their remarks, which follow in this section of the *Proceedings*. Clancy Cross co-authored Dr. Marre's paper, and David Callon is co-author of Dr. Berland's paper.

Workshop 4 – International Student Issues

Organizer: Peter Diffley, University of Notre Dame

Presenters: Terrence Akai, University of Notre Dame
Kay Thomas, University of Minnesota
Lorinda Grogg, World Educational Services, Inc.

International graduate students are an important input to cultural diversity on the campus. They also present graduate schools with a set of questions that do not apply to domestic students. And since 9/11, there are many new INS regulations for tracking students from application to graduation. Ms. Grogg provided an overview of how World Educational Services (WES) can assist universities by doing credential evaluation of foreign transcripts, providing reports in a format that U.S. faculty are accustomed to seeing, and translating grades to the U.S. norm. Some universities and colleges may have all their international students go through such a service; institutions can also contact WES and similar services about a single student. Ms. Thomas discussed visa issues that foreign students must deal with, particularly governmental regulations since 9/11 such as the SEVIS database for F and J visa holders and dependents, how the database would be used by consular posts and border posts, changes of names from INS to BCIS, and new reporting requirements and procedures. Dr. Akai focused on issues of adaptation to U.S. culture and procedures.

Dr. Akai provided a written version of his remarks; that paper also follows in this section of the *Proceedings*.

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The National Doctoral Program Survey
Executive Summary

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Introduction

The National Doctoral Program Survey, a web-based survey of graduate student satisfaction with their doctoral programs, was conducted by the National Association of Graduate-Professional Students (NAGPS) from March 30 – August 15, 2000. The Survey, funded by a grant to NAGPS from the Alfred P. Sloan Foundation, was a follow-up to a pilot effort – the Graduate School Survey – conducted online at the website PhDs.org in 1999 by Dr. Geoff Davis and Dr. Peter Fiske. Current and recent doctoral students were asked to report on their experience in graduate school and to assess their program's compliance with best practices in graduate education identified by the Association of American Universities, the National Research Council, and others. Over 32,000 students completed The National Doctoral Program Survey, representing nearly 5,000 doctoral programs at almost 400 graduate institutions across the United States and Canada.

More than 1,300 doctoral programs received 10 or more responses and have program-specific results and comments published on the website <http://survey.nagps.org/>. This includes both agree/disagree data as well as any written comments respondents wish to be made public. Tools are available on the website for browsing results by discipline or institution and to allow customized rankings based upon user-selected criteria. Each doctoral program also has an associated discussion board to facilitate conversations between students, faculty, and administrators. The results for programs receiving fewer than 10 responses will be made available to respondents but will not be publicly posted to the website.

Summary of Results

The vast majority of respondents recount a positive experience in their graduate programs and are generally satisfied with their program and advisor. Indeed, best practices have been successfully implemented at programs throughout the U.S. and Canada and can serve as models for other programs. The Survey is an observational study, not a controlled experiment with a random sample of doctoral students, but a self-selected population that is not necessarily representative of students overall. The following are only some highlights of the results:

- More than 80% of students in all fields report positive mentoring experiences, including continuous and constructive feedback on their progress toward their degree.
- Over 80% report a supportive student community in their program, and 75%

respond that they are involved in decisions relevant to their education.

- Survey respondents identify career guidance and placement services to be areas of concern, especially for non-academic careers. The difference between academic and non-academic careers is especially strong in the Humanities, in which respondents report a satisfaction with career guidance 51% higher for academic careers than for non-academic careers (71% vs. 20%). While this disparity is absent in Engineering, it is present in all other fields of study.
- While over 80% of respondents in all fields report satisfaction with preparation for academic careers, preparation for non-academic careers ranged widely: e.g., 81% satisfied in Engineering but only 28% in the Humanities.
- Despite respondents' reporting that they receive appropriate training for academic careers, only 40% of students in the Life Sciences believe that the teaching experience available to students in their program is adequate preparation for an academic/teaching career. The Humanities fare much better in this area, with 71% receiving adequate training.
- Many students feel that those who express an interest in pursuing non-research careers lose the favor of the department. This includes those interested in non-academic positions as well as academic positions at teaching colleges.
- There is reason to be encouraged about the future. Those who have not yet received their degree report a higher satisfaction with nearly all of the best practices than students who received their degree in or before the year 2000.
- Although 50-75% of respondents say that their program actively recruits students from underrepresented groups, the program environment is not always supportive for these students once they arrive. Women's satisfaction with program environment is 9% lower than their male counterparts (73% vs. 82%), and while 78% of Caucasians and Asian-Americans feel comfortable and supported, only 60% of African-Americans, Latinos, and Native Americans report the same.
- There are relatively few differences based on gender or ethnicity, but there are a number of differences between U.S. citizens and those from other countries. Some of this difference, however, may be related to the field distribution of international doctoral students, which is more highly weighted to the Physical and Life Sciences and Engineering.
- Despite an increasing attention to ethics within academic fields, few students report training in this area: those in the Life and Social Sciences are most satisfied (74%), while those in Engineering (43%), the Humanities (41%), and Physical Sciences (38%) are the least.
- Most programs are reported to provide accurate information about program expectations and costs. However, few programs provide information to prospective students about the career placement outcomes (25-40%) and completion rates of recent program students (20-37%).
- Despite recommendations that students have the opportunity to broaden their education experience outside their own department, only about half of respondents say that they are encouraged to gain additional skills through internships and coursework outside their program.
- Most doctoral students engage in teaching as part of their graduate training, and many undergraduates are taught by graduate teaching assistants. Nearly 40% of respondents in all academic fields report that they do not receive appropriate

preparation and training before they enter the classroom nor appropriate supervision to help improve their teaching skills. Further, 40% do not feel that their needs and interests are given appropriate consideration for determining which courses they are assigned to teach.

- Students in the Physical (73%) and Life Sciences (73%) are generally satisfied with their funding, but there is a belief that sufficient financial support is not available to students in the Humanities (55% satisfied), Education (58%), and Social Sciences (59%).
- Recommendations for best practices have stressed the need for students to receive frequent and thoughtful assessments of their progress, and about two-thirds of respondents were satisfied with the availability of annual assessments. Engineering respondents, however, were less likely to receive such progress reports, with only 48% responding positively.

Publicity

The Survey was available at the website <http://survey.nagps.org/> from March 30 – August 15, 2000. NAGPS and the Survey Team publicized the Survey widely with the support and assistance of other stakeholders in doctoral education. Members of the Survey Team contacted the major disciplinary societies and professional associations in each academic field to help spread the word among their membership. Survey volunteers also contacted graduate deans, graduate student associations, and department chairs to encourage them to invite participation from their students. As the Survey progressed, deans, program chairs, graduate student leaders, and professional associations were contacted again, with personalized statistics on the participation of their students and a request to publicize the availability of the Survey again. Program chairs, graduate deans, and institutional presidents were informed about the Survey as soon as someone from their program or university completed the Survey and provided the administrator's e-mail address. These important stakeholders were invited to become supporters and/or publicize the Survey to the students with whom they came in contact. At least 60 universities, 115 doctoral programs, 60 graduate student associations, 80 professional societies, and 19 additional associations told the Survey Team about their publicity through newsletters, e-mail lists, flyers, and websites and were listed as "Supporters" (complete list available at <http://survey.nagps.org/>). The Survey was mentioned in the newsletters and listservs of many professional societies and included in reports appearing in the *Chronicle of Higher Education Career Network*, *Science's Next Wave*, and *Physics Today*.

After completing the Survey, respondents were directed to a confirmation screen which included an invitation to send an e-mail about the Survey to other graduate students by adding their e-mail addresses and any comments to a form that could be submitted with one click. Hundreds of students did complete this form and helped publicize the Survey to their colleagues who may or may not have heard about the Survey through the NAGPS network. This grass-roots viral marketing appeared to be one of the most effective means of publicity as many respondents reported hearing about the Survey from a friend outside of their program, institution or discipline.

Methodology

The Survey asked questions in nine areas: information for prospective students, curricular breadth and flexibility, teaching, professional development, career guidance and placement services, time to degree completion, mentoring, program climate, and overall satisfaction. Each section contained a number of multiple-choice questions for respondents to rate their satisfaction (using a four-point Likert scale of Strongly Disagree, Disagree, Agree, and Strongly Agree), and a free response section to allow elucidation about any questions in the section.

It should be emphasized that the Survey is an observational study, not a controlled experiment. The Survey population is **not** a random sample of doctoral students, but a self-selected population that is not necessarily representative of students overall. However, there are reasons to believe that the survey respondents do not represent only the views of an outspoken set of disgruntled students. Limited comparison of the responses with a controlled study of doctoral students (Doctoral Student Education and Career Preparation, conducted by Dr. Chris Golde and Dr. Timothy Dore) has shown that, if anything, respondents to the Survey are actually more satisfied with their experience than those in their study (a comparison of this research may be found at <http://www.phds.org/survey/results/validate.phtml>). Results are only being publicly released for programs that received 10 or more responses to provide some assurance that the experiences are not skewed by the experience of only one or two respondents. Weaknesses and deficiencies identified by the Survey would, therefore, involve a larger number of students from the program and indicate a problem to be considered.

Several security measures were put in place to promote the validity of responses. Respondents were asked to affirm that the responses provided were truthful, to the best of their knowledge. Upon beginning the Survey, each respondent was issued a unique identification number using the e-mail addresses provided by the respondent. In order to validate their response, participants were asked for this ID number at the end of the survey. This same ID also allowed students to revise their responses until the end of the Survey period.

Participation

A broad cross-section of doctoral students completed the Survey. Participants were from the entire range of academic fields and represented nearly every institution with a doctoral program in the U.S. and Canada. A comparison of some basic demographic information with the 1998 *Survey of Earned Doctorates* indicates that women and students in the Humanities are overrepresented in the Survey population (note that the *Survey of Earned Doctorates* includes only those receiving their doctoral degree, while The National Doctoral Program Survey includes current and former students):

	NAGPS National Doctoral Program Survey, 2000	NSF *Survey of Earned Doctorates*, 1998*
Gender (% female)	51.1 %	41.8 %
Citizenship (% non-U.S.)	22.2 %	26.7 %
Black/African-American	3.5 %	3.4 %
Chicano/a, Hispanic, Latino/a	3.6 %	2.8 %
Marital status (% married/partnered)	46.6 %	57.4 %
Physical Sciences	16.5 %	15.8 %
Engineering	8.2 %	13.9 %
Life Sciences	22.9 %	20.0 %
Social Sciences	20.4 %	16.6 %
Humanities	20.0 %	12.9 %
Education	6.5 %	15.4 %
Professional/Other Fields	5.5 %	5.5 %

* Sanderson, A., B. Dugoni, T. Hoffer, and L. Selfa. 1999. *Doctorate Recipients from United States Universities: Summary Report 1998.* Chicago: National Opinion Research Center. (The report gives the results of data collected in the Survey of Earned Doctorates, conducted for five Federal agencies, NSF, NIH, NEH, USED, and USDA, by NORC.)

About NAGPS

The National Association of Graduate-Professional Students (NAGPS) was founded in 1986 as a 501(c)(3) nonprofit organization dedicated to improving the quality of graduate and professional student life in the United States. To this end, NAGPS works to actively promote the interests and welfare of graduate and professional-degree-seeking students in public and private universities, as well as in public and private agencies at the local, state, and national levels. In addition, through its national office and regional networks, NAGPS acts as a clearinghouse for information on graduate and professional student groups at all stages of development.

NAGPS members include over 130 graduate student associations at universities throughout the United States, together representing nearly 900,000 graduate and professional students. Affiliate memberships are also held by over 65 institutions. NAGPS maintains a close working relationship with other organizations dedicated to post-graduate education, including the Council of Graduate Schools, the Association of American Colleges and Universities, the National Black Graduate Students Association, the Graduate Student Caucus of the Modern Language Association, the Coalition of Graduate Employee Unions, and the American Medical Student Association.

More information can be found at the NAGPS Web site: <http://www.nagps.org/>.

NAGPS Survey Team Credits

Malaina L. Brown was chair of the NAGPS Research Committee and Principal Investigator for the Survey from its inception through Summer 2000. She focused on foundation relations, financial and project oversight, publicity, and funding.

Dr. Geoff Davis is author of the 1999 PhDs.org Grad School Survey on which the National Doctoral Program Survey is based and creator of the Sloan-funded PhDs.org website. In addition, he served as chief technical consultant for the NAGPS Survey and is the author of most of the software for the Survey and its presentation and analysis.

Adam P. Fagen is co-chair of the NAGPS National Doctoral Program Survey Committee and a doctoral student at Harvard University. He has been involved with the project from its inception, focusing on public and organizational relations, publicity, survey design, and technology coordination.

Dr. Susan M. Niebur was co-chair of the NAGPS National Doctoral Program Survey Committee and recently received her Ph.D. from Washington University in St. Louis. She has been involved with the project from its inception, focusing on institution and association relations, publicity, survey design and coordination of the survey advisory board.

Kimberly Suedkamp Wells is president of NAGPS and a doctoral student at the University of Missouri-Columbia. She has served as project coordinator since October 2000 and has focused on project and financial oversight, legal issues and advisory board relations.

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Program Reviews and Program Quality

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Abstract

Most universities require some form of program evaluation, usually involving self-study reports and external reviewers. Program reviews are frequently used by faculty and administrators to assess the quality and viability of graduate programs. Structured, systematic, detailed program reviews may yield the most accurate information regarding program quality.

Overview

A systematic program review may be the most important process for evaluating and improving the quality of graduate programs. However, an internal and/or external program review without guidelines or structure is potentially a waste of time and resources. In extreme cases, a program review may have little to do with enhancing the quality of a program. It can be a self-serving process with a primary goal of promoting a program to obtain additional resources or it can be imposed externally to justify predetermined decisions about the fate of a program. While either of the extremes is unlikely, a carefully structured review process can reduce biases and lead to constructive recommendations for improving the quality of graduate programs.

The suggestions are largely based on the efforts of many persons over the last ten years to improve university-wide program review procedures at the University of Northern Iowa.

Establishing a Committee on Academic Program Review

A standing committee appointed by the Provost representing faculty and administrators from different colleges can be used to develop and revise specific academic program review procedures and to schedule and have oversight of academic program reviews. At our university, the Board of Regents mandates that two external reviewers must review every program, graduate and undergraduate, at least every seven years.

Developing a Self-Study Report

Each graduate program should develop a self-study report which clearly describes the history, present circumstances, and aspirations of the program. The Committee on Academic Program Review should develop an organizational format for the self- study report to encourage consistency of coverage across programs.

Conducting an External Review

Selection of appropriate external reviewers is a critical aspect of a program review. Efforts should be made to avoid selection of reviewers who may be biased because of conflicts of interest or close ties with either faculty or administrators. Recommendations for reviewers should originate with the faculty and be subject to the approval of the college dean and the graduate dean. Ideally, reviewers should be from institutions with a comparable size and scope of graduate programs. Reviewers should be given a copy of the program's self study along with guidelines for conducting the review well in advance of their visit.

For most Master's I institutions, it is unlikely that resources will permit different reviewers for most graduate and undergraduate programs. If the same persons are reviewing both undergraduate and graduate programs, it is important that a separate report be submitted for the graduate program. Our experience as a comprehensive university which emphasizes teaching at the undergraduate level is that a combined report for both graduate and undergraduate programs typically slights the graduate program. The Committee on Academic Program Review should be responsible for developing written guidelines for conduct of external reviews. Using such a   guideline and requiring a separate report for graduate programs should increase the probability of a more detailed and focused coverage.

Developing a Program Plan

After receiving the report from external reviewers, the faculty of the graduate program should develop a program plan by using their self-study report and the external reviewers' report. This plan should be reviewed by the college dean and the graduate dean followed by a meeting with the department to discuss possible modifications and the feasibility of implementation.

Not So Helpful External Reviewer Comments

Efforts have been made to provide guidelines for reviewers and to structure their report so as to obtain specific recommendations on: 1) the quality of program, 2) the centrality of the program to the mission of the department, college and university, 3) the demand for the program by students, employers or graduate and professional pro-

grams, 4) the cost-effectiveness of the program, and 5) whether the review substantiates the conclusions of the self study.

Despite these efforts, our program reviews contain frequent themes related to the need for increased faculty, increased secretarial help, increased assistantship support, or better facilities and equipment. Examples of quotes taken from reviews over the past ten years are listed below:

"Program quality appears high but may be operating at the limits of faculty and departmental resources."

"To maintain quality training for students and increase in student numbers, additional staffing should be considered."

"Unless additional resources are found in the form of an additional faculty line, some easing of the summer teaching restrictions, and/or being able to hire adjunct faculty from time to time (preferably all three), I believe that this faculty is at risk of noticeable burnout within three years."

"Should the decision be made for the doctoral program to be emphasized without the addition of at least three new faculty and major assistantship support, a recognizable level of quality would be impossible to maintain."

"A senior faculty member with an active research and publication agenda and substantial dissertation supervision experience should be added to . . ."

"An additional faculty line is needed to allow the program to be more flexible and innovative in its offerings and to reduce stress on the current faculty."

Frequent similar quotes emphasize the need for: (1) increased secretarial help, (2) new or improved facilities, (3) equipment, and (4) an increase in the number and amount of assistantships.

Very few reviewers have reported that a program has: 1) too many faculty, (2) an excessive amount of secretarial help, or (3) too many assistantships with stipends that are too high.

Summary

Efforts to develop valid indicators of program quality represent a continued challenge for graduate college administrators. Structured, systematic, detailed program review procedures may help in assessing the quality and viability of graduate programs. Despite these efforts to improve objectivity, there will probably always be some bias to use such reviews to justify the need for additional resources. Regardless, program reviews continue to be one of our most significant efforts to assess.

Ethical Issues in Graduate Education

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Abstract

Areas in which ethical issues touch graduate education include the application process, the delivery of instruction, mentoring, the use of teaching and research assistants, and the integrity of dissertation research. The environment in which ethical issues arise is complex. That environment is shaped and affected by such factors as federal and state laws (disability, discrimination, privacy, sexual harassment); ethics codes of professional organizations or accrediting bodies; stipulations of federal agencies; regulations of state bodies or university systems; campus codes for student conduct; graduate school policies; departmental or program policies; variations in disciplinary cultures; and common sense and fair-play understandings.

Discussion

The session promoted discussion through ten case studies presenting ethical dilemmas that could be encountered by graduate deans. The session organizers offered the following problem-solving tips, prepared by Lamar Riley Murphy, for graduate deans:

1. Prevent problems where possible. Encourage graduate programs and advisers to document policies, procedures, expectations, and disciplinary conventions (e.g., progress to degree, milestones and timetables, research protocols, publications standards, authorship practices, funding, professional development activities). Encourage graduate programs to provide appropriate orientation to new graduate students and faculty. Encourage mentoring programs for junior faculty and postdocs.

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2. Be familiar with policies and procedures governing all aspects of graduate education on your campus.

3. Know and use campus resources; ask for help when appropriate from colleagues, especially legal counsel; refer students, faculty, postdocs, and staff when appropriate.

4. Follow the rules; don't promise anything, including confidentiality, before making sure you can; don't give "off the cuff" advice; be an honest and trustworthy broker.

5. Use informal procedures whenever possible before initiating formal procedures.

6. Listen actively; verify conclusions; document key actions/decisions; communicate clearly, carefully, accurately, and appropriately with key players; do not share information with those who do not need to know.

7. Use good judgment in navigating ambiguity; set boundaries (gifts, favors, friendships) and limits (you can't do or know everything).

8. Be consistent, consider precedent; follow up; do what you said you'd do, when you said you'd do it.

9. Get all sides of the story; weigh your concern and sympathy for an individual against your responsibility to the university, the graduate program, and to other faculty, students, postdocs, or staff.

10. Learn from each situation: Do policies and procedures need to be modified? Do graduate school staff need further training? Does a particular graduate program need special attention?

An On-Line, Web-Based Graduate School Admissions System

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Introduction

In 1999, Dr. Katy Marre, Associate Vice President for Graduate Studies and Research, teamed up with Mr. Clancy Cross, Director of the UDRI Web Development Center, and Mr. Ron Thomas, Senior Software Engineer, to develop an on-line, web-based graduate school application system and companion website to supplement printed marketing materials and eventually replace the two-sided paper application form. The goal extended beyond an electronic convenience for prospective students. It included automating portions of the application process and making the system's data available to decision-makers throughout the University. The project was based on the following objectives:

- **Customer Service** – Provide a convenient way for potential students to apply on-line in order to increase the number of graduate applications.

- **Process Analysis** – Understand the business needs of the academic departments to ensure the new system and process would accomplish the goals.

- **Paperwork Reduction** – Streamline the application process by reducing exchange of paper documents. This would improve responsiveness to the applicant.

- **Real-time Decision Data** – Provide various views of the data through several reports as an aid in making enrollment decisions. One aspect of this is the tiered access that allows deans to see what deans need to see, program chairs to see what they need to see, and universal access for the Graduate School staff.

- **Staff Efficiency** – Capture data once, at the source, and channel it selectively and electronically throughout the University.

Understanding the Application Process

The team conducted a comprehensive analysis of the graduate school application process and developed a set of "business rules" that formed the basis of the on-line application system and supporting processes. Some of these business rules were automated and built into the software. Others simply documented manual processes. Still others resulted in changes to manual processes.

The underlying principle of the software was to accommodate and facilitate a "service-oriented model" for graduate admissions. This model was a combination of centralized and distributed activities. Administrative functions, characterized by routine repeatable tasks such as handling transcripts, recommendation letters, and test scores, are performed by the centralized Office of Graduate Studies staff. Interactive activities that are specific to each program are delegated (i.e., distributed) to the program chairs, department chairs, and/or deans. These are the experts that can best answer applicants' questions and "sell" the program.

Benefits

The potential benefits of an on-line system go beyond a simple convenience to the applicants. First, the data can be sorted and queried to provide feedback that helps in formulating marketing strategies. Second, an on-line system can reduce paper usage. Third, an on-line system can feed data to other administrative and academic systems to eliminate data entry duplication. Fourth, the information can be made available immediately, instead of waiting for it to filter down through the pipeline. Fifth, the system can be expanded to impose business rules such as approval procedures. Sixth, the system and its tape back-up capability streamline the archival process. Finally, the new system provides 24x7, real-time access to all application data, application attachments, and process metrics.

Summary of Features

The many system features were carefully selected and defined to support the unique characteristics of the graduate enrollment process. Some of the more noteworthy features are listed below:

- College applications take time to complete. To accommodate this, applicants are able to fill out the electronic application over multiple sessions.

- Client-side error checking reduces the possibility that bad data or an incomplete application will be received.

- Built-in logic omits pages from the application process according to answers provided by the applicant.

- The Graduate School staff, the Dean's Offices, and academic departments can view and evaluate individual applications through a web interface.

- The system allows program chairs to view applications in progress.

- The system provides a nice selection of customizable reports. Because the application data is stored in a relational database, additional reports can be easily written as needed.

- Tiered access through multiple permission levels allows deans to see what deans need to see, program chairs to see what they need to see, and the Graduate School staff to see everything.

- Supporting documents can be scanned and stored electronically as part of the electronic application.

- The system includes a "request information" form for prospects. This data is captured and can be viewed in web-based reports.

- There is a logical connection between the prospect database and the application database such that reports can be made to evaluate how many prospects become applicants.

- A designated person for each program can digitally sign his/her recommendation for each applicant.

- The system supports data encryption. Data encryption can be turned on or off as needed by the system administrator.

- Applicant data is stored in two separate formats and is backed up daily.

- The system can send e-mail alerts to selected departments when new applications are received and when all attachments have been received.

- The system allows each program to use its own business rules for evaluating applicants.

Problems and Solutions

The system went live in the spring of 2000. During beta testing, installation of new revisions, and daily operation of the system, the system performed reliably with no known loss of data and almost no interruption of service. A few isolated difficulties occurred as summarized in Table 1. Today, the system operates almost hand-free.

TABLE 1. Selected Problems and Solutions

Problem	Evaluation/Solution
Occasional problems with page time-outs. Page time-out is a feature intended to protect applicants who use the system from a public computer.	The time-out period was increased and instructions were modified to make the user aware of the time-out and how to deal with it. Consequently, this problem has disappeared.
Some foreign applicants used the system instead of the intended process provided by the International Students Office.	Wording on the opening page was modified to point foreign national applicants to another website.
User can't access the application he/she started. Because the name and SSN are part of the identifying information, this occurred when the applicant incorrectly entered his/her name (e.g. spelled his/her own name wrong) and/or SSN.	The system administrator would find the applicant's XML file and manually change the name data and filename. This was only done by permission of the Graduate Studies Office and only prior to the application being sub-mitted. Additional user information was added to the system to help the user.
Program chairs had trouble electronically signing their recommendations.	This situation occurred when the digital certificate was deleted from their computer or not set-up correctly. This problem usually followed a computer replacement, repair, or software upgrade.

Results

By any measure, the project has been an overwhelming success. Software problems were minimal and the benefits were substantial.

Success #1, Dramatic Increase in Applications – The graph in Figure 1 illustrates the year-by-year increase in graduate applications with a 2003 projection based on 3 months of data. Comparing selected months with the monthly averages for 1998 and 1999 (the final two years before the Web-based system came on-line) shows a 129.8% increase in January 2003, a 71.5% increase for February 2003, and a 58.6% increase for March 2003. Overall, the year 2002 resulted in a 53% increase over the former baseline based on the 1998-1999 average.

Success #2, Improving Responsiveness – Another success indicator is the real-time access the departments had to applications, the ability to "peek" at applications in progress, and the ability to customize summary reports. A follow-up survey is recommended to determine the value of these features.

Success #3, Paper Reduction – A third success factor has been the reduction of paper applications and the corresponding reduction of paper exchanges between the Graduate School office and the departments. By the second full year of operation, nearly 95% of all applications were electronic.

Success #4, Process Improvement – As a result of the process improvements resulting from this project, the Graduate School clerical staff was able to eliminate the backlog of application materials (e.g., transcripts, test scores, and letters of recommendation) and achieve a 24-hour turnaround of these application materials.
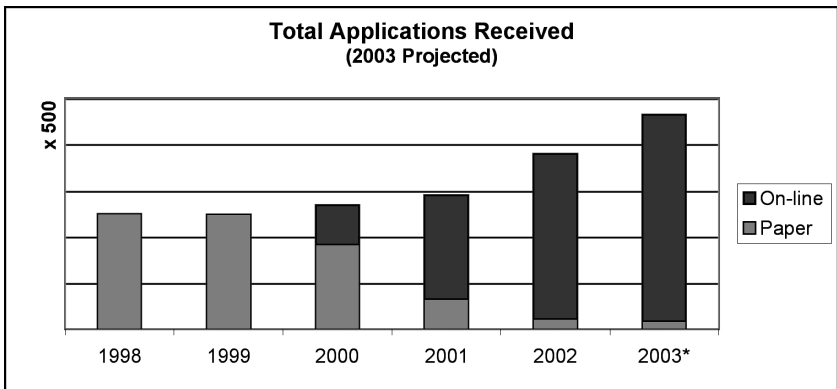
Figure 1. Graduate Application Trends

* NOTE: 2003 projections based on 3 months of data

Return on Investment

During the period of use from March 2000 through March 2003, graduate school applications increased by an average of 35 per month. Using estimates for matriculation rate and net revenue per graduate student, the team calculated a return on investment (ROI) of 165:1 for this project. ROI is often expressed in terms of how long before the investment "pays for itself." In this case, the project had a 1-month ROI because it paid for itself with an increase of only 5 new graduate students, which occurred sometime in the first month of usage. Note that this simple analysis does not factor in the additional ROI because of the staff efficiencies enabled by electronic processing of data.

The Electronic Graduate School: Using Technology for Graduate Student Professional Development

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The second part of this workshop focused on another promising application for new technologies: graduate research training and student professional development. Associate Dean and Project Director Elaine Berland presented an overview of a six-year Graduate School Summer WebWorkshops initiative; examples of online multimedia graduate student projects designed to communicate research to non-specialists were demonstrated by David Callon, doctoral candidate in English and Liberman Graduate Fellow, who conducted the GOL workshops. Visit www.artsci.wustl.edu/GSAS/GOL

Graduate education faces additional challenges of the 21st century, such as calls to increase technology fluency and broaden Ph.D. training, amidst shrinking budgets and staff resources. As the traditional work of higher education integrates emerging technologies, universities need faculty with a critical awareness of how technology, teaching and research intersect, inform, and transform one another in ways that enhance student learning and help foster stronger campus communities. Beyond the academy, Ph.D.s confront an increasingly competitive, digital marketplace that places a premium on the ability to communicate professionally and publicly, using a myriad of multimedia tools. Providing the new technology is costly; providing the training is complex, as often the faculty mentoring model, central to graduate education, may not contain the requisite advanced skills.

Washington University WebWorkshops Initiative

The Graduate School of Arts and Sciences at Washington University responded to these challenges and expressed graduate student interests on our campus in 1996 by launching an interdisciplinary training initiative where graduate students teach other graduate students to use new technologies to enhance their professional development and job opportunities within and beyond academe. The Graduate School, under the leadership of Dean Robert E. Thach, provides "big picture" leadership, summer

stipend funding for graduate student peer teachers, and direction to a collaborative effort which has brought together graduate students, Arts & Sciences Computing Center (hardware and technical support as part of regular annual budget), and the university Teaching Center (teaching training guidance).

In its sixth year, the Summer WebWorkshops have become an established part of graduate Arts & Sciences student training at Washington University. Hundreds of graduate students in more than 30 disciplines have participated in the summer sequence of teaching with technology workshops; they, in turn, have become critical players as TAs in the transformation of undergraduate classrooms and culture.

Initiative Components: 1996 – 2002

- Trained team of graduate student fellows as peer teachers for doctoral students
- Summer WebWorkshops – Introductory one-week series on use of Internet to enhance classroom teaching, establish professional identity online, electronic grant-seeking
- Online Tutorials for self-directed study of above topics
- GradLab for teaching with technology/peer-assisted computer lab for graduate TAs to continue development of teaching with technology projects
- Graduate Online Lecture (GOL) project – advanced 8 week summer experimental workshop for public communication of research to non-specialists through online multimedia presentations www.artsci.wustl.edu/GSAS/GOL

Particularly innovative is the advanced experiment, the Graduate Online Lecture (GOL) project. In two months, doctoral students in the humanities and social sciences learn the public communication and multimedia tools – Macromedia FLASH!, Adobe Photoshop, Sonic Foundry SoundForge and others – to create online multimedia modules to communicate research to non-specialists. Together with two peer instructors they explore how these tools can be used to visualize highly specialized academic knowledge for the benefit of broader audiences of non-specialists, including undergraduates, alumni/life-long learners, and the public.

When the specialized knowledge of an academic dissertation or article is put into the multimedia domain of the world wide web, it becomes a very different artifact. Students learn how to transform the complex arguments and theoretical paradigms of their academic work into sets of key concepts that can be refashioned into a dramatic narrative for non-specialist audiences without sacrificing the quality and integrity of their research. Participants report this training as an asset in job searches. In addition participants felt that their intensive work in different media and with peers from other disciplines brought them closer to the core questions and original purposes and passions of their academic projects, giving them new enthusiasm for their dissertation research and writing. Additional benefits and outcomes include:

Transferable Professional Skills

- Advanced technology skills
- Public communication skills
- Oral presentation skills
- Team work
- Project management skills
- Interdisciplinary collaborations

Outcomes

- More innovative teaching
- Enhanced job marketability for Ph.D.s
- Versatile model for communicating research to non-specialist audiences
- Promising Practice in Doctoral Training selected for inclusion in the Woodrow Wilson Foundation Responsive Ph.D. Assessment Project

Examples of online graduate student projects in Physical Anthropology, Art History and Cultural Anthropology were shown. Audience discussion focused on the value of developing broader transferable skills and the GOL initiative as a training model for public communication of research to non-specialists.

References

Berland, E., G. Foster and D. Callon, Building technological fluency at a research institution: Faculty, graduate student and undergraduate initiatives at Washington University in St. Louis. Syllabus website www.syllabus.com (2002 Conference).

Logan, J. 2002. Integrating technology training into graduate education. Science Next Wave website http://nextwave.sciencemag.org (March 29, 2002).

Issues of Adaptation to U.S. Culture and Procedures

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International students are among the brightest and most adventuresome their countries have to offer. They are valuable components of any institution's diversity platform and are in fact indispensable in some disciplines. Many become U.S. citizens and contribute to our faculty and corporate staffs. When we admit them to our graduate programs, we should be granting them full membership in our graduate community and we should have the same expectations for their success as we do for anyone else. Nevertheless, we must remember that they are different from their U.S. counterparts. As you have already heard, undergoing special credentials evaluations and interviewing for visas are just two of several hurdles that international, but not American, students must clear. Assisting international students to clear the remaining hurdles does not mean that they must be assimilated; rather, it means that we should be providing them with the tools to function effectively in our environment and even the means to celebrate their differences. The fundamental tools are knowledge of their obligations and appreciation of our cultural practices. One partitioning of the required knowledge base produces components that we may label Immediate, Legal, Social, Educational, and Professional.

Immediate knowledge refers to what one needs to know when relocating to an unfamiliar environment without all the resources that might be available to an American student. Among these issues are expected procedures at U.S. ports of entry, pre-arrangements for housing, travel instructions, primary contacts at the destination, and initial registration and legal procedures.

Legal knowledge addresses issues that will generally arise during the student's stay in the U.S. Among them are requirements for maintaining a valid visa status, procedures to follow when traveling outside the U.S., tax obligations, laws and requirements pertaining to ownership of motor vehicles, insurance coverage, work authorization and Social Security numbers, and concepts of contracts as they pertain to things like renting an apartment.

Social knowledge spans a very broad spectrum ranging from practices such as tipping or greetings to more subtle issues such as the "proper" distance to maintain when conversing with someone else or the level of familiarity one can assume with people of different status. We would also include topics like grooming, shopping, taboos, easily misunderstood idioms, giving and receiving compliments, and so on. More complex topics can address male-female roles in the U.S. and American reaction to conversations on subjects like politics and religion. Practical issues

such as local transportation and U.S. banking practices also fall under the heading of Social knowledge. Not all aspects of social culture are pointed in the American direction. Many international students look for things like food and music that are familiar in their own cultures, and many seek opportunities to share their cultures with Americans.

International students must quickly familiarize themselves with their **Educational** requirements. Apart from registration procedures, they need to know how courses are conducted in an American university or college. A lecture here is not necessarily the same as a lecture elsewhere, graded homework assignments in graduate courses is a truly alien concept to some, and the frequency of examinations in American institutions can be disconcerting. Even the expected style of learning may require significant adaptation. Some students may also need a considerable amount of help to make good use of library, computing, and other infra-structural systems.

Many international students will be required to assume **Professional** duties such as serving as a teaching assistant. Some form of training about American educational philosophy and institutional standards is imperative if international students are to perform these duties well.

There are several ways to help international students acquire what they need to know. They can obtain immediate information before they arrive in the U.S. through web or printed information or through direct contact with departmental or institutional representatives. Local resources can include properly screened and trained host families, formal international student offices to conduct orientations and serve as advisory bodies, various forms of cultural clubs and offices, peer mentors, and departmental mentors. Information can be imparted through printed material such as handbooks or less impersonally through conversations with mentors and advisers. How we choose to assist our international students will of course depend on the size of the international student body and the organization of our institution, but there is no doubt that we are obliged to provide that assistance

MAGS Committee Reports

Auditing Committee Report

We reviewed the statements of assets, income and distribution, including the state of investments of the Midwest Association of Graduate Schools, for the period covering March 1, 2002 to March 1, 2003. In our opinion, the financial statements present fairly, in all material respects, the financial position of the Midwest Association of Graduate Schools as of March 1, 2003.

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Committee Members

Dennis L. Nunes, Chair, St. Cloud State University
Joseph Bast, University of Kansas Medical Center
Phillip Pope, Purdue University

Distinguished Master's Thesis Award Committee Report

On behalf of the Distinguished Master's Thesis Award Committee, I present the report of the 2003 committee selection process.

For the 2003 award, there were 51 nominated theses. These theses were sent to the eight members of the selection committee for review at their respective institutions. Most manuscripts were evaluated by three or four reviewers. The quality of the manuscripts nominated was excellent; many received very high reviewer scores with comments that indicated high-quality work on the part of the students nominated.

This year, two awardees were to be selected for the UMI/MAGS Distinguished Thesis award and one for the ParamGun Sood Distinguished Thesis award. Committee members submitted scores to the chair, who arranged a conference call. In March, 2003, committee members discussed the reviewers' scores and comments for the highest rated manuscripts and selected the following two recipients for the 2003 UMI/MAGS Distinguished Thesis Award and for the ParamGun Sood Distinguished Thesis award:

MAGS /UMI Distinguished Master's Thesis Awards

Amber Good, " 'Lady, What Do You Do All Day?' Peggy Seeger's Anthems of Anglo-American Feminism," University of Cincinnati, 2002.

Abstract. Peggy Seeger's family lineage is indeed impressive: daughter of composers and scholars Charles and Ruth Crawford Seeger, sister of folk icons Mike and Pete Seeger, and widow of British folksinger and playwright Ewan MacColl. Although this intensely musical genealogy inspired and affirmed Seeger's professional life, it has also obscured her own remarkable achievements. The goal of the first part of this study (Chapter One) is to explore Peggy Seeger's own history, including but not limited to her life within America's most prolific folk family. Seeger's story is distinct from that of her relatives and from that of most folksingers in her generation.

The second part of the thesis focuses on Seeger's contributions to feminism through her songwriting, studies, and activism. Chapter Two recounts the story of "I'm Gonna be an Engineer," her first and most famous women's song. The composition of this hallmark feminist anthem inspired her personal involvement with the women's movement and created a demand for her future repertoire of women's songs. Chapter Three deals with this resulting songwriting output, examining trends within Seeger's compositional energies and political activism since 1971. As with most areas of Seeger's life, her songwriting and activism alternately engage with and depart from women's issues. Her political calendar and her recording and publishing activity shed light on this pattern.

The final chapter is an examination of Peggy Seeger's women's songs as they pertain to the larger fields of women's history and feminist theory. One of

Seeger's major contributions to folk music and to women's studies is the development of this comprehensive body of women's songs. Her songs tell previously untold stories about the experiences of women and demonstrate that Seeger, although rarely active in the women's movement, absorbed and documented the dialectical trends of late twentieth-century feminism.

Geoffrey V. Harkness, "Living on the Fringe: How Pawn Shops Keep Poor People Poor," University of Kansas, 2002.

Abstract. There is a new form of inequality in the United States today: a growing imbalance in both the cost of, and access to, credit. These differences often reflect larger patterns of inequality. In the past 20 years, the growth of the traditional credit industry (credit cards, checking accounts) has mirrored the exponential increase in fringe-banking services (pawn shops, payday loan organizations). While both tiers of the credit industry are targeting working and middle-class consumers in new ways, those at the bottom rungs of the credit ladder are often forced to resort to fringe-services, which are far costlier than traditional credit. Middle-class Americans who complain about credit cards with double-digit credit card interest would be astounded at fringe rates, regularly between 240 and 1500 percent annual interest. The most impoverished clients of these "poor man's banks" are often ensnared into a web of astronomical interest rates, storage fees, and other expenses, and find it difficult to get out. This thesis examines the fringe-banking industry, with an emphasis on pawn shops, the oldest form of consumer credit. Using census data, ethnographic research, and in-depth interviews, the thesis examines the patterns of inequality that emerge from the fringe-banking arena.

ParamGun Sood Thesis Award

Radoslav Bonk, "Scale-Dependent Geomorphometric Analysis for Glacier Mapping at Nanga Parbat, Pakistan," University of Nebraska at Omaha, 2001.

Abstract. The objective of this master thesis was to apply hierarchy theory to data modeling of landforms at Nanga Parbat in northern Pakistan. Specifically the research focus was to investigate the efficacy of automated alpine glacier mapping using a digital elevation model (DEM) and object-oriented data modeling and analysis. The approach is unique because it integrates spatial theory and concepts to address the significant scientific problem of explaining topographic organization and topographic evolution.

A high resolution DEM was generated from satellite imagery to produce a three-dimensional model of the Nanga Parbat mountain. The DEM was sampled and a spatial interpolation function was used to generate a new DEM with less high-frequency error. This DEM was used to compute morphometric terrain properties of slope, slope aspect, and curvatures. Object-oriented C++ analysis software was written to characterize form objects on the landscape

and generate geometric and spatial topological information.

The results indicate that landscape forms can be characterized based upon the assumption of hierarchical organization. Although only two hierarchical levels were tested, the results indicate that automated geomorphological mapping is feasible and that there may be the potential to do this in a diagnostic fashion. Various geometric and topological properties of form objects were diagnostic for glacial processes versus polygenetic slope forming processes. Consequently, it was feasible to delineate alpine glaciers from neighboring terrain. These results are significant with respect to world-wide glacier inventory as global warming trends are affecting glacier distribution and water resource potential. Furthermore, this work may provide the basis for identifying and mapping the operational scale of surface processes to understand erosion and relief production, a topic of primary importance, as feedbacks with climate surface processes and tectonics may control global climate. Therefore, the results have applicability for addressing numerous environmental and resource related problems.

All three recipients have written scholarly documents that are a credit to them and to their institutions. The committee was pleased to make the awards official at the 2003 Midwestern Association of Graduate Schools spring meeting in Minneapolis, Minnesota.

Respectfully submitted,
Maria C. Di Stefano, Chair
Dean, College of Graduate Studies
Truman State University

* *

Committee Members

Maria Di Stefano, Chair, Truman State University
Deborah Balogh, Ball State University
Max Caproni, Loyola University of Chicago
James Groccia, University of Missouri-Columbia
Peggy Harrel, University of Southern Indiana
Jolyn Kuhlman, Indiana State University
Ken Nikels, University of Nebraska-Kearney
David Wilson, Southern Illinois University-Carbondale

Membership Committee Report

The Membership Committee approved and forwarded the names of two institutions to the Executive Committee in December 2002 for their review and approval at the CGS meeting:

- Drury University, Springfield, Missouri (Dr. Joye Norris, Dean) – 225 graduate students (Fall 2001)
- Illinois Institute of Technology, Chicago, Illinois (Dr. Ani Cinar, Dean) – 2161 graduate students (Fall 2001)

MAGS membership as of the 2003 annual meeting is shown below. A current membership listing, the constitution, and an institutional application form are available on the MAGS website at:

http://www.unl.edu/gradstud/mags/magshome.html

Respectfully submitted,
David A. Crouse, Chair
Associate Vice Chancellor for Academic Affairs
Associate Dean for Graduate Studies and Research
University of Nebraska Medical Center

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Committee Members

David Crouse, Chair, University of Nebraska Medical Center
Marilyn Vogler, Michigan Technological University
James Van Keuren, Ashland University
Dale Good, Walden University

2002 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/Loyola Medical Center
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
University of Illinois at Springfield
University of Illinois at Urbana-Champaign
Western Illinois University

Indiana
Anderson University
Ball State University
Butler University
Indiana State University
Indiana University
Indiana University Purdue University – Indianapolis
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
Baker University
Emporia State University
Fort Hays State University
Kansas State University
MidAmerica Nazarene 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
Wayne State University
Western Michigan University

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

Mississippi
Mississippi State University

Missouri
Central Missouri State University
Drury University
Northwest Missouri State University
Rockhurst University
Saint Louis University
Southeast Missouri State University
Southwest Missouri State University
Truman State University
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 Omaha
University of Nebraska Medical Center
University of Nebraska at Kearney
Wayne State College

North Dakota
Minot State University
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
Ohio University

Notre Dame College of Ohio
The Ohio State University
University of Akron
University of Cincinnati
University of Dayton
University of Toledo
Ursuline College
Wright State University
Xavier University
Youngstown State University

Oklahoma
Cameron University
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

Texas
Texas Tech University

Wisconsin
Concordia University
Marquette University
Sacred Heart School of Technology
University of Wisconsin - Madison
University of Wisconsin - Eau Claire
University of Wisconsin - Green Bay
University of Wisconsin - La Crosse
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 primary charge of the Publication Committee is oversight of the preparation of the *Proceedings of the Midwestern Association of Graduate Schools*. Harry Berman is the current editor. During the past year, manuscripts were received from presenters at the April 2 – 5, 2002 meeting; these manuscripts were reviewed and edited, and the *Proceedings of the 58th Annual Meeting* were assembled.

With help from the Program Chair, the Publications Committee has more firmly established expectations that presenters provide copies of their papers to the *Proceedings* editor for publication.

Deborah Berman edited each of the papers in the 2002 *Proceedings*. A major goal of the Publications Committee was to give the 2002 *Proceedings* a professional appearance. The *Proceedings* were printed by the University of Illinois at Springfield's Printing/ Duplicating Services office at a cost of $2,140.00 for 250 copies (including shipping). The 2002 *Proceedings* volume was mailed to all attendees of the 2002 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 a number of copies were given out at the 2003 meeting in Minneapolis. In the interest of having an even broader impact on graduate education, the *Proceedings* have been posted to the Southwest Missouri State University website at http://www.smsu.edu/mags.

We trust you have spent some time reading articles of the *MAGS 2002 Proceedings* and found them interesting. It includes 13 main articles, four workshop summaries and three extended workshop remarks, six committee reports, and instructions to contributors.

Respectfully submitted,
Harry Berman, Chair
Associate Vice Chancellor for Graduate Education and Research
University of Illinois at Springfield

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Committee Members

Harry Berman, Chair, University of Illinois-Springfield
Frank Einhellig, Southwest Missouri State University
George Green, University of Minnesota
David Hilderbrand, South Dakota State University

Adjusted Treasurer's Report for FY 2002
Period Covered - 3/1/01 to 3/1/02

ASSETS 3/1/2001

Checking Account	24,171.19
Money Market	10,433.52
Certificates of Deposit	32,975.80
Total Assets	**$67,580.51**

REVENUE 3/1/01 - 3/1/02

Registration Fees for the 2001 Meeting	14,205.00
Registration Fees for the 2002 Meeting	3,875.00
Late Membership Dues for 2001	1,625.00
Membership Dues for 2002	13,875.00
Contributions toward Annual Meeting Reception	1,450.00
Charitable Gift (Thesis Awards) - M. Sood	1,000.00
Interest From:	
Checking Account (TierOne Bank , Lincoln, NE)	106.53
CD#1 (TierOne Bank, Lincoln, NE, 03-00021024)	507.26
CD#2 (TierOne Bank, Lincoln, NE, 03-00021162)	415.35
Money Market (TierOne Bank, Lincoln, NE, 01-00007905)	556.05
Total Revenue	**$37,615.19**

DISBURSEMENTS 3/1/01 to 3/1/02

2001 Annual Meeting - Payment to St. Louis Marriott	21,701.96
Executive Committee Dinner (2001 Annual Meeting)	1,484.54
2001 Annual Meeting Executive Committee Expenses	878.76
2001 Annual Meeting Presenter Reimbursements	2,137.58
2001 Summer Meeting Reimbursements	2,836.13
2001 December Executive Committee Breakfast Meeting	191.96
Dean-in-Residence Relocation Allowance - Dr. Les Sims (U. of Iowa)	500.00
Lawson-trip to Minneapolis to negotiate contract for 2003	253.00
56th Annual Meeting Proceedings (printing cost)	1,535.00
2002 Annual Meeting Programs (printing cost)	628.00
Ceremonial Gavel for Mark Brenner (2001 Meeting)	36.95
Signature stamp from bank	8.20
Ceramic/metallic mugs - 2002 Annual Meeting	526.26
Plastic thermal mugs - 2001 Annual Meeting	348.94
Total Expenses	**$33,067.28**

ASSETS 3/1/2002

Checking Account	3,746.25
Money Market	35,406.37
Certificates of Deposit	33,724.64
Total Assets	$67,580.51

NOTE: MAGS has 3 CD's with First Federal Lincoln:

Acct. #	Principal	Maturity Date	Interest Rate	Value at Maturity
03-00021162	$10,000.00	10-23-01	6.00% APY	$10,000.00 (monthly interest)
03-00021033	$12,975.80	07-30-01	6.50% APY	$13,246-est (annual interest)
03-00021024	$10,000.00	04-25-01	5.25% APY	$10,000.00 (monthly interest)

[signed]   April 30, 2002

Merlin P. Lawson
Secretary/Treasurer   **Date**

MAGS Treasurer's Report FY 2003
Period Covered - 3/1/02 to 3/1/03

ASSETS 3/1/2002

Checking Account	3,746.25
Money Market	35,406.37
Certificates of Deposit	33,724.64
Total Assets	**72,877.26**

REVENUE 3/1/02 to 3/1/03

Interest from accounts held at TierOne Bank, Lincoln, NE

Checking Account (#64-00005790)	49.30
CD#1 (#03-00021024)	215.46
CD#2 (# 03-00021162)	242.50
CD#3 (#03-00021033)	169.71
Money Market (#01-00007905)	329.75
Total Interest Income	1,006.72
Late Membership Dues for 2002	2,675.00
2002 Annual Meeting Registration Fees	10,800.00
Membership dues for 2003	15,050.00
Contributions for 2003 Meeting Reception by Minnesota schools	450.00
Total Revenue	**$29,981.72**

EXPENSES 3/01/02 to 3/03/03

2002 Annual Meeting - Payment to Doubletree in Chicago	34,771.52
2002 Annual Meeting Shipping Charges – Federal Express	333.20
2002 Annual Meeting – Executive Committee Dinner	1,422.24
2002 Annual Meeting Expense Reimbursements	3,770.49
2002 Summer Meeting Reimbursements	3,119.37
2002 Breakfast Meeting during CGS	341.43
Param Gun Sood Award – Daniel Fogell (Univ. of Nebraska at Omaha)	500.00
Engraved plaques for 2002 Thesis Award Winners	100.96
57th Annual Meeting Proceedings publication (2001)	1757.75
Computer software – Quicken	59.99
Bond Renewal	350.00
Registration Fee Refunds	600.00
Reissuance of check #1094 to Katy Marre for purchase of gavel (1999)	32.95
Total Expenses	**47,159.90**

ASSETS 3/1/2003

Checking Account	6,468.61
Money Market	39,230.47
Certificates of Deposit	10,000.00
Total Assets	**55,699.08**

Transfers

$20,000 from Money Market to Checking, 03/16/2002
$20,000 from Money Market to Checking, 04/13/2002
$5,000 from Money Market to Checking, 05/25/2002
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[signed]   April 25, 2003

Merlin P. Lawson   **Date**
Secretary/Treasurer

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

Proceedings Editor

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Adherence to the submission schedule and instructions on how to submit your manuscript is essential to the timely publication and distribution of the *Proceedings of the Midwestern Association of Graduate Schools*. In addition, continuity in style and form are central to the appearance of any publication of articles. These guidelines have been developed to help achieve that goal of consistency and yet allow for freedom and presentation for the array of topics that constitutes the *Proceedings*.

The Proceedings of the Midwestern Association of Graduate Schools contains the text of presentations at the annual meeting, MAGS committee reports, summaries of small-group discussions, 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. The *Proceedings* does not act as a general publication outlet nor does its accept unsolicited manuscripts.

How to Submit Your Manuscript

Submission. Presenters should provide materials for publication to the following two people.

- Chairperson who organized and presided over the meeting section of the presentation (paper copy at the annual meeting, email attachment later)

- *Proceedings* editor (paper copy and email attachment)

Annual meeting committee reports and summaries of small-group discussions should be submitted (paper copy and email attachment) directly to the *Proceedings* editor. Guidelines for small-group facilitators are provided as the last section of these instructions to contributors.

Format. Manuscripts should be in Microsoft Word format (.doc) or rich text format (.rtf). PowerPoint or similar presentations are not acceptable.

Review of the manuscripts. The Publication Committee assumes responsibility for editing *Proceedings* manuscripts. Under certain circumstances, the section chairperson will be asked to conduct a first review and editing and forward those comments to the Proceedings editor. The Publications Committee will then complete the review and editing process.

Time Table. Manuscripts of presentations should be presented to the section chair at the time of the annual meeting. Manuscripts and reports should be received by the editor no later than 30 days following the annual meeting.

Manuscript Preparation. This publication can serve as an example of how materials presented for publication should be prepared. However, the general guidelines are as follows:

Title	Keep the title to a few key words, typically 10 or less.
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 space.
Paragraphs	Double space between paragraphs; do not indent.
Headings	Use of headings is encouraged, but should not exceed two levels. Left justify headings and bold.
References/ citations	*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	Ten single-spaced pages is the maximum length anticipated.
Figures/artwork	Graphs/figures developed using Microsoft Office are acceptable. Otherwise, provide clean, camera-ready copies that can be photocopied directly into the *Proceedings*.

Workshop Facilitators

The following guidelines apply to interactive meeting sections that are under the direction of a workshop 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 four to six 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*.