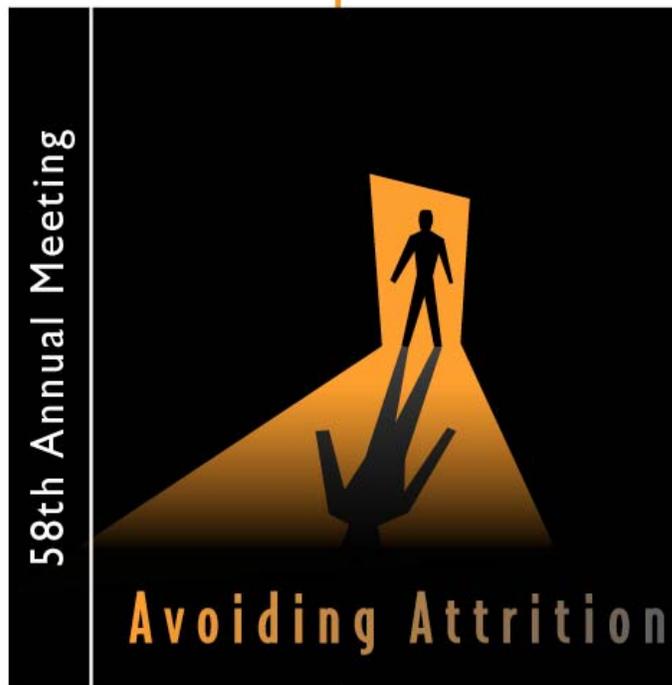


**Midwestern Association
of Graduate Schools**



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April 2-5, 2002

Proceedings of the
58th Annual Meeting
Midwestern Association of Graduate
Schools

Avoiding Attrition

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Leaving the Ivory Tower: Social-Structural Causes of Doctoral Student Attrition

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For almost 50 years, as long as there have been data on doctoral student attrition, the data have shown that close to 50 percent of people who start doctoral programs leave without completing the Ph.D. My program officer at the Sloan Foundation calls this a national scandal. Yet, until recently, there has been very little research on the causes of graduate student attrition. The little research that has been done has focused primarily on individual characteristics, in essence asking, What is wrong with the student who leaves? How can we make better selection decisions? How can we fix the student? My research turns the issue around and asks, What is wrong with the structure and process of graduate education?

I'm going to focus on two themes:

- It is less what students bring to the university, than what happens to them after they enroll; and
- Graduate student attrition is a function of the differential distribution of resources for integration and cognitive map development. (Note: Integration and cognitive map will be defined in the theory section.)

Before I show the evidence that supports these themes, let me provide some background on the sources of data for my study as well as the theoretical context.

Sources of Data

My research is based on five sources of data:

- A survey of 816 students (511 completers, 305 noncompleters) who were members of the Fall 1982 to Fall 1984 entering cohort at two universities in nine departments. The universities, which are called Rural University and Urban University, are among the top 40 Ph.D.-granting universities in the United States. The nine departments are traditional liberal arts disciplines and come from each of the three major domains of knowledge (sciences: mathematics, biology, chemistry; social sciences: sociology, economics, psychology; humanities: English, history, music). Table 1 shows the attrition rates from each department at each university.

	Total	Math.	Chem.	Biology	Econ.	Sociology	Psych.	History	English	Music
Rural University	33	32	19	39	22	28	41	30	34	44
Urban University	68	47	42	65	82	72	23	61	76	65

- Telephone interviews with 30 noncompleters, roughly two from each department from each university.

- Telephone interviews with 18 Directors of Graduate Study to gain background information on the participating departments' formal and informal structures and processes for educating graduate students.
- Face-to-face interviews with 33 faculty members, roughly two from each of the participating departments – one who had produced many Ph.D.s and one who produced few. These interviews were conducted in order to discern systematic differences in the attitudes, beliefs, and behaviors of those most responsible for educating and training graduate students.
- Site visits to each department.

Theoretical Context

My research is premised on two theories – the theory of the cognitive map and the theory of integration – and their interaction. Cognitive maps are mental models or mental representations. They help people make sense of their experience and tell them where to go and how to get there. I argue that graduate students need two kinds of cognitive maps, a global cognitive map and a series of local maps. The global map is analogous to a state map. It provides the major features of the terrain. In the case of graduate school this would be the formal requirements such as coursework, qualifying exams, and a dissertation. The local maps are analogous to street maps. They provide the details for getting around in a locality. In the case of graduate school, this would be maps of informal or unwritten expectations, academic tasks, and social and political relationships.

The theory of integration is a theory of community membership. If someone is integrated in a community (e.g., a religious, social, or political organization, a family, a workplace), that person has bonds and ties to members of that community that are difficult to break and as a result the person remains in or persists in that community. However, if someone is not integrated in a community, that person has no bonds or ties to people in that community. As a result, it is easy for that person to walk away or attrit from that community.

Graduate school has two communities into which students must integrate, an academic community and a social community. The academic community is the primary community because participating in the academic community is the primary reason for being in graduate school. Interactions and experiences that relate to the student's academic program and to the student's professional development lead to academic integration. The social community is incidental to the academic community. Integration into this community results from informal, casual interactions and experiences that often take place in academic settings.

Figure 1 illustrates the reciprocal relationship between cognitive maps and academic and social integration. I argue that the better students' cognitive maps of the academic and social communities of their graduate program, the more likely they are to become integrated into their programs and persist. And the better integrated students are in their programs, the better their cognitive maps will be because they are in closer and more frequent contact with people who can help them develop the understandings necessary for degree completion.

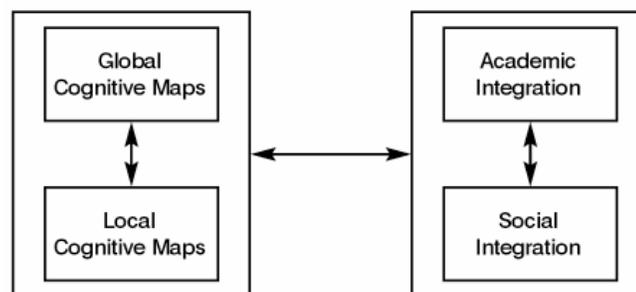


Figure 1. The Relationship between Cognitive Maps and Integration

It is less what students bring to the university...

My study, like many others, finds no differences in self-reported undergraduate GPA between students who complete the Ph.D. and those who do not. The completers' undergraduate GPA was 3.53 and the noncompleters' was 3.55. In other words, completers and noncompleters are equally academically able. More interesting, however, is the statistically significant finding that female graduate students reported significantly higher undergraduate GPAs than the male students (3.59 vs. 3.51), with female noncompleters reporting the highest undergraduate GPA (3.62) – and women leave graduate programs in higher numbers than men, suggesting that something other than lack of academic ability is causing them to leave.

Noncompleters also have more of the background experiences that should predict success than do completers. The survey had nine items that asked about the students' academic integration as undergraduates/prior socialization to graduate school and the profession (receive mentoring, work as part of a team, publish an article or chapter, present a paper outside the classroom, subscribe to a professional journal, attend professional meetings, belong to a professional association, serve on departmental committees, and belong to any campus organizations). As shown in Figure 2, two of the nine items (attend professional meetings and serve on departmental committees) achieved significance and favored the noncompleters. A higher percentage of noncompleters than completers responded positively to four of the remaining seven items (receive mentoring, present a paper outside the classroom, subscribe to a professional journal, belong to any campus organizations). When the nine items were collapsed into a single index and completers were compared with noncompleters, the result was significant and favored the noncompleters.

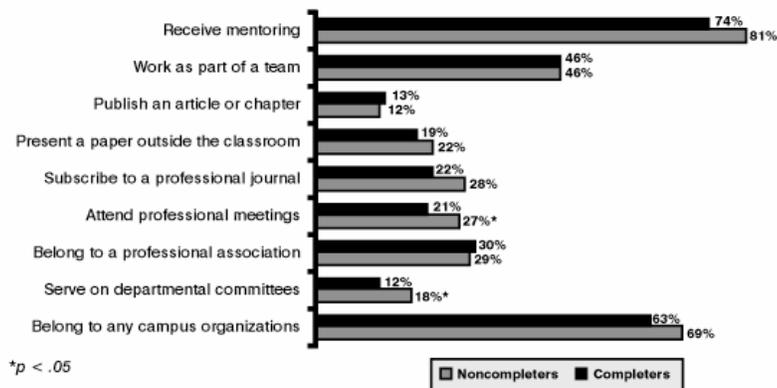


Figure 2. Prior Socialization/Academic Integration Experiences as Undergraduates

What's going on here? Based on my interviews with the noncompleters, ones who attended small liberal arts colleges in particular, what I think is happening is that the noncompleters had close collegial relationships with faculty and other students as undergraduates, went to graduate school expecting more of the same, and became disappointed and disillusioned when their experiences did not meet their expectations.

... it is what happens to students after they enroll

The remainder of this presentation focuses on what happens to students after they enroll. I will show how the resources for cognitive map development and integration are differentially

distributed to students at the department and at the individual level and how these factors contribute to attrition.

With respect to cognitive maps, I will show that

- departments do not do enough help students develop cognitive maps; and
- completers have better cognitive maps than noncompleters.

With respect to integration, I will show that

- the more resources a department has for integration, the lower the department's attrition rate; and
- completers receive more resources for integration than noncompleters.

Cognitive Maps: Department Level

Departments do not do enough to help students develop cognitive maps.

When I interviewed the Directors of Graduate Study (DGS), I asked them a series of questions about the information their department gave students to help them develop cognitive maps about various aspects of their programs. These questions focused on the following aspects of graduate education; the responses to several will be discussed briefly below:

- information before arriving on campus;
- information after arriving on campus;
- the department's orientation for new students;
- how the department helped students plan their program of study;
- information about other formal requirements (e.g., master's thesis, qualifying exams, the dissertation); and
- information on informal aspects of being a graduate student (e.g., the quality of work, the basis on which they were judged, how to choose an advisor, how best to become a professional in the discipline).

Information after arriving on campus. Graduate students are provided with handbooks and other written materials that can often be an inch thick. While graduate students are (and should be) responsible for reading this information, the Directors of Graduate Study assume that students understand everything in the materials. Unfortunately, this can be a fateful assumption. One noncompleter, Jim, told me he went through his whole first year not understanding what comprehensive exams were all about.

Orientation. There was a tremendous variability in the structure of orientations among departments, with orientations lasting anywhere from a half day to a week. The DGSs placed the greatest emphasis on their department's TA orientation, indicating that students who entered with a TA received a longer and more in-depth orientation. In other words, students who enter with TAs have more opportunity to interact with and get to know faculty and more advanced graduate students than students who do not enter with TAs. Students entering with TAs are thus afforded the opportunity to start integrating into the graduate community and develop better cognitive maps than students who do not receive a TA.

Departments sometimes also send very negative messages to new students during the orientation, sometimes intentionally, sometimes unintentionally. One DGS told me that his department prided itself on having the toughest first-year program in the country. "I tell them, it's sort of like Quantico. You're going at the Marine Boot Camp. This is it gang." Another department unintentionally intimidated students by focusing on the eminence of the department and faculty.

Program planning. Most departments have some structures in place to help students select courses during their first year. However, after that, students are often left to their own devices.

Information about other formal requirements. The basic response from the DGSs was that the information was in the Handbook, that students were provided with the information during orientation, or that students got the information from "scuttlebutt," in other words, that it was contained in the graduate student subculture. The DGSs also focus on the prerequisites for the requirement, not the standards of quality for meeting the requirement. Thus students who are not well integrated or are marginalized for other reasons such as gender, race/ethnicity, or being a part-time or commuter student have less access to the "scuttlebutt" because they have often less contact with the graduate student subculture where it is contained.

Conclusions:

- Departments assume that graduate students understand the structure and process of graduate education much better than they actually do.
- Departments defer too much important information about too many important aspects of graduate education to the graduate student subculture.

Cognitive Maps: Individual Level

Completers have better cognitive maps than noncompleters.

In this section, I will show that:

- Completers make more informed graduate school selection decisions.
- Completers understand the process of graduate education better.

The one place where we do see a difference between completers and noncompleters prior to their enrollment in graduate school is in their graduate school selection decisions, but this is not something that can be caught in applications for admission as they are currently designed. I asked the students a series of questions about the information they used to select graduate programs to apply to. As shown in Figure 3, completers and noncompleters were equally likely to select their programs based on the university's general reputation. However, fewer students use the more interpersonal interactional level (faculty) to make their selection decisions, and differences between completers and noncompleters become larger and more significant. The bottom line is that everybody is uninformed, and noncompleters are more uninformed.

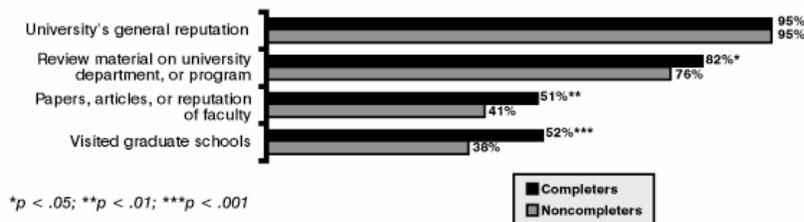


Figure 3. Sources of Information Students Used to Select Graduate Schools to Apply to

Completers understand the process of graduate education better.

The survey asked the students two, two-part questions about their understanding of their departments' formal requirements and informal expectations. It also asked about their perceptions of other graduate students' understanding of these things. The questions about other graduate students' perceptions were included to tap the existence of pluralistic ignorance – that is, believing that you are the only one who does not know or understand something, when in fact that thing is neither known nor understood by the plurality. The results (see Table 2) show that when it came to their own understanding of their department's formal requirements and information expectations, completers felt that they understood them far better than the noncompleters felt they did. There were no differences between completers and noncompleters in how well they thought other graduate students understood these things.

More interesting is what happens when the students' understandings of the formal requirements and informal expectations were compared with their perceptions of other students' understandings. As shown in Table 3, the completers believed that they understood the formal requirements better than other students and that they understood the informal expectations as well as other students. However, the noncompleters believed that other students understood the formal requirements and informal expectations much better than they did. This belief can lead to a tremendous feeling of discomfort and unease, which is often resolved by leaving the program. Indeed, these beliefs have implications for noncompleters' duration in the program:

- The better noncompleters believe they understand the department's informal expectations, the longer they persist.
- The better noncompleters believe other graduate students understand the department's informal expectations, the more quickly they leave.

Table 3: Comparison of Students' Assessments of Their Own Cognitive Maps with Their Perceptions of Other Graduate Students' Cognitive Maps at the Time of Entry						
(5-point scale: 1 = <i>not well at all</i> to 5 = <i>very well</i>)						
	Formal Requirements			Informal Expectations		
Status	Own Understanding	Others' Understanding	<i>p</i>	Own Understanding	Others' Understanding	<i>p</i>
Completers	3.99	3.89	**	3.15	3.12	
Non-completers	3.73	3.90	***	2.74	3.25	***

* $p < .05$; ** $p < .01$; *** $p < .001$

Conclusions:

- The more informed students' graduate school selection decisions, the more likely they are to persist.
- Believing that other graduate students understand a department's tacit expectations better than oneself creates a sense of unease that is detrimental to persistence.

Integration: Department Level

The more resources a department has for integration, the lower the department's attrition rate.

The departments' environments for integration were probed through a series of questions to the DGSs about the existence of structures and activities in the department for graduate students as well as through site visit observations. Students' integration in their departments was probed through a series of questions on the survey about their participation or frequency of participation in those activities. Table 4 provides a list of the structures and activities. Three indexes were created for departments' environments for integration and for students' level of integration into their department. One index was an overall index that included all the factors. The other two were subindexes for academic and social integration.

	Departmental Structures and Opportunities		Student Engagement
Type of Integration	Director of Graduate Study Interviews	Site Visits	Graduate Students' Survey Responses
Academic Structures and Activities	Sources of financial support Colloquia Brown bag lunches Study groups Dissertation support groups Graduate student government Grad. students on department committees Encourage participation in professional activities	Student lounges Graduate student offices	Sources of financial support ¹ Share an office ¹ Subscribe to journals ¹ Belong to professional associations ¹ Attend professional meetings ¹ Participate on departmental committees ¹ Attend colloquia/brown bag lunches ²
Social Structure and Activities	Social hours on campus Social hours off campus Departmental picnics Sports activities Other departmental tradition		Socialize with faculty/students on campus ² Socialize with faculty/students off campus ² Participate in departmental sports activities ² Participate in other departmental activities ²
Notes: 1. Yes/no items in the questionnaire. 2. Scaled items in the questionnaire			

When departments' three integration scores were compared with their student attrition rates, two correlated negatively and significantly:

- Overall-department integration and attrition: $R = -.41, p = .044$
- Department-academic-integration and attrition: $R = -.54, p = .011$

Conclusion: The more resources a department has for integration, academic integration in particular, the lower the department's student attrition rate.

When the scores for students' integration into their department were compared with their departments' attrition rates:

- None of the correlations achieved significance.
- All of the signs were in the predicated direction.

Conclusion: The signs of the correlations support the contention that the more integrated students are in the department, the lower the department's student attrition rate.

Finally, when the departments' integration scores were compared with the students' integration scores, one achieved significance:

- Department-academic-integration and student-academic-integration-in-the-department: $R = .48$, $p = .021$

Conclusion: The more resources a department has for academic integration, the more academically integrated students become.

In sum, these data provide solid evidence that a large proportion of attrition can be accounted for by how resources for integration are distributed within and between departments.

Integration: Students

Completers receive more resources for integration than noncompleters.

I will now focus on how resources of integration are distributed differently to completers and noncompleters. I will show that

- Completers have greater access to better quality advising than noncompleters;
and
- Completers receive more resources for academic integration than noncompleters

Advising. Completers were more likely than noncompleters to have had an advisor (97% vs. 77%). They were twice as likely as noncompleters to have selected an advisor whose intellectual interests were closest to theirs (47% vs. 23%). By contrast, noncompleters were more than six times as likely as completers to have had an advisor who was assigned to them (44% vs. 7%). Changing advisors does not account for why completers were less likely than noncompleters to have been assigned to their last advisor. There were no statistical differences in the percentage of completers and noncompleters who changed advisors (completers 31% vs. noncompleters 26%). Further, noncompleters who were assigned to their advisors had shorter durations than noncompleters who were not assigned to their advisors (2.3 years vs. 3.7 to 4.5 years).

I should note that when I asked noncompleters who had been assigned to their advisor if they had ever considered changing advisors, most said no. Some didn't know that it was an option and others felt they would be putting their graduate careers in political jeopardy if they did.

Resources for Academic Integration. As shown in Table 5, type of financial support affects integration and persistence.

- Completers were three times as likely to have received an RA (64% vs. 21%).
- Completers were almost twice as likely as noncompleters to have received a TA (85% vs. 45%).
- Students who received full fellowships (university or nonuniversity) were equally as likely to stay as they were to leave (university: completers 16% vs. noncompleters 13%; nonuniversity: completers 15% vs. noncompleters 16%).

- Noncompleters were six times more likely than completers to have received no support at all (25% vs. 4%).

Table 5: Type of Support (in percent)

Type of Support	Status		p
	Completers	Noncompleters	
TA	85	45	**
RA	64	21	**
University Fellowship	16	13	
Private Fellowship	15	16	
No Support	4	25	**

* $p < .05$; ** $p < .001$

What's going on here? Students who receive RAs and TAs are required to come onto campus to fulfill the obligations of their assistantships. As shown in Table 6, they are more likely to be given a desk in a gang office. Consequently, they are more likely to have more frequent interaction with faculty and other graduate students and also participate more frequently in department activities. By contrast, students who don't receive any support at all are not required to come onto campus and are likely pulled away from the department because they have employment obligations. They are also far less likely to have a desk in a gang office. Consequently, their opportunities for interaction with the departmental community are reduced.

Table 6: Percent of Students Who Shared Office Space Controlling for Type of Support

Type of support	Status		p
	Completers	Noncompleters	
Shared an office	85	46	***
TA	90	81	**
RA	67	36	***
University Fellowship	15	8	*
Private Fellowship	14	9	
No Support	3	3	

$p < .05$; ** $p < .01$; *** $p < .001$

While the results for students with fellowships may appear contradictory – students with fellowships are as likely to attrit as to complete – within the context of the theory of integration, the results make perfect sense. Because they do not have any obligations to the department, students with full fellowships do not have to come onto campus, but unlike students with no support at all, they are not pulled away. They are also less likely to have a desk in a gang office, so their opportunities for interaction with the departmental community are also reduced.

Conclusion:

- The more structures and opportunities for integration a student receives, the more likely the student is to persist.

Recommendations

Cognitive Map

- Require students to discuss the work of a faculty member or interest area in the department in their applications for admission.
- Facilitate campus visits prior to entry.
- Improve the quality of graduate student orientations for all graduate students.
- Introduce new students to faculty and to advanced graduate students.
- Have seminars at which faculty share their research interests with entering graduate students.
- Define and provide examples of the department's performance standards.

Integration

Department environment

- Provide more structures and opportunities for integration and distribute them more equitably.
- Create more opportunities for graduate students and faculty to interact formally and informally.

Interactional space

- Provide office space to as many graduate students as possible as early in their graduate careers as possible.
- Create a graduate student lounge and make it as conducive to social interaction as possible.

Academic integration

- Engage all students, especially new students, in the professional tasks of the discipline.
- Create a student government and place students on department committees.

Advisor issues

- Establish processes to help students select an appropriate advisor.
- Create an advising staff explicitly charged with helping pre-dissertation students through their programs.
- Inform students that the assignment to an advisor is temporary and that there are no penalties for changing advisors.
- Keep and make public records of faculty's Ph.D.-productivity rates.
- Create ongoing faculty forums that discuss issues and research related to effective advising and mentoring.

- Take away advising privileges from any advisor who abuses students. Advising is a privilege and not an entitlement.
- Be more open with students about the reality of attrition. Help students leave with their pride and dignity intact.
- Celebrate success!

Improving Graduate Student Retention through Graduate School Activities

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Abstract

There are many ways in which Graduate School sponsored programs and activities can contribute to improved retention of graduate students. Graduate School staff members can provide leadership and facilitation that makes a difference. Michigan State University experimented with a number of workshops, seminars, and other initiatives over the past six years to improve retention and increase the number of doctoral students who successfully earn the Ph.D. degree. Successful strategies include focused attention on the students, specifically their professional development and integration into their departments, as well as attention to faculty mentoring, specifically the importance of setting explicit expectations.

Introduction

I was fortunate to meet Barbara Lovitts during the time she was writing her dissertation, *Leaving the Ivory Tower* (Lovitts, 1997), and at a time when I was a relatively new Assistant Dean for Graduate Student Welfare at Michigan State. Her data and analysis on the causes and consequences of graduate student attrition positively affected my activities as an Assistant Dean and now as Dean. As a Research Extensive Doctoral Institution (Carnegie Classification, 2000), Michigan State through the Graduate School staff continues to be concerned about doctoral student retention and successful degree completion, and it employs numerous strategies focused on improving both. Over the past six years, we improved doctoral retention by a few percentage points across all colleges.

Dr. Lovitts' research focused on cognitive maps and the importance of both academic and social integration into the department as key factors important to retention. Further, she challenged departments to examine themselves and the departmental climate and to reflect upon the causes of attrition (Lovitts, 2001) instead of only focusing on the "failings" of the doctoral student.

As with most deans reading Dr. Lovitts' book, I began to look at data on my own campus to ascertain how closely the MSU experience paralleled the institutions she described. On our campus, in 1996, international students and white males had the highest completion rate, followed by women and African Americans. The disciplines with the highest completion rates were natural science, engineering, and agriculture and natural resources, followed by the social sciences and humanities. The demographic and disciplinary data were not unrelated. The disciplines with the highest completion rates are also those with the most research assistantship support, with built-in integration processes through the laboratory experience, and, of course, with the highest number of international students and men. Of interest is the fact that the only person in the departments who seemed to know which students left and, perhaps more importantly, when and why they left was the graduate secretary! This finding supports Dr. Lovitts' comment that attrition is a "silent" occurrence. We now have our graduate secretaries on a listserv that includes a newsletter, convene a Graduate Secretaries' Advisory Committee twice a year, and have a spring reception to thank them for their commitment and work in supporting graduate education. Since this group is often a source of information for students, the secretaries are also kept in the general information loop so that the information they provide is accurate and timely.

A concept that I've found helpful in understanding (or remembering) the considerable professional and personal challenges that graduate students face (while I ask myself and my colleagues how we figured out the academic maze) was raised by Brown and Duguid in the *Social Life of*

Information (2000). They describe undergraduate education as “knowledge extensive” and “learning about” a field of study (e.g., learning about history or plant biology), while graduate education is defined as “knowledge intensive” and “learning to be” (e.g., learning to be an historian or a plant biologist). The differences between these two modes of learning are non-trivial. They require that students change their comfortable way of learning and knowing practiced during 16-18 years of public education, undergraduate and, perhaps, master’s level education. The process of graduate education involves both written and unwritten rules (lore, myths, history, ethos), both of which can trip up students, especially those who may be more isolated than others by gender, race, ethnicity, etc.

This fundamental difference in educational methods at the doctoral level may also be why students responded to some past surveys by expressing that they do “not like the people they are becoming” (Swazey and Anderson, 1996) or that they believe there is a “mismatch” between their education and their career aspirations, as well as the realities of the job market (Golde and Dore, 2001), or that they desire more mentoring and structured opportunities to become socialized into their disciplines (Austin, 2002). The profound changes required of students support Lovitts’ supposition that social integration and having a support network are important for successful completion of the degree.

As with many graduate deans, I draw a distinction between students (or faculty) who decide early in an individual’s program that graduate education is not for him or her vs. those who persist to year 3, 4, or 5 before dropping out (or being terminated from the program). There are legitimate reasons for leaving graduate school, but when a student leaves who is well into a graduate degree program, we do need to ask ourselves what happened.

Specific Strategies for Improving Graduate Student Retention

Most of the following strategies are explained more fully on the Graduate School’s website: <http://grad.msu.edu/>. Specific links are included in each section below.

Graduate School Activities Focused on Students. MSU engaged in an early process improvement through a review of graduate handbooks, with the subsequent development of a “Graduate Handbook Template” (<http://grad.msu.edu/tgsindex.htm>) to aid units and programs with providing the “written rules” for students. This project was led by a senior graduate student working with members of the Graduate School staff. Each department/program handbook was reviewed and a specific list of improvements to consider was provided back to the unit. Downloadable templates for some material, a reminder of University policies and procedures, and “best practices” were shared as part of this process. Students are encouraged at orientation, and at other Graduate School programs throughout the year, to be sure to ask for a copy of the handbook for their units, and to actually refer to it now and then occasionally throughout their programs!

Another project, led by a successful senior graduate student, was the development of a Graduate Student Resource Guide, *Academics and Beyond*, designed to be an honest, explicit guide for navigating the “academic maze.” Indeed, the Guide covers such topics as working with your doctoral committee, conquering comprehensive exams, managing your workload, keys to success, methods for resolving conflicts, as well as finding funding and specific advice for students of color. It attempts to provide information on some of the “unwritten rules,” as well as the written rules. The Resource Guide, now in its third edition, is too large for a webpage file, but a copy will be sent upon request.

Another series of very short pieces, again developed by a senior graduate student for graduate students, is “By Degrees” (<http://grad.msu.edu/bydegrees.htm>). Each of 14 two-page pieces defines a specific University function or phase of graduate school that students routinely find perplexing. One of these (ironically, number 13) was inspired by Dr. Lovitts’ work and is entitled “Thinking of Leaving?” This piece describes some of the causes of attrition, the pros and cons of leaving, questions to ask yourself, and a segment called “how to leave with dignity,” a piece strongly recommended by Dr. Lovitts.

Other publications that target graduate students and that are designed to provide an additional source of information about the “written and unwritten rules” are the Research Integrity Newsletters (<http://grad.msu.edu/integrity.htm>). Published twice a year, these newsletters provide a source of ongoing campus dialog on issues such as authorship, management and access to data, and conflict of interest. In addition, The Graduate Post, a biannual newsletter of the Graduate School, celebrates the accomplishments of both graduate students and faculty (<http://grad.msu.edu/gradpost.htm>). A regularly featured column, written by the coordinator of our Teaching Assistant Program, provides professional development advice. A section in each newsletter lists the students who have presented their research at national and international conferences.

The MSU Graduate School also organizes and presents a number of workshops each year specifically aimed at the professional development and the academic integration of graduate students. The workshop topics/content are often based upon student requests, occasionally upon faculty requests, and also based on issues for which the Graduate School staff members see a serious need based on working with individual students to solve problems. What we found over the years from the evaluations we conduct at the end of every workshop and via surveys conducted of all graduate students every three years (as well as the exit surveys for completing students) is that these workshop opportunities themselves also serve as a form of social integration. Students find that they aren’t so isolated, that other students have the same concerns that they do, and that there are people on campus (Graduate School staff, Ombudsman, Women’s Resource Center staff and others) who are willing to share wisdom, ideas, and advice to help them succeed. And, since most of our workshops are offered at the end of the day, again by student request, we provide a light snack that also creates a more relaxed, social atmosphere.

Examples of workshops that might be adapted to other institutions include “Navigating the Ph.D.” (offered by senior graduate students in the MSU Writing Center, <http://writing.msu.edu/content/grad.html>), “Setting Expectations and Resolving Conflicts” and “Communications Skills” (see more detail below), “Responsible Conduct of Research” (<http://grad.msu.edu/all/respconduct.htm>), thesis/dissertation writing and formatting workshops (shorter and less personal attention than those offered by the Writing Center, but useful for a broad overview), copyright issues related to the internet, and working with human subjects and the institutional review board. Most of our workshops are filled to capacity and have a waiting list that tells us there is a need to continue with these.

Graduate School Activities Focused on Faculty. In discussions with departmental faculty, I often ask what they estimate the doctoral student retention rate to be for their unit. The most frequent response is 80%, with some estimating higher. In contrast, when I ask groups of graduate students, their guess is 20%. Clearly the two groups are viewing the graduate education process very differently! (Master’s degree students have a generally high completion rate of 80-85%, and are, therefore, less problematic than doctoral students.)

Publications that target both graduate students and faculty include the Research Integrity newsletters and The Graduate Post described above. Faculty, especially graduate program directors, are provided an orientation each fall (that includes graduate secretaries) in which funding, retention issues, successful recruitment strategies, and other issues are discussed.

Some of the workshops provided for graduate students are also focused on faculty. The two most useful for both groups are the “Responsible Conduct of Research” and “Setting Expectations and Resolving Conflicts between Graduate Students and Faculty.” Having both groups participate in these workshops/seminars greatly enriches the conversation and the learning by both sets of individuals.

Graduate School Leadership and Facilitation

Several strategies focus on retention in both implicit and explicit ways. These are best described as a list of ideas that might be adapted to fit the culture at other individual institutions.

The formula or process by which Graduate School funds are distributed to colleges and/or units can add a focus on retention and successful completion of degrees. Our “formula” at MSU explicitly takes into account the number of degrees granted, as well as the number of graduate students in a given unit. So, it is not just how many students are newly recruited to a program or are actively enrolled in a program, but also how many leave with their degree in hand. This formula was developed and agreed upon during a yearlong discussion with the associate deans of each college.

A review of the graduate handbook is an integral part of our graduate program review process. We review the handbook during the self-study phase of a program or department review process, provide input and specific suggestions, and web-available, downloadable segments (for convenience, quality and thoroughness) in order to encourage improvement of handbooks. The Handbook Template, described earlier, is used to guide our review and to serve as a “best practice” for departments. It also provides faculty with colleagues across the campus to contact in order to discuss particular sections of a handbook.

The MSU Program on Setting Expectations and Resolving Conflicts between Graduate Students and Faculty

This program is in its sixth year at MSU (<http://grad.msu.edu/conflict.htm>). It began as a specific strategy to improve retention by request of graduate students who viewed conflicts as an unsolvable barrier for some in completing their degrees, and for many others as important for simply having a more productive and enjoyable experience in their programs. Dr. Lovitts’ work informed the early foundations of this program in terms of describing the importance of social integration in completing a doctoral degree (Lovitts, 1997, 2001).

Program development was supported by FIPSE (1997-2000) and by the William and Flora Hewlett Foundation (1997-1999) and was a team effort that included John Beck, Associate Professor in the School of Labor and Industrial Relations (LIR), graduate students Julie Brockman and Jennifer Eyelans, and R. Sam Larson, Ph.D., an independent consultant specializing in organizational change.

The program uses the concepts of interest-based approaches to resolving conflicts and setting expectations. In our workshops (attended by both faculty and graduate students in departmental settings or graduate students alone in groups that span disciplines), we are careful to define our assumptions: that not all issues are negotiable, that conflict itself is neither good nor bad (and in fact is how we advance knowledge in the academy), but rather how it is handled that could be defined as good or bad, that the power differential between faculty members and graduate students will never be equal (faculty have expert power among other forms of power), and that we should not expect 100% retention and completion.

We also remind participants that early attention to setting expectations can help avoid conflicts. And that early attention to resolving conflicts is key to success, since as time passes, things are said and done that often limit options for satisfactory resolution. We also spend considerable time discussing how expectations are set and who sets them. We believe that explicit, shared expectations are the fundamental keys to improving retention.

The basic tenets of interest-based approaches include having each person identify underlying interests that support a given, stated position, identify all of the stakeholders who care about resolving the conflict, find shared interests, and finally, craft options that each person(s) will find acceptable. The best option for resolving the conflict may not be a simple compromise between stated positions. Sharing of underlying interests moves the two individuals from a linear argument in which usually inflexible positions are stated to a discussion approach that often permits a more creative set of solutions to result.

Finally, the workshop uses 30- to 90-second video vignettes to spark discussion and to teach the basic principles of interest-based approaches. We find these much more effective (and fun) than written case studies. We designed more than 50 vignettes depicting a wide range of issues that can lead to conflicts and/or to describe implicit expectations not made explicit. Examples include changing guidance committee members, “even more” revisions to a dissertation, authorship issues, data access, working with faculty, teaching assistant issues, and balancing family and graduate studies.

For graduate students, we also added a component on “Communication Skills.” This workshop uses the same video vignettes as the “Setting Expectations” and “Resolving Conflicts” workshops and provides additional practice, skills, and information to the students on talking effectively with faculty members.

To date, we have trained more than 900 students and faculty at MSU and our program is being used at Kansas State University and Pennsylvania State University among others. The program is available for dissemination to other interested campuses. Please let me know if you have an interest in trying this out.

Conclusion

There are numerous strategies that can be employed to improve doctoral student retention. Of course, a fundamental change in the culture of doctoral programs and the research environment in which they reside would result in the most long-lasting, systemic change. Absent that, (and being very realistic), there are actions that can be taken by a graduate school staff. Our experiences at Michigan State point to a set of integrated, proactive strategies as the most successful model to improve retention. We believe that our success so far is greater than the sum of the individual programs and that no single strategy would be successful alone. We believe that of all the programs, the “Setting Expectations” and “Resolving Conflicts” workshops have the most potential for positive change. Graduate schools cannot replace faculty mentors, but we can offer programs that help students use university resources in graduate education more effectively.

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Graduate Attrition from the Perspective of a Private University

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Abstract

The purpose of this article was to discuss selected measures of student satisfaction as they relate to national estimates of attrition in Ph.D. programs from the perspective of an urban, private university. The importance of student satisfaction measures in the areas of preparation for graduate study, advising, mentoring and career advising were presented relative to their impacts on attrition. Further, the question of what would constitute an “acceptable” rate of attrition in consideration of the diversity of institution types, roles of the graduate dean, and differences among disciplines was posed for discussion.

Graduate Attrition from the Perspective of a Private University

I'd like to begin my presentation with the admission that I plead guilty. When I was asked to provide the perspective of an urban, private, previously classified Research II university to issues of graduate student attrition, the only thing I had read on the topic was the 1996 National Research Council Report. Even then, I was not overly concerned about the possible 50 percent attrition rates in graduate education for several reasons.

First, it appeared to me that the available data were collected and analyzed for institutions that were different than mine. Further, the NRC panel report stated that because of the diversity of graduate programs and the need to collect data from individual institutions, it was not feasible to design a system to produce national estimates of attrition from Ph.D. programs (National Research Council, 1996) and I was frankly a little skeptical about the high attrition rates provided by Dr. Lovitts. I was having enough trouble attempting to gather valid data regarding time-to-degree in our doctoral programs. Our data were confounded by changes in student information systems, non-enrollment in certain semesters, transfers from master's to doctoral programs in the same discipline, awards of consolation master's degrees, approved leaves of absence, determination of school of enrollment for dual degree students, staffing needs for tracking, and better databases. The fact that about sixty percent of our graduate students are part-time and we had only instituted mandatory continuous registration four years ago made the accurate study of cohorts before 1997 impossible.

Second, I was more concerned with other issues regarding student satisfaction such as the factors that led to collective bargaining of graduate assistants, an issue of student satisfaction that I believe is not totally unrelated to this topic.

Third, we were more concerned with helping departments develop recruitment strategies to attract high quality applicants. Improving the quality and visibility of our graduate programs and developing competitive financial assistance to attract good students were more of a focus for us. We certainly did know that it is easier to retain a high quality graduate student than to recruit a new one, but the lack of emphasis on the retention issue was not due to our need to fill teaching assistant slots or our lack of caring about the success of our students. Frankly, I did not think we had a retention problem, and I'd like to present three recent studies we've conducted whose results lend support to this impression.

We began administering a “Graduate Exit Survey” to all graduating master's and doctoral students in the 1993-94 academic year. The survey consists of eight statements that graduates ranked on a Likert type index ranging from “1” (Strongly Disagree) to “5” (Strongly Agree). There is a space for comments below each question and the survey concludes with two open-ended questions regarding program strengths and weaknesses. Table 1 presents a summary of the data over the eight-year span in which it has been collected. The response rate to this survey is nearly

100% since the Graduate School will not accept a candidate's Application for Degree until the candidate has submitted the survey!

Table 1
Graduate Exit Survey
1993-2001
Saint Louis University

	Number	Mean	Mode
Requirements/Expectations	3372	4.06	5.0
Academic Advising	3358	4.06	5.0
Discipline Content/Methodology	3370	4.22	5.0
Mentoring (Master's Research and Ph.D.)	1505	4.33	5.0
Skills-Original Contributions (Ph.D. only)	972	4.39	5.0
Values/Ethics	3239	4.25	5.0
Graduate School Services	3312	4.28	5.0
Overall Quality	3321	4.21	5.0

I hope that you would agree that our completers appear to be highly satisfied with their graduate education overall. The lowest mean scores (4.06) were in response to the statement that the department's requirements and expectations were clearly specified in the beginning of the program and to the statement that the quality of academic advising was appropriate to meet the student's needs. The students' knowledge of requirements and expectations and the students' perception of the quality of advising are areas of some concern and importance in the studies of Lovitts (2001), Golde and Dore (2001), and Brown, et al. (2001). I readily admit that our results purport to measure satisfaction and not attrition directly. I would like to note, however, that the highest ranked mean (4.39) is in response to the statement that asked Ph.D. candidates only to rate the program's proficiency in educating them to make original contributions to research in the discipline. The second highest ranked mean (4.33) asked master's (Research) and Ph.D. respondents to rank their perception of the quality of mentoring. A list of the Exit Survey statements is presented in Appendix A.

After reviewing Exit Survey data for three years, I became interested in attempting to better specify factors that may be responsible for the positive ratings of graduating students regarding values and ethics dimensions in their graduate education. Parallel follow-up surveys based on themes identified in the original Exit Survey were constructed and sent to 1,168 alumni (1994 – 1996 graduates) and 507 members of the graduate faculty. While a summary of this study is beyond the scope of this paper, the descriptive statistics support the hypothesis that personal interactions with faculty and the perception of the departments' commitment to respect for students, and to gender, racial and ethnic equality, constitute the strongest predictors of satisfaction (Brennan and Modras, 2000). Table 2 presents the highest ranked mean scores on the alumni survey and the percentage of alumni who agreed or strongly agreed with the statement. It is also interesting that there was a statistically significant difference on all ten items when the alumni and faculty ratings were compared, with the faculty rating each item significantly higher than their alumni counterparts. The Values and Ethics Survey statements appear in Appendix A.

Table 2
Perceptions of Values and Ethics in Graduate Education
1994 – 1996 Graduates
(Six Highest Mean Responses)

	Number *	Mean	Mode	Percent **
Racial/Ethnic Equality	428	4.18	4.0	81.5
Gender Equality	424	4.13	4.0	82.3
Fairness/Respect	436	4.13	4.0	82.8
Mentoring/Advisor	435	4.02	4.0	78.9
Academic Interaction	434	3.98	4.0	77.9
Informal Contacts	431	3.95	4.0	74.2

* Four hundred thirty-nine of 1,168 (37%) of alumni responded

** Percent alumni responding with “agree” or “strongly agree”

We also survey our internally funded graduate assistants late in the Spring semester. The purpose of this survey is to confirm the duties they perform and to investigate their satisfaction with the assistantship experience. In the 2000-2001 academic year, 223 out of 284 assistants responded to the survey (79%). The response rate was 100% in 16 of 35 departments and less than 50% in only five departments. Graduate assistants were asked to rank five statements on a Likert-type index ranging from “1” (Strongly Disagree) to “5” (Strongly Agree). Table 3 presents the results of the satisfaction part of the survey for 2000-2001. The Graduate Assistant Survey statements appear in Appendix A.

Table 3
Graduate Assistant Survey
2000-2001

	Number	Mean	Mode
Defined responsibilities	221	4.11	4
Adequately prepared	219	3.95	4
Adequate supervision	219	4.19	5
Resources for teaching	167	3.96	4
Duties enhanced education	221	4.39	5

It is hard to evaluate the teaching question since fewer than one-half of the respondents were teaching assistants. The final item suggests graduate assistants are performing responsibilities consistent with their educational goals, a factor certainly related to retention. The lowest ranked mean (3.95) was in response to the statement that “I was adequately prepared by the department to assume my assistantship responsibilities,” and the next ranked mean (4.11) dealt with the clear definition of assistantship responsibilities by the department. The mean score for adequacy of faculty supervision was 4.19.

The ultimate value of these surveys is not necessarily the results per se, but rather the opportunity I have to give concrete feedback to departments regarding their students’ perceptions of their programs.

Collectively, the results of the three surveys led us to believe that attrition was not a significant problem in our Graduate School even though our data only include completers. When I read Dr. Lovitts’ book, my first reaction was to ask my associate deans to give me a percentage estimate for attrition at Saint Louis University. They separately estimated attrition at five percent. I then asked our department chairs and the Executive Committee of our Graduate Student Association the same question and their estimates ranged from less than five percent in master’s programs to twenty percent in some Ph.D. programs. While I am unable at this time to give you a valid figure for attrition rates for our Ph.D. students, we were able to determine that an average of three to

four percent of our total graduate student population withdrew, or had their programs terminated, in each of the last two academic years. On the other hand, Dr. Lovitts describes attrition as an “invisible” problem, in part due to the fact that most students leave the universities in “silence,” not reporting their concerns or dissatisfaction to administrators. She also reports that faculty tend to underestimate attrition and, probably, so do deans. I’m sure that we have missed non-completers in our count, and I will have valid data for master’s and Ph.D. programs by the end of this summer. Dr. Lovitt’s work has inspired us to push this issue higher on our agenda. Even so, I would still estimate that our total attrition rate is not greater than five percent for master’s and twenty percent for doctoral programs.

Perhaps the more important and more difficult question is “What is an acceptable rate of attrition from graduate education?” In a previous opportunity to address this group (Brennan, 1999), I talked about the diversity of graduate school structures and the variety of responsibilities of different graduate deans within institutional cultures. Can we, or should we, expect attrition rates to be similar across institutions? If Saint Louis University’s Ph.D. attrition rate is 15 percent, what does that mean? Perhaps it means we are doing a good job matching our applicants to our particular areas of strength. Perhaps it means that our organizational culture is proactive in communicating with graduate students and sensitive to addressing their concerns. Perhaps it means we are just not tough enough and we are allowing too many Ph.D. students to finish. Perhaps our academic programs would be respected more if our attrition rates were 50 percent. Again, I would suggest that innate differences among graduate schools and the degree programs they offer might constitute another factor leading to variability. The studies I’ve already cited yield somewhat different results, but I believe all of the authors would agree that attrition may vary by institution type and certainly by discipline. At Saint Louis University, for example, all graduate/professional degree programs with the exceptions of the Doctor of Medicine, Juris Doctorate, the MBA and the MSW report through the Graduate School. This includes graduate programs in Basic Medical Sciences, Advanced Dental Education, Nursing, Allied Health, Public Health, Education, and Engineering as well as the traditional graduate programs in the Arts and Sciences. Perhaps a high retention rate could be due to the fact that our Graduate School has academic responsibility for programs that have traditionally maintained stable enrollments probably because of the relationship between graduate education in the discipline and career opportunities for graduates.

I’d like to make a couple of comments regarding selectivity. Dr. Lovitts has suggested that we may use selectivity in admissions, or the lack of it, as an excuse to exonerate us if the student does not succeed in the program. She further suggests that attrition may be more closely related to retention efforts than admissions selectivity. While I don’t deny the implications of this view, I believe that the need to select students who have a reasonable chance to succeed in their programs, with appropriate support and mentoring, is essential. An important part of the application process, and a responsibility of the institution, is to have the courage to not accept students who appear to be at high risk for failure. It is also important to determine whether there is really a match between the student’s goals and expectations and those of the department. The time spent attempting to assess the student’s match to the institution as well as the student’s potential for success is an important aspect of selectivity beyond the basic question of whether or not the student is good enough for us. Our departments, and our graduate enrollment management staff, are selective in admissions, but I think that we are selective for the right reasons. I also believe that our faculty are generally supportive of the students we admit and expect these students to be completers. Our graduate staff know that we are a service and support office and they are committed to assisting students in the administrative process from admission through graduation. In our case, we have a certain amount of control or a certain amount of influence on admissions and retention because of how we are structured. Not all deans have this same opportunity.

In the recent University of Missouri webcast on “What Students Have to Say about the Graduate School Experience,” Dr. Debra Stewart emphasized that much of what we do in graduate education is good and that we don’t need to break the current system to improve it. Rather, she suggested that we pay more attention to areas of concern and implement incremental changes to make it better. The work of Dr. Lovitts and the studies of Golde and Dore and NAGPS provide insight into academic, personal, social, and organizational factors that influence retention and student satisfaction. Certain themes emerged across studies, including our own studies, which

suggest that we may be able to do a better job in preparing graduate students and assistants for their roles, and better informing them of expectations for graduate education. There is always room for improvement in academic advising and mentoring, and I believe we must do a better job with advisement for academic and non-academic careers.

Our North Central Accreditation site visit will take place in less than two weeks. As a result, I am very sensitive to the term “outcomes assessment” and each of our graduate programs has recently finished their assessment plans. In addition, the Board of Trustees of Saint Louis University has given me up to 100 new graduate research assistantships, which are awarded on a competitive basis to departments whose proposals include plans to use the new assistantships to enhance the quality of our applicants and programs and to provide concrete outcomes demonstrating that these assistantships improved our research productivity. The emphasis on outcomes from federal and non-federal agencies, accrediting agencies, state legislatures and boards of trustees will challenge us to continually evaluate the products of this process of graduate education.

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Appendix A Complete Survey Statements for Items in Tables 1 to 3

Table 1 – Exit Survey

1. The department requirements and expectations were clearly specified in the beginning of my program.
2. The quality of the academic advising was appropriate to meet my needs.
3. The program provided me with the content and methodology of my discipline.
4. My advisor and committee provided adequate mentoring and direction during the completion of my thesis or dissertation requirements. (For research masters and doctoral students only).
5. My Ph.D. program provided me with the knowledge and skills necessary to make original contributions to the advancement of knowledge in my profession. (For doctoral students only).
6. My graduate education at Saint Louis University reflected an ethical and value dimension consistent with the University's mission.
7. The services provided by the Graduate School and its staff during admission, registration and advancement to candidacy met my needs.
8. I was satisfied with the overall quality of my graduate education at Saint Louis University.

Table 2 – Values and Ethics Survey

1. My department reflected the University's commitment to racial and ethnic equality.
2. My department reflected the University's commitment to gender equality.
3. My department made a commitment to the human dignity of students by treating them fairly and respectfully.
4. The faculty imparted ethical and value dimensions of the University into their mentoring/advising roles.
5. The faculty imparted ethical and value dimensions of the University in classroom, laboratory or clinical instruction.
6. The faculty imparted ethical and value dimensions of the University into their informal contacts and discussions.

Table 3 – Graduate Assistant Survey

1. The department clearly defined the responsibilities of my assistantship.
2. I was adequately prepared by the department to assume my assistantship responsibilities.
3. I receive adequate supervision from my faculty supervisor in the assistantship responsibilities I perform.
4. I have found adequate resources in helping me grow in the art of teaching.
5. My assistantship duties enhance my graduate education and learning.

Non-Traditional Students in Graduate Education

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What is a “Non-Traditional Student”?

At first, I was a bit surprised to be asked to represent the perspective of a non-traditional graduate student on doctoral student attrition. Among the students in the Ph.D. program in Higher Education at Loyola University Chicago, I am a very typical student. In fact, after some investigation, I discovered that I am very similar to the typical doctoral student in the United States. Surveys from the late-1990s found that the average age of doctoral students was 34 years; a full 46% of doctoral students are enrolled part-time; and more than 75% percent of all doctoral students reported some form of employment (Choy & Geis, 2002). Admittedly, these statistics are a bit misleading. A large percentage of doctoral students are seeking degrees in the field of education. For example, only 35% of all doctoral students delay enrollment more than seven years after earning a bachelor’s degree. However, 66% of education students enroll in a doctoral program more than seven years after earning an undergraduate degree. Additionally, while 54% of all doctoral students are enrolled full-time, only 29% of those seeking doctoral degrees in education are full-time students. The large percentage of students enrolled in education doctorate programs likely skews statistics in the direction of a “non-traditional” student. However, changes in the economy and increased demand for career-specific knowledge may lead to increased numbers of non-traditional students pursuing degrees in the arts and sciences and will create a need to further address the concerns of non-traditional doctoral students.

For the purposes of this address, I have decided to define a non-traditional student as a student who enrolls in a doctoral program seven or more years after completing a baccalaureate degree. In my case, I earned my baccalaureate degree in mathematics in 1987 and enrolled in a Ph.D. program in higher education eleven years later in 1998.

I will cover several topics in this presentation. First, I will respond to the findings of Lovitts in her study of attrition in doctoral students. Next, I will draw on the concepts of cognitive maps and integration into the academic and social fabric of a doctoral program and describe personal experiences that may foster integration for non-traditional doctoral students. Finally, I will offer recommendations to doctoral education stakeholders to improve the institutional climate for non-traditional doctoral students.

Exploring Attrition in Arts and Sciences Doctoral Programs

In her book, *Leaving the Ivory Tower*, Lovitts (2001) studies attrition in arts and sciences doctoral programs. She explores attrition from the perspectives of key stakeholders in doctoral education: students, faculty, and deans, and presents a richly detailed analysis of the causes and effects of doctoral student attrition. *Leaving the Ivory Tower* provides convincing baseline data for additional research on doctoral student attrition in professional schools and emerging alternate delivery programs (e.g., on-line degrees). Using a qualitative approach, Lovitts allows her informants to tell the reader about the causes and effects of doctoral student attrition.

Finding that a significant percentage of graduate students drop out before beginning their second year of graduate school, Lovitts identified two key areas that impact doctoral student persistence. The first area is that of institutional fit and knowledge of the overall doctoral student experience. Are the student’s personal and professional goals aligned with the mission and purpose of a specific program? Does a potential doctoral student understand the demands of graduate school? Lovitts also found that Tinto’s research on undergraduate persistence is applicable to doctoral

students. Tinto posits that a key factor to persistence at the undergraduate level is the integration of students, both academically and socially, into an institution (Tinto, 1993). Lovitts makes a strong argument that introduction of experiences to promote academic and social integration into graduate school will increase doctoral student persistence rates.

Lovitts uses the concept of cognitive maps to explore the issues of institutional fit and understanding the requirements of a doctoral program. Cognitive maps are mental structures that students use to make sense of their experiences. They help students to understand the academic, intellectual, and socialization processes of graduate school. Lovitts found that students with more accurate maps of graduate school were more likely to persist in their doctoral program. Cognitive maps may be even more important for non-traditional doctoral students. Because they may not have an affiliation to a postsecondary institution, some returning adult students may bring an outdated cognitive map of graduate school. They may have unrealistic expectations regarding course workloads. They may be less familiar with the culture of graduate school in general, or the culture of their institution specifically. Because they often spend less time on campus, non-traditional doctoral students may lose the opportunity for informal interactions with faculty and other students. This may delay their exposure to the values and norms of the program and the institution. As a result, development of cognitive maps of graduate school may be slower in non-traditional doctoral students than in their traditional aged peers.

Lovitts found that many students in her study dropped out of graduate school because the program or graduate study itself was not what the student expected. This may be partly attributable to poorly developed cognitive maps. It may also be explained using the concept of institutional fit. Non-traditional students may overlook poor alignment of goals in favor of proximity to home. In my experience, it was not feasible to relocate my family to enroll in a program best suited to my goals. As a consequence, I revised some of the expectations I had for doctoral study. I actively sought experiences I believed to be essential to achieving my goals.

It is not easy to predict the effect of poor institutional fit on non-traditional doctoral students. Non-traditional doctoral students may be more likely to leave a program if they discover the doctoral program does not meet their needs. Alternatively, non-traditional doctoral students may be more likely to persist because they were aware of misalignments between their goals and the mission of a doctoral program prior to matriculation and are less likely to become disillusioned with their doctoral experience.

A second major finding in Lovitts' study was that models of undergraduate persistence apply to doctoral students in arts and sciences as well. Tinto's study of undergraduate persistence found that first year college students were more likely to persist into the second year if they were able to integrate academically and socially into their chosen institution. The reasons Lovitts' informants gave for departing from their graduate programs can be fit to this model. This finding appears plausible because, like undergraduates, doctoral students who do not persist tend to leave early in their programs.

Because non-traditional doctoral students are less likely to spend extended time on campus and may be managing multiple responsibilities while in a doctoral program, it may be more difficult for them to benefit from efforts to promote integration into the academic and social fabric of their programs. Non-traditional doctoral students may not benefit from the informal interaction between students and faculty. As non-traditional students increase in traditional doctoral programs, it may be necessary to include integration-promoting activities into formal program structures such as class sessions.

Integrating Non-Traditional Students into Doctoral Programs

Faculty members in the graduate programs in higher education at Loyola University Chicago recognize that the majority of students enrolled in their programs are non-traditional students. They have effectively incorporated opportunities to promote intellectual and social integration into their graduate course offerings. The examples to follow facilitated my own integration into the doctoral program.

Non-traditional doctoral students (in fact, all students) benefit from well-structured courses. This includes articulating the objectives of the course, the readings, and assignments. Because non-traditional students often have multiple commitments, detailed course outlines are very helpful. Students are then able to budget time for readings and major assignments. Courses are carefully planned by faculty so that the relationship between course objectives and assignments is clear. Pedagogically, course formats mix seminars, lectures, small group work, and student-led instruction.

Many doctoral students in the higher education graduate programs at Loyola have several years of experience working in a postsecondary setting. They bring a great deal of practical knowledge to their studies. Faculty members design assignments to apply course concepts to both theoretical and real situations. These assignments serve as scaffolding to help students' transition from administrator/faculty member to independent learner and finally independent researcher. Faculty members appreciate the experience that students bring to the classroom and promote a climate of mutual learning throughout the term. By valuing the knowledge that non-traditional students bring to their classes, faculty members legitimize those experiences and build confidence in new students who have concerns about their ability to fulfill the rigor of a doctoral program.

Specific course activities promote both intellectual and social integration. Small group projects during class meetings allow students to interact in a semi-formal setting. Some, but not all, course assignments are group projects. This enables faculty to take advantage of the benefits of group work without placing impossible requirements on non-traditional students who have employment and family commitments. The importance of group assignments also mirrors the fact that much research in the social sciences is collaborative and that higher education requires negotiation and collaboration. While it may be difficult to incorporate collaborative work into all disciplines, I believe non-traditional doctoral students benefit from these assignments.

A third activity to promote the development of cognitive maps and integration into the program is enrollment in a proseminar. This seminar meets once per month for a year and, with few exceptions, is completed during a student's first year of enrollment in the doctoral program. In many ways proseminar is an orientation course for doctoral students. Class sessions include presentations from faculty, staff, upper level graduate students, and recent graduates on various aspects of the doctoral program from class selection through the dissertation. These presentations aid in the construction of cognitive maps for new students. During this seminar, students are asked to reflect on their goals for their program and to develop a timeline for completing the doctoral degree. In addition, the proseminar serves to promote integration into the graduate program community by formalizing some of the socialization that a full-time traditional student gains through informal interactions with others on campus.

It is interesting to note that many of the examples just presented address not only the needs of non-traditional doctoral students but are also supported in the literature on college curricula, pedagogy, and student development. Some of the activities may seem excessive to those who feel Ph.D. students succeed or fail all on their own. However, Lovitts found no significant differences between standardized test scores and grades of persisting and non-persisting doctoral students. This suggests that all students will benefit from experiences that foster a climate supportive of all students, not just non-traditional students.

Concerns of Non-Traditional Doctoral Students

Some of the issues administrators, faculty, and students face when the number of non-traditional doctoral students increases follow.

Administratively, non-traditional students may request that faculty offer courses in an evening or weekend format. For example, a program can accommodate working students by offering at least one evening course per semester and rotating courses through the evening schedule so that non-traditional students may fulfill most course requirements without taking significant time from work.

As I have already described, formal orientation programs can be very useful to non-traditional doctoral students. They bring together students who otherwise would not be on campus. They provide socialization that non-traditional students are unlikely to experience outside of a formal setting. For example, the “Re-envisioning the PhD” website at the University of Washington offers links and resources to graduate orientation programs (www.grad.washington.edu/envision/index.html). Program, department, and graduate school websites become an important resource for non-traditional students. Accurate information is essential, and downloadable forms are very helpful to students who, perhaps, do not have the time to physically visit offices on campus. A fairly straightforward means of accomplishing this is to include student handbooks on a program website. Alternatively, keeping administrative units such as the financial aid and registrar’s offices open in the evening makes non-traditional students feel welcome on the campus as well as providing access to important university services.

For program faculty, the first question that must be asked is whether or not doctoral student attrition serves a purpose for their doctoral program. Do program faculty take attrition into account when admitting cohorts of students? Will faculty be able to support increased numbers of students persisting to the dissertation stage? For doctoral programs seeking to increase the persistence rates of their doctoral students, I recommend assessment of the intellectual and social climate within their programs and on their campuses. In what ways do students become participating members of the graduate program? Do students feel they are a part of the intellectual and social fabric of your institution? Several researchers have explored the “chilly climate” for women and minorities in higher education (Heller, 1985; Sandler, 1986; Strenta, 1994). Does a similar chilly climate exist for non-traditional students in your program? Exit interviews for returning and non-returning students are effective means of identifying, from the student’s perspective, the strengths and weaknesses of a doctoral program.

Finally, examine faculty perceptions of non-traditional students. Are assumptions being made about the quality and potential of non-traditional students? Falkner (2001) studied characteristics of doctoral programs. She classified some programs as reproductive, meaning the primary mission of the program is to prepare students for the professoriate. A program classified as expansionist trains for the professoriate and other careers requiring advanced education. I believe programs operating in a reproductive mode produce a fairly narrow category of successful Ph.D. Often these assumptions mirror personal experiences during a faculty member’s own doctoral education. Non-traditional age doctoral students may not possess those traits. For example, students in the laboratory sciences may be expected to spend many, many hours in the lab. As an acquaintance commented, “I was always in the lab but I was not very efficient.” Because of demands on their time, non-traditional doctoral students may learn to work more efficiently. A second assumption that faculty may make about students is their commitment to the degree. Non-traditional doctoral students may seem less productive than peers who do not have other responsibilities. Non-traditional students may work with equal intensity but for fewer hours per week than traditional age, full-time doctoral students.

Students who have not been enrolled in college for several years may have difficulty securing meaningful letters of recommendation from former professors, and standardized test scores may not reflect a prospective student’s potential for success. Do admission procedures take these factors into account? Are there other means of measuring academic ability? Is it possible to maintain student quality without penalizing non-traditional doctoral students?

Graduate schools may wish to sponsor programming to educate faculty and offer assistance to make changes that are supportive of non-traditional age students. As recommendations develop, consider who is best to provide services. Are changes required at the program, department, or school level? It may be the case that school-wide initiatives will be sufficient to meet the needs of small numbers of students across academic departments. As the number of non-traditional doctoral students increases, specialized needs may shift some services to the department or program level.

Students are also responsible for their persistence in doctoral programs. Prospective students should be encouraged to talk to current students in programs of interest. When possible, non-traditional prospects should seek out other non-traditional students to gain a better sense of how other students have managed the multiple demands on time and attention during a doctoral program. Non-traditional students should reflect on their personal and professional goals for enrolling in a doctoral program and actively pursue experiences to meet those goals. Non-traditional students should capitalize on prior education and/or employment experiences that may provide them with a unique perspective to contribute to their field of study. Non-traditional doctoral students should also realize that a cognitive shift from experientially based to research based knowledge is essential for long-term success in a doctoral program.

Summary

Calls to reform doctoral programs often cite the need to prepare Ph.D.s for increasingly varied career paths. As the demand for the expertise and knowledge that is unique to those completing a doctoral degree grows, higher education may find a greater proportion of doctoral students seeking their degree several years after earning an undergraduate degree. This challenges those teaching and administering doctoral programs to examine their assumptions about graduate students and graduate education. Because the costs of graduate education are greater than those of undergraduate education, calls to improve persistence rates of doctoral students may become equally important to higher education policymakers in times of economic contraction. Graduate programs can respond to both issues. Scheduling of courses may change. Faculty may formalize much of the socialization that occurs informally for students through the creation of orientation programs and student-student interaction during class sessions. Although increased numbers of non-traditional doctoral students call for reforms to doctoral programs, the experiences and perspectives of non-traditional students enhance learning for all students.

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When the Light at the End of the Tunnel Begins to Flicker: Examining Attrition from the Perspective of Graduate Students

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Abstract

This case study examined attrition from the perspective of graduate students. It described the various factors that may cause graduate students to leave a college or university before obtaining their degrees. The authors provided hypothetical scenarios, based on their encounters with various students, which cover relevant demographics such as race, gender, and discipline. After introducing the scenarios to the audience, the authors invited listeners to engage in conversation about these experiences. The authors also welcomed the audience to offer possible solutions to the challenges presented.¹

Introduction

For the case study, we developed scenarios from the perspectives of both male and female graduate students. Each scenario was based largely upon either an actual person or a compilation of people and their experiences. We discussed several issues that were relevant to those students' situations.

Scenario 1: Male Graduate Student

The male student in this scenario was categorized as an underrepresented (e.g., African American, Hispanic American) graduate student. He was single and working on a degree in the STEM (science, technology, engineering and mathematics) disciplines. Upon entering the campus of a traditionally Caucasian American institution, he experienced "culture shock." Having spent four or more years at an institution traditionally for underrepresented students, he was accustomed to the luxuries that school provided. The following are some of differences he encountered:

- Most institutions catering to underrepresented students have relatively small campuses in comparison to other institutions. For example, related departments such as computer science and engineering could be found within the same building. At his new school, however, each department had its own building, and the departments seemed to have little interaction between them. This created a challenge for this student because he was pursuing a double major and needed the two departments to communicate more so that they could each work more effectively with him.
- This student noticed a significant decrease in the number of people on campus with similar racial and ethnic backgrounds. While being a member of an underrepresented group in the larger society, he enjoyed being the "majority" race on campus at his alma mater. In graduate school, however, he went from being "one of many" to "one of few" or even "the only one."

- The new institution lacked the variety and types of cultural and social events this student was used to having. Due to the location of his graduate institution, he was unable to find comparable events.
- Sometimes people on campus assume underrepresented male students are athletes in school on sports scholarships, as if their intelligence alone could not have gotten them accepted. This stereotype usually was overcome when people learned that the individual was a graduate student.

As a result of these experiences, this graduate student had difficulties adjusting to graduate school his first year.

Even though he ultimately adapted to his new campus environment, he still encountered problems within his department. First, he noticed a lack of underrepresented faculty and staff. Therefore, he was hesitant to talk to his department members about certain issues, particularly cultural-sensitive issues, fearing that they would not understand. Being the only underrepresented person in his department, he did not receive as warm a welcome from faculty, staff or fellow classmates as other students. Some even began to display a negative attitude toward him; others constantly reminded him of the “real” reason he was there, which was to fill the department’s quota for underrepresented students.

Additionally, when this student was considering research topics, he had problems finding an advisor because nobody shared his research interests. He wanted to choose a topic that was relevant to underrepresented groups (e.g., the digital divide), but none of the professors appeared to be interested in conducting research on this topic. These feelings of incompatibility, if not overcome, could cause him to look at other departments or, ultimately, other universities.

Scenario 2: Female Graduate Students

Female graduate students may endure a number of challenges before completing their degrees, particularly those women pursuing degrees traditionally obtained by men such as those in the biomedical sciences (e.g., biology, genetics). Some of the obstacles that women in general may face are listed below:

- The demands of being a research assistant can sometimes compromise the educational goals of students. Assistantships can be particularly problematic when they are more time-consuming than the students anticipated and when they are in areas unrelated to the students’ fields of study.
- Dealing with departmental politics can be a concern. Students may not be privy to information crucial to their success in the department if they are not “insiders.” Furthermore, students may not have the background or the information to know how to interpret new information they receive. For example, they may be unsure of what information to take seriously and act on and what information to ignore. Having mentors both inside and outside their departments may help with this.
- Professional relationships with faculty and fellow students may present challenges:
 - o Some students have difficulty deciding how to interact and remain loyal to faculty members in their departments when faculty members are not on good terms with each other. These students need to know how to handle these situations without sabotaging their own connections or potential connections.
 - o Students might find that they do not have much in common with some of their faculty members or fellow students. This could lead to the students having only limited involvement in departmental activities. Such an existence in a department, consequently, could adversely influence the students’ ability to acquire information important to their educational careers. Students in this predicament may definitely consider leaving if they also perceive low levels of support from inside and outside of their departments.

- Some students may believe they can have no voice in their departments without being seen as overly sensitive. Concerns raised by students are sometimes dismissed because, rather than dealing with the issues, some department members label offended students as sensitive. This label serves as justification for people to ignore or cover up problems that need to be addressed.
- Limited funding may cause students to seek other employment. While the funds from an extra job may help ease some of their financial burdens, the time students spend away from school can compromise the quality of their schoolwork. Also, these students may find themselves decreasing their course loads in order to work more hours and earn more pay.
- Childcare issues can create problems with attending seminars or conferences, especially those events requiring extended stays. When women are unable to attend the conferences, they may miss educational and networking opportunities that could be vital to their careers.

While graduate school experiences may vary across races, genders, ages, disciplines, etc., some of what women encounter in graduate school seems to be supported by research generated by Kanter (1977). Kanter's research emphasized some of the experience of women and other non-dominant groups in organizations, particularly when women are the only woman in an organization or one of few women in an organization. Kanter found that the unique encounters of women included the following:

- Visibility. They got greater visibility than dominant group members because they stood out. While this visibility may have been beneficial in some ways, many of the women did not like being in the spotlight all the time and seemingly having every aspect of their personal and professional lives scrutinized.
- Contrast. Differences between the non-dominant group and the dominant group (women and men) were exaggerated. Dominant groups took their beliefs, norms, and values for granted, but when people who did not share their principles joined the group, the differences between the groups became more salient. Therefore, differences and social characteristics gained greater attention when "outsiders" joined the organization.
- Assimilation to stereotypes. Sometimes the characteristics of "outsiders," or women in this case, get distorted to fit the stereotypes that dominant group members hold of that particular group. In other words, instead of getting to know women as individuals, some people rely on their generalizations about women to interpret behaviors that women exhibit. Such behaviors from dominant groups may lead to some women not forming their own identities; these women, instead, conform to the identities that dominant groups expect them to have (Kanter, 1977).

Kanter (1977) looked mainly at gender differences, but other work appeared to look at differences more broadly. Fant, Cohen, Cox, and Kanter (1979, 1993) released a video called *A Tale of "O": On Being Different*. Using "Xs" and "Os" to designate dominant and non-dominant groups, the authors explained how dominant groups, "Xs," changed when "Os," people perceived as different or outsiders, joined them. The authors also articulated the experiences of "Os" when they joined groups in which they were significantly outnumbered. They showed that non-dominant group members may be seen by dominant groups as 1) helpers for dominant members, 2) sex objects with whom to be flirted, 3) mascots who will entertain others, and/ or 4) militants who are self-sufficient, tough, and not to be bothered (Fant et al. 1979, 1993; Orbe, 1998a). In order to be successful under challenging conditions, non-dominant group members may try to 1) overachieve to be accepted, 2) assimilate into the dominant culture, or 3) hide behind dominant group members (Fant et al. 1979, 1993; Orbe, 1998a). Ultimately, both groups, "Xs" and "Os," may have to make adjustments in order to communicate effectively with others. (For more information on how dominant and non-dominant groups communicate with each other, consider the work of Orbe, 1998a, 1998b).

Additionally, work that examines experiences in academe focused specifically on the experiences of African American women. Allen (1998) discussed her experiences as an African American scholar, and in later work (Allen, 2000), she provided data from in-depth interviews with African American women who were students. These women talked extensively about their university

experiences and their efforts to address the challenges they faced. A central theme in both articles was the desire to overcome negative stereotypes. Allen maintained, "I often am careful not to display negative emotion (e.g., sadness, despair, anger, disagreement) because I do not want to enact negative stereotypes. For instance, I might suppress my anger because I do not want to be seen as a militant Black person or as a domineering, loud Black woman, or as a bitchy woman" (Allen, 1998, p. 580). Such concerns may not just stop some African American women from asserting themselves, but they also may influence adversely the interactions of women from other racial groups.

Conclusion

Overall, women and men may endure a number of challenges while in graduate school. These challenges can exist on various levels ranging from race, sex, class, age, sexuality, discipline, etc. Others can support graduate students by being aware of the challenges they face and being mindful of how their interactions with these students may influence their graduate experiences. Those interested in more information on some of the experiences of women and men in graduate school may be interested in the references below.

Notes

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Curriculum Issues: Meeting Educational Needs in Life Sciences

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Abstract

Strong job growth in life sciences in central Indiana has brought a demand for science graduates with strong laboratory training as well as a solid grounding in the concepts and factual base of science. In an attempt to address this need, IUPUI has developed a graduate level certificate in biotechnology in partnership with local life science industries. The certificate will be governed by a director of the academic and teaching program, in consultation with an advisory board that includes both industrial and academic partners. The certificate will be taught using a competency-based curriculum and will employ techniques of problem-based learning. All laboratory experiences will be with state-of-the-art equipment and focus on topics of interest to potential industrial employers.

Introduction

Attrition in graduate programs arises from many causes, but one clear factor is the real or perceived mismatch between what a student experiences in a program versus what potential employers are seeking. This perceived mismatch is especially telling in the life sciences, where very specific skill sets are sought by employers and those skill sets change often as the field progresses. This presentation explains how one program at Indiana University Purdue University Indianapolis (IUPUI) has been designed to address some of these issues.

Life Sciences as an Economic Force in Indiana

Life science companies in Indiana operate in four general areas: pharmaceuticals, laboratories/health research, agricultural/animal health chemicals, and medical supplies/equipment. Although many life science companies in Indiana are small, several of the companies in central Indiana are quite large and would be recognized outside the state, and indeed around the world. For example, pharmaceutical companies in the area include Eli Lilly & Company and Roche Diagnostics. Harlan Sprague Dawley, Inc., is a large company supplying routine and specialized research animals around the world. Dow AgroSciences is a leader in agricultural chemicals and Elanco focuses on animal health. Medical device and instrument manufacturing companies include Guidant Corporation and the Cook Group.

Employment in the life sciences industries for the state of Indiana roughly matches the density of that sector for the United States as a whole. However, most of the life sciences jobs in Indiana are actually clustered in the central region. As a result, the density of life science employment in central Indiana is currently above the national average in three of five subsectors. These subsectors include hospitals/laboratories, which are 30% above the national average, and medical devices/instruments, which are 79% above the national average. The strongest concentration of employment is in pharmaceuticals, where central Indiana has an employment strength nearly four times the national average.

Not only are jobs in the life sciences abundant in central Indiana, they are also well paying. According to IMPLAN data from 1998, the average salary for a worker in the life sciences in central Indiana was about \$78,000. In contrast, both the U.S. and central Indiana average salary in all industries was just under \$32,000. Salaries in the life sciences in Indiana have tended to grow nearly 5% yearly for the past decade.

Finally, the life sciences represent growth areas for the economy in central Indiana. Overall growth was about 40% in the period from 1995 to 2001. Nearly 5,000 jobs were created during that period in pharmaceuticals and medical devices manufacturing. Even more striking growth occurred in hospitals and laboratories.

The Role of Universities in Central Indiana

The central Indiana region is bracketed by Indiana University Bloomington on the south edge and Purdue University West Lafayette on the northern border. In the middle, in Indianapolis, lies the campus of IUPUI, offering programs of both IU and PU. The campus is also the home of the statewide Schools of Dentistry, Medicine, and Nursing. These three universities attracted a total of almost \$400 million in external funding in 2000-01. Most of those dollars supported research, and the lion's share of support for life sciences or biomedical research was earned at IUPUI. Thus, the universities as well as the industries in the region create a demand for highly skilled workers in the life sciences.

Indiana University, Purdue University, IUPUI, and other universities in the region have long met the need for workers in life sciences in the traditional way by producing significant numbers of graduates with baccalaureate or master's degrees. For example, undergraduate degrees in biology awarded each year number about 265 at IUB, about 50 at IUPUI, and about 140 at PUWL. The numbers of master's degrees in biology are about three per year at IUB, about 50 per year at IUPUI, and from five to seven per year at PUWL.

Program reviews of these and other related degrees confirm that students in the traditional programs get a solid base of information in their fields and a strong conceptual basis for scientific practice. Depending upon the program, its location, and sometimes upon the student, the amount of laboratory experience is variable.

Feedback from industrial recruiters and from students themselves suggests that research experience can be a deciding factor in the decision to hire into some of the best-paying jobs where the Ph.D. degree is not required. Another line of evidence also suggests that research experience is highly prized. For many years active research laboratories, primarily within the School of Medicine on the IUPUI campus, have noted that highly trained technicians steadily migrate from the university research laboratories into industrial laboratories. In times of very active hiring by large life sciences firms, this brain drain has depleted university laboratories of their most experienced workers.

The Biotechnology Certificate at IUPUI

The Biotechnology Certificate was created by interested faculty and administrators in response to the strong local job market in biotechnology and in response to the need for well-trained technicians for university research laboratories. The stated goal of the program is "to enhance knowledge and skills in the latest biotechnology areas for new college graduates and for technicians whose training may be dated."

The governance of the program is unusual in that it not only includes a director of the academic and teaching program but also includes an advisory committee composed of both academic and industrial members. The program was developed by Dr. William Bosron, Professor of Biochemistry and Assistant Dean for Graduate Studies at the IU School of Medicine. Dr. Judith White is the director of the teaching program. These academic leaders will make use of the

advisory committee to maintain the academic excellence of the program and to keep it focused on cutting edge biotechnology of interest to industrial employers.

Resources for the Biotechnology Certificate Program

This graduate level certificate will draw upon the research expertise of the faculty of the IU School of Medicine/IU Graduate School who last year brought in \$253 million in research funding from external sources. Many of these faculty have research contacts with scientists who work in related fields in industry. Industries in central Indiana are contributing to the certificate program not only by making the time of key scientists available to allow them to serve on the advisory board and teach in the program, but also by donating equipment or access to key equipment.

The Indiana Genomics Initiative (INGEN), which was funded by a \$105 million grant from the Lilly Endowment, has added key resources for the certificate program. First, it has made possible the construction of a new laboratory facility that will include a teaching laboratory specifically designed for this program. By placing the teaching laboratory in the same building with the core laboratories for INGEN, these state-of-the-art facilities become available to the teaching mission. The core laboratories include genotyping and gene expression, proteomics, cell and protein expression, integrated imaging, animal models, in vivo imaging, and human expression. Another advantage of the separate teaching laboratory is that the intense laboratory teaching will move from the busy research laboratories that in the past were often disrupted during times of heavy teaching.

Human resources for the program include both academic and industrial scientists. The industrial partners who will actively teach in the program and who are involved with creation of the teaching materials for the program will assure that the curriculum focuses on laboratory problems relevant to industrial practice. The academic partners who are largely involved with INGEN bring experience with leading edge research that has real impact. This cadre of faculty are also experienced teachers whose expertise includes teaching laboratory skills and creating and teaching with case studies.

Curriculum of the Biotechnology Certificate

This certificate will require 15 credits of graduate level course work. The first course that must be taken is a four-credit graduate level survey in biochemistry, cell biology, or a related discipline. These are existing courses that may be selected to round out a student's training and assure that all students enter the laboratory sections with strong grounding in the basic science.

Three laboratory courses will be required: Methods in Protein Chemistry, Methods in Cellular Metabolism, and Methods in Molecular Biology. Each of these laboratory-intensive graduate level courses carries three credits. Methods in Protein Chemistry and Methods in Molecular Biology are long-standing, popular courses taken by students as well as faculty on campus. Methods in Cellular Metabolism will be developed using the same model of limited class time with extensive hands-on laboratory work, using state-of-the-art techniques and equipment.

The capstone of the certificate program is the two-semester course Concepts in Biotechnology. This course is designed to use problem-based learning (PBL) techniques to demonstrate the application of basic science concepts to research in biotechnology, to foster an appreciation of the importance of life-long learning, to promote the development of good communication skills, and to improve the ability of students to solve problems encountered in biotechnology research.

Each semester of Concepts in Biotechnology will present four PBL cases and each case will be presented over three class meetings. Students work in groups or teams for these exercises. The first session introduces initial learning issues. In the second session, the student groups report on the initial learning issues and receive new ones. The third session allows the groups to report on

the final learning issues and to discuss the objectives of the case with an industrial scientist who contributed to the case and is expert in the area.

Evaluation of Students

The structure of the PBL cases foreshadows the structure of the triple jump examinations that will be used to evaluate individual student progress. The first stage of the triple jump examination presents the initial problem, allowing students to prepare on the topic. The second stage examines not only their knowledge on the topic but also their ability to cope with new information that may confirm or conflict with hypotheses the student has formed. The final stage again adds new data to test how the student solves problems in a dynamic environment.

Students will also be evaluated for a set of core competencies that have been agreed upon as keys to success in a modern laboratory setting. The three general competencies are communication, problem solving, and life-long learning. Communication will be evaluated not only in terms of skills with written and oral reports but also in terms of the ability to interact with a group or assume appropriate leadership of the team. Problem solving is evaluated individually in the triple jump examinations as well as in the laboratory exercises. Life-long learning is fostered by both the PBL cases and the triple-jump examinations, as students are forced to decide what information is critical to solving the problem and to decide on the best source of that information.

Technical competencies are also delineated and include basic statistics, calculations, weights and measures. In addition, proper laboratory conduct is taught as a core competency. With this competency comes skill in keeping a legally-binding laboratory notebook, compliance with all biosafety regulations, and a clear understanding of the ethical conduct of research.

Evaluation of the Program

The first cadre of students will start the program in the fall of 2002 and the program is expected to be fully operational in 2003. When the first certificates are awarded in 2004, students and employers will be asked to evaluate the program. It is expected that graduate students in other programs may also enroll in one or more of the courses; both these students and their mentors will also be asked for comments. It is the role of the Biotechnology Certificate Advisory Committee to study the evaluations and recommend new tracks as the program and the life sciences progress.

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New National Support Mechanisms for Graduate Students and Their Education

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To start with the general level of anticipated support, the indications from the President's budget request include the following:

- Department of Education – in general there is no good news. In particular, there is a projected \$1.3 billion shortfall in Pell grants.
- National Science Foundation – the proposed overall 5% increase includes another graduate stipend increase which will raise stipends to \$25,000. Note that this increase is for Graduate Research Fellowships and two training programs, IGERT and GK-12, and has no direct effect on graduate students supported by NSF research grants. Note also that although the President has requested only a 5% increase for NSF, there is strong sentiment in Congress to put NSF on a track to double the budget in five years, as was done for NIH.
- National Institutes of Health – the proposed \$3.7 billion increase represents the final installment to double the budget.

A new national trend is developing to extend support to master's degrees. In each case where new support has been proposed, the nature of the degree is being examined as well. Perhaps the most visible of the recent master's initiatives has been the Professional Science Masters initiative of the Sloan Foundation. Detailed information is available on the website: www.ScienceMasters.com/.

This past year CGS has partnered with Sloan to extend Sloan funding for program development to "master's focused" institutions. Phase I of this project involved competitive planning grants to institutions to survey workforce needs and to convene meetings between university faculty and employer constituents. The size of the grant from Sloan allowed almost all the good proposals to be funded, at about \$7,500 per institution with the exact amount depending on the number of degrees proposed and the potential number of students served. A projected Phase II involves implementation awards in the amount of \$25,000 – \$50,000. These will be awarded to institutions with the most successful reports from the planning grants. They will fund the full proposal for a Professional Science Master's degree, an institutional assessment of resource availability, and the creation of a business plan for implementing the proposed degree(s).

NSF is beginning to look at supporting innovations in master's-level education, as this appears to be a gap in their education portfolio. A workshop was held last November (2001) to assess the need for such a program and to make recommendations to NSF. The workshop concluded that there was significant need and recommended that NSF institute a program that encourages reform and innovation in master's education. A further recommendation was to require employment-sector partnership during design and implementation of new or restructured degrees, and a traineeship model was proposed.

Although it is not well publicized, NIH has a program for master's students called the Minority Bridge Program. This program is designed to encourage partnerships between master's focused minority-serving institutions and research-intensive universities. It supports coordination of degree programs so that students earning a master's at the minority-serving institution have a direct track to a doctorate at the research university. The NIH supports program development and implementation as well as student internships. It does not provide stipends, as the NIH charter

does not allow support of master's students. Thus the NIH program differs from others in that it does not support innovations in stand-alone master's programs, but looks to facilitate the successful movement of minority students in master's programs into doctoral programs.

In shaping doctoral education, NSF has played a leading role, most notably through the IGERT (Integrated Graduate Education and Research Training) program. This program was designed to give universities an opportunity to experiment with graduate education. It encourages graduate student professional development in addition to the tradition in Ph.D. education of new knowledge generation. IGERT provides significant funding. These are five-year awards of up to \$500,000 per year and can include up to \$200,000 for equipment. The characteristics of the IGERT program provide benefits at many levels. For the graduate students, there is the opportunity to participate in multidisciplinary problem-centered research. Typically there are opportunities for personal and professional skill development, e.g., communication skills, teamwork, and industrial internships. Increasingly IGERT programs include a global perspective, and PIs are encouraged to apply for international supplements to allow students to do some of their work in other countries. For the faculty, there is the challenge of new intellectual horizons. The interdisciplinary focus of the IGERTs often leads to new research collaboration. For the institution, the IGERT program facilitates interdisciplinary collaborations and helps reduce the barriers that exist between disciplines. The funding allows institutions to experiment with new paradigms. An aspect of the program that has proven very helpful is that administrators from IGERT institutions are invited to the PI workshops. This has been useful in sharing information among institutions both about problems and about what works, as well as encouraging sustainability of successful programs.

Another important program by which NSF is shaping doctoral education is AGEP – Alliances for Graduate Education and the Professoriate. The alliances are between two or more research universities and the goal is to increase the number of minorities obtaining doctoral degrees and entering the professoriate – in fact to triple the number of graduates in five years. Again these are substantial awards, for five years and up to \$500,000 per year. AGEP awards provide for faculty release time, program administration, workshops and seminar costs, faculty and student travel, assessment costs, and peer mentoring stipends. Substantial institutional cost sharing is required, and most of the student support is provided by the institution, as strong institutional commitment is essential to the success of the program.

NIH serves to shape graduate education largely through training grants in targeted areas. These areas change from year to year and currently include computer analysis of biological data, women's health, the "virtual cell," sex and gender differences in the immune system, and bioengineering (a multi-agency collaborative project). NIH plans to increase traineeship stipends about 10% per year over five to six years to get to \$25,000. NIH also has individual fellowships, e.g., in targeted programs for minorities and students with disabilities.

In general, graduate deans should get more involved in encouraging students to apply for federal support where it is available by becoming more knowledgeable about sources of support. So let me end with some useful web sites:

grants1.nih.gov/training/extramural.htm

www.ehr.nsf.gov/EHR/DGE

www.ehr.nsf.gov/EHR/HRD/agep.ags

Examples of Non-Monetary Support for Doctoral Students: A Graduate School Initiative at Washington University in St. Louis

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Abstract

There is growing recognition nationally and on local campuses that expanded graduate student support is key to doctoral student success in advancing toward degree completion. A Graduate School initiative, launched in 1994 at Washington University in St. Louis, has been expanding financial and non-monetary support for doctoral students. Selected examples of non-monetary support developed through an integrative, collaborative approach illustrate that not only more but also broader types of support help to address doctoral students' distinct needs.

Introduction

This year's MAGS meeting on "Avoiding Attrition" adds to the on-going conversations and national studies about doctoral education reform (COSEPUP, NAGPS, Re-envisioning, Responsive Ph.D.) by focusing on ways that the Graduate School can support doctoral student degree completion. Lovitts notes the relationship between the type of support students receive, their degree of participation in the intellectual and social life of the community and profession, and their success in completing degree (Lovitts, 2001). But, what do graduate students need? What types of support will effectively address these needs? Who should provide?

The Graduate School at Washington University in St. Louis has been focused on enhancing support for graduate students for some time, so I am glad to share examples of what we are doing and what we have learned. I also look forward to learning about how you are addressing the challenge on your campus.

Washington University in St. Louis

Washington University in St. Louis is a private, research university with approximately 12,000 students. About half are graduate-professional students enrolled in one of eight decentralized graduate schools: Arts and Sciences, Medicine, Law, Business, Engineering, Social Work, Architecture and Art. The Graduate School of Arts and Sciences Office has prime responsibility for some 1,300 graduate students – predominantly full-time doctoral students – enrolled in 30+ doctoral programs (including the Ph.D. programs in Social Work and Business), 30+ master's of arts programs, as well as joint degree and graduate certificate programs. The University's mission combines excellence in research, graduate student training, and undergraduate learning. Our university culture is rooted in a tradition of collegiality, good citizenship and leadership, and a commitment to development of the "whole student." Given our particular context, our challenge is how to get the resources and attention to provide support for graduate students.

Graduate School Initiative

In 1994 the Graduate School of Arts and Sciences, under the leadership of Dean Robert E. Thach, launched a bold new initiative to enhance monetary support and broaden non-monetary support for doctoral students. (Magner, 1997, 1999). This initiative has resulted in improved doctoral training and graduate student experience at Washington University. Key was matching the number of new students admitted into Ph.D. programs to the available financial and academic

resources. This has resulted in allowing entering doctoral students to anticipate monetary support to degree. The current (2001-2002) level of monetary support includes:

- Support and tuition remission (6-7 years)
- Health insurance and health services program
- Dissertation Fellowship support in the humanities and social sciences
- Summer stipend in the humanities and social sciences
- 1st year fellowship for sciences in Math, Earth and Planetary Sciences programs

Non-Monetary Support System

In addition to monetary support, the Graduate School initiative developed a systemic, integrative approach to non-monetary support which enables full-time doctoral study and student success academically, professionally, and personally.

What are we doing? First and foremost, the Graduate School Office serves as the student-friendly front door to the university, an easily identifiable resource/advocate for all matters graduate. The Graduate School staff is committed to fostering a university culture which values graduate education, where graduate students are taken seriously and empowered to realize their own potential. Given the size, structure, and culture of our university, the Graduate School relies heavily upon developing collaborative partnerships with faculty, graduate students, and campus professional service providers, and is well-positioned to facilitate such collaboration in several ways:

1. provide support to departments to integrate graduate students into discipline training, and encourage best practices across departments;
2. collaborate with campus professional service providers to maximize student use of existing services and to develop programming that addresses the distinct needs of graduate students; and
3. launch interdisciplinary initiatives designed specifically for and with graduate students, generally organized around academic stages (new student orientation, dissertation seminar), for particular groups (science fellows, women, underrepresented students), or around new ideas (integration of technology, broadening professional job opportunities).

I would like to highlight several examples of our efforts to broaden doctoral student support on our campus; web addresses are included for those interested in more details.

Graduate School-Wide Communication and Community

While it is critical that doctoral students become integrated into their own home department and discipline, students increasingly express interest in being part of a larger university community to address social isolation and to pursue interdisciplinary interests. The Graduate School is well positioned to facilitate systemic, graduate school-wide communication, beginning with graduate school-wide new student website and August orientation programs that supplement individual department orientations (<http://www.artsci.wustl.edu/GSAS/GradStudent/NewStudents.html>). New technologies make it possible to continue wide communication throughout graduate study: a Graduate School website, begun in 1995, offers easy, one-stop, on-demand/any time access to graduate school, department and university policy and resources (<http://www.artsci.wustl.edu/GSAS>) while email listservs can be used for more directed communication about upcoming workshops and social events. Face-to-face meetings, such as

“Conversations with the Dean,” are scheduled regularly throughout the academic year as an opportunity to bring students together, to air concerns, and to signal an approachable administration presence. Graduate Student Senate activities, such as “Peer Mentoring,” “Graduate Research Symposium,” “Faculty Mentoring Awards,” and social events, also invite involvement in a broader student community.

Broader Professional Development

Professional development is the area that has seen the most expansion in recent years. Responding to changing societal needs and graduate student interests, the Graduate School has played an active role in promoting the importance of preparing doctoral students for a broader range of professional job opportunities both within the traditions of teaching and research and beyond. By bringing together graduate student advisory committees, Career Center professionals, faculty, and alumni, we are able to offer an array of professional development opportunities for graduate students, including career workshops on “Academic Job Prospects and Placements for Ph.D. Graduates” and “Exploring Career Options Within and Beyond Academics,” alumni networking through Career Connections, a university-wide alumni database and Ph.D. alumni panels, and skills workshops such as “GrantsSearch” and “Establishing your Professional Identity Online.” It has also been useful to work with graduate career professionals at peer universities to promote the value of Ph.D. education and cultivate Ph.D. friendly companies for those interested in private sector (<http://artsci.wustl.edu/GSAS/Careers/>).

Student Leadership and Shared Governance

The Graduate School promotes professional skill development through student leadership opportunities. Washington University Graduate School has a shared governance model, that is, graduate students have equal representation with faculty on the Graduate School Council and the university-wide Professional and Graduate Student Coordinating Committee. Graduate students also serve on the University Board of Trustees, university-wide standing committees, and in the national graduate-professional student association. Active promotion of opportunities to bring graduate students to the table fosters student agency in owning and solving problems and in planning and implementing programs that impact their own training. Such opportunities also function to develop student skills and experience in team building, communication, project management, policy development, and citizenship.

Teaching with Technology

In 1995 the Graduate School launched an initiative to train graduate students as future professionals engaged in exploring and defining the intersection of technology, teaching, research and public communication. Currently there are two levels of summer workshops taught by graduate students for graduate students: 1.) WebWorkshop I offers introductory training to develop pedagogical concepts and technical skills to integrate technology into classroom teaching; and 2.) GOL workshop invites advanced students to experiment with communicating their own complex dissertation research to a broader audience of non-specialists by creating multimedia online interactive projects, which may be used as freestanding modules or supplements to lecture courses (<http://www.artsci.wustl.edu/GSAS/GOL>).

Next Steps

While much has been accomplished, more always remains to be done. Among next steps, the Graduate School has been asked by our chancellor to facilitate a new initiative to enhance the graduate-professional student experience at Washington University. Opportunities for university-wide concerted action hopefully will lead to more opportunities for doctoral students to meet and

work with professional students in Medicine, Law, Business, Engineering, Social Work, Art, and Architecture.

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Forms of Non-Monetary Support for Graduate Students

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Central Michigan University, located in rural central Michigan, currently has a student body of 19,000 on-campus students, 2,000 of whom are graduate students. Approximately 40% of those graduate students were CMU undergraduate students. Additionally, 15% of the graduate student body is comprised of international students. We also enroll over 6,000 off-campus graduate students. While we offer eight doctoral programs, CMU is primarily a master's institution offering a number of professional graduate degree programs.

The CMU College of Graduate Studies has broad responsibilities. Along with processing all paperwork for on-campus graduate students (including international students) such as applications, transfer credits, graduation audits, etc., we also process all policy exceptions for on- and off-campus graduate students. We coordinate the graduate curricular body, put forward new graduate policies, evaluate faculty for graduate faculty status, and work to increase student stipends. We also house one interdisciplinary program and the McNair Post-baccalaureate Achievement Program and provide administrative support for both programs.

We act as an advocate for graduate students, who are clearly the minority population at our institution. Various programs for graduate students, such as orientation programs for all new students (separate programs for domestic and international students), graduate assistant training programs, and international teaching assistant training programs, are run out of the graduate office. Various workshops are offered throughout the year for graduate students, such as technology, thesis preparation, and vita preparation workshops, which we coordinate.

We see ourselves as a resource for graduate students. As such, we produce a newsletter each semester with information on topics such as academic integrity, taxes, and fellowship opportunities. We also control a graduate student listserv on which we post information on deadline dates for graduation, fellowships and grant applications, and other relevant information which comes to our attention. Handbooks for graduate students and graduate assistants clarifying policies and procedures and providing useful reference materials are provided through our office.

The College also advises students when appropriate. Because we are an institution in a rural area, many of our students are first generation college students. They often are less sophisticated regarding graduate education than those who grow up with college-educated parents. Thus, post-baccalaureate students sometimes come into our office for advising. What should s/he study at the graduate level? What types of programs will increase employment opportunities? Sometimes students simply come in looking for encouragement as they consider pursuing a graduate degree. Occasionally, international students come in for advising due to a lack of familiarity with the U.S. system of education.

Last fall we initiated the development of a Graduate Student Association. While many students do not feel the need for such an organization, it clearly appeals to some students. The association supports a speaker series, plans social activities, designates students to serve on university committees, and will likely define itself more clearly over the next few years.

The responsibilities of the College of Graduate Studies are broad. Overall, however, we see ourselves as primarily responsible for advocating for graduate students to ensure that their graduate experience is one which serves them well.

Teaching Postdocs at the University of Michigan (and Beyond): An Interim Report

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Teaching Postdocs: the very phrase sounds like a contradiction in terms, on a par with, say, sympathetic dean or sensible faculty member. For many years postdoctoral positions have been associated with the physical and biological sciences. After completing the Ph.D., the student in these areas would typically sign onto the lab of a senior researcher in order to establish a sound research program and to generate publications. On this model, advancing one's research interests is the primary goal. A postdoctoral appointment that included teaching as a key responsibility would therefore seem at cross-purposes, just as including ample time for research among Adjuncts, Lecturers, or Visiting Assistant Professors from other disciplines when their primary responsibility was to teach would likewise seem a case of confused priorities. Broadly speaking, over the past twenty years, the dominant pattern for academic positions at the non-tenure track level among various fields has tended to be either research to the exclusion of teaching or teaching to the exclusion of research.

But times are changing. Breaking down the divide between teaching and research has been a major theme in efforts to reform higher education over the past five to ten years. Suddenly teaching postdocs, once a contradiction in terms, are now becoming increasingly common. Funding agencies such as the National Science Foundation, Mellon, Woodrow Wilson, Carnegie and others have launched a number of initiatives that place recent Ph.D. recipients in two- to three-year positions that combine teaching and research in equal parts. Webpages of an ever-increasing number of institutions invite applications to new programs designed to enhance the professional and pedagogical development of those aspiring to the professoriate, while professional societies such as the National Academy of Sciences or the Modern Language Association have likewise called for the development of internship programs designed to expose graduate students who are nearing the completion of their degree to a wide variety of teaching and learning environments.

Two new programs at the University of Michigan provide a fair sample of this trend. One offers two-year positions in the humanities and social sciences to new Ph.D. graduates at a half-time teaching load. Each of the postdoctoral fellows, selected from a national pool of applicants, will be assigned a senior mentor to provide counsel on matters relating to teaching and research, will participate in monthly roundtables to discuss their work, and will share various service assignments from the hosting department. A second program offers two-year postdoctoral appointments geared to those wishing to make use of the University of Michigan's rich and extensive library holdings. In this case, fellows spend the first year of the appointment doing archival work (usually related to their dissertation) and dedicate the second year to teaching undergraduate seminars, drawing directly upon that work in order to probe the use and nature of documentary evidence in the production of knowledge. The Graduate School is currently in the process of finalizing the first round of appointees, whose duties are scheduled to begin next fall.

Although there is no officially declared purpose or policy linking all these various initiatives at the national level, career development is typically the defining goal. With regard to the humanities, the opportunity for students fresh from graduate school to refine their dissertations while deepening their skills and experience in the classroom offers invaluable benefits in fields where tenure-track positions may be notoriously scarce. (This emphasis on improving marketability, for example, is the stated premise behind Woodrow Wilson's program, now concluding its third year.) With regard to the sciences and engineering, there has been a recognition for some time now of the need to recruit and train a new generation for the professoriate, especially in fields where competition for Ph.D.s in the private sector is fierce. (This, for example, has been a primary

consideration driving NSF's support of preparing future faculty programs and similar ventures from the mid 1990s onward.) Cutting across these disciplinary distinctions, though, is the more general sense that Ph.D.s emerging from research institutions need to be better equipped to face the multiple academic responsibilities and diverse institutional profiles they are likely to encounter as new faculty. After all, it is commonly observed that the places where most jobs are available – small liberal arts colleges, public comprehensive universities, and community colleges – are radically different in scale, culture, and mission from the environment that produces most Ph.D.s in this country. What role might teaching postdocs play in addressing what is often termed a mismatch between graduate student background and institutional reality?

I want to offer a preliminary answer to this question by describing an exchange partnership recently created between the University of Michigan, Oberlin College, and Kalamazoo College. I should note at the outset that the teaching postdoc component is only one element of this partnership, albeit a critical one. So to set the proper context, I will provide some background on our collaboration, outline some of the goals we've established, and describe the general features of the program before reviewing in greater detail the role and the importance of the teaching postdocs to this new initiative.

The idea for an exchange relationship began in 1998 with a chance conversation between Jim Duderstadt, former President of the University of Michigan, and Clayton Koppes, Dean of Liberal Arts at Oberlin College. Intrigued by the possibilities of an exchange partnership, the Dean of the Rackham Graduate School, Earl Lewis, commissioned a taskforce, headed by President Emeritus Duderstadt, to investigate. Its recommendations formed the basis for a series of planning sessions involving high-ranking administrators from UM, Oberlin, and Kalamazoo. Out of these sessions emerged a plan that we began to implement through internal funding two years ago. At the same time, the Rackham Graduate School took the lead in crafting a proposal for external funding of the partnership. These efforts were rewarded by a grant from the Mellon Foundation, which agreed to support a three-year pilot program beginning in the fall of 2002.

In simplest terms, the premise behind the partnership is that research universities and small liberal arts colleges have a lot to offer each other. Liberal arts colleges produce many of the undergraduate students who continue on to graduate school at major research universities. Naturally there is considerable interest among graduate faculties both to establish a connection with undergraduate education in this sector and to recruit undergraduates into graduate programs. And there is of course a further interest in broadening the career paths of the Ph.D.s they do produce so that they are not bound to only one kind of institution. At the same time, in order to maintain their reputation for excellence, faculty at liberal arts colleges increasingly seek research opportunities characteristic of research institutions. The sheer pace of change in many fields of higher education puts undergraduate curricula in constant threat of obsolescence, especially in the life and physical sciences. The vast archives, laboratory facilities, and library system at a place like the University of Michigan exist on a scale that the more limited resources of most liberal arts colleges cannot hope to match, and therefore serve as a natural site for inter-institutional collaboration. Once we were able to get beyond the usual invidious distinctions about teaching versus research – once we were able to see that the very expressions “teaching-intensive institution” and “research institution” were labels of convenience only – we were able to see the synergies and interlocking needs more clearly. Just as a self-proclaimed “research institution” like the University of Michigan prides itself on the excellence and diversity of its graduate student teachers, so do colleges like Oberlin and Kalamazoo take great pride in the excellence of their scholars and researchers. The question was therefore how to play to existing strengths within each environment while maximizing the benefits unique to each.

The exchange partnership we eventually came up with is structured in three parts. The first consists in recent Michigan Ph.D.s going to Oberlin or Kalamazoo as teaching postdocs. These are two-year appointments that carry a reduced teaching load. The choice of discipline is determined on a rotating basis, with one campus hiring in the humanities or social sciences and the other hiring in the physical or life sciences. This rotation is switched on an annual basis, so that, for example, if Oberlin hires in the humanities or social sciences in one year, they shift to the physical and life sciences in the next while Kalamazoo shifts from the sciences to the humanities over the same period. Each campus appoints two postdocs a year, in disciplines identified by the

school's Dean or Provost. The Graduate School at the University of Michigan solicits applicants from the appropriate fields and, after conducting a preliminary screening, forwards the applications to Oberlin or Kalamazoo. Primary consideration is given to students who have an outstanding record of pedagogical accomplishment during their time at graduate school along with the promise of scholarly achievement. Those selected as finalists by Oberlin or Kalamazoo are invited for an on-campus visit and follow procedures typical of interviews for positions at the Assistant Professor level: a job presentation or talk of some kind, daylong interviews with faculty, students, and administrators, and a campus tour. We are currently in the process of hiring our second round of postdoctoral fellows, who will begin teaching in the fall of 2002.

The second feature of the exchange partnership provides resources for scholars at Oberlin and Kalamazoo to pursue research opportunities at the University of Michigan. Faculty members from the two schools who are eligible for a sabbatical or a paid leave of some kind are invited to apply for grants to be scholars in residence at Ann Arbor. Here the preliminary screening is handled by the relevant administrative unit at Oberlin and Kalamazoo; the expectation is, of course, that the applicant have an active scholarly career and that he or she provide a compelling case as to how time in Ann Arbor will help advance that career. Sometimes applicants wish to access archives or library holdings critical to the faculty member's research; sometimes they wish to develop pre-existing collaborations with UM faculty by sustaining ongoing research projects or by proposing new ones. The Graduate School at the University of Michigan reviews these applications, making sure that there is a good fit between the research interests described and the resources at Michigan. We also provide an office and computing facilities and arrange for a UM faculty member to serve as a liaison and departmental host for the visiting scholar. As in the case of the teaching postdocs, our aim is to have four such visiting scholars – two from each college – per year. Unlike the teaching postdocs, we have much more flexibility in terms of time. Some visitors have worked at Ann Arbor for a full term, others for six weeks, and others have expressed an interest in staying for the full year.

The third and final component of the program involves the creation of lecture series, symposia, conferences, and, ultimately, team teaching projects across the three campuses. To a large extent, this component is meant to complement and develop the first two by bringing together faculty and postdocs from the three campuses. To take just one example, over the past two years faculty from both Kalamazoo and Oberlin have pursued research projects through the University of Michigan's Department of Asian Languages and Culture; from that interaction, our hope is to stage a gathering of some kind, whether lecture series, conference, or some other format, in order to share findings and promote inter-institutional dialogue. Likewise, we plan to have our teaching postdocs return periodically to their home departments at the University of Michigan and present their experiences of a small liberal arts environment to their former peers. Finally, team teaching that brings together faculty from the different campuses is still on the drawing board; with the steady growth of IT in the classroom this is bound to become more and more practicable and therefore more likely in the not too distant future. Indeed, it was precisely the development of new technologies and their power to facilitate intellectual interaction and promote greater sharing of intellectual capital that first prompted President Duderstadt to foresee not just the desirability but also the need for exchange relationships among diverse types of institutions.

At this writing, three postdocs are in residence at Oberlin and Kalamazoo, completing their first year of teaching. Each of them is paired with a senior mentor from the home department and each is taken through orientation programs and related training sessions expected of all new faculty. David Taylor, a Biology Ph.D. now at Kalamazoo College, began his duties there as a research and teaching assistant for a large lecture course in addition to participating in a series of roundtables across campus on pedagogy. In keeping with the emphasis on faculty development, he was given his own course in the next term along with some service assignments that will help integrate him further into the life of the college. David has also taken advantage of Kalamazoo's extensive involvement in study-abroad programs and will be traveling with undergraduates to pursue research opportunities in Africa this summer. Peter Kalliney teaches in the Department of English at Oberlin, where he has established a close working relationship with another respected scholar in his field, that of contemporary multicultural literature. His fellow UM alum, Timothy Van Compernelle, teaches at Oberlin's Department of Religion, replacing one of his new colleagues

who is pursuing a research project with Tim's dissertation chair in Ann Arbor. In the fall of 2002, these three fellows will be joined by four more, two in Kalamazoo's English Department and two in Oberlin's Psychology and Physics Departments.

When it comes to assessing the program's effectiveness, the issue of outcomes will of course receive primary consideration. The University of Michigan awards six to seven hundred Ph.D.s a year; it turns out that, in any given year, an average of ten percent of this population earned their undergraduate degree from a Baccalaureate I liberal arts college. And yet when we review placement of our Ph.D.s, as the Graduate School has been doing since 1999, we find that only roughly four percent go on to find jobs at these same institutions. The purpose of placing teaching postdocs at Oberlin or Kalamazoo is not necessarily to get them tenure-track positions at Oberlin or Kalamazoo, but we do hope and expect that graduates of the program will be particularly appealing to small liberal arts colleges in the region and across the country. To get the word out and showcase the program's benefits, the Graduate School at Michigan has begun working with agencies like the Great Lakes Colleges Association, a consortium of 12 schools and colleges from the Midwest, on the assumption that such institutions are always interested in hiring highly motivated and exciting faculty with first-hand knowledge of their mission, culture, and expectations.

Finally, it is important to emphasize that the exchange partnership as a whole and the teaching postdocs in particular are very much works in progress. The program we have designed is meant to be a three-year pilot, after which we will review the general structure in order to make any needed changes and to begin planning its expansion to include other participants. Now that each campus has designated a faculty member to serve as coordinator who will oversee the operation of the program, we will be in a better position to gauge how well its different components are working together. Moreover, it is becoming increasingly apparent that a large part of the coordinator's task at the University of Michigan will be as much educating faculty as students on the opportunities and rewards that teaching-intensive institutions have to offer. Too many preconceptions and misconceptions persist among faculty who take a dim view of academic positions not at major research institutions; by promoting inter-institutional dialogue at various levels, part of the purpose of the exchange partnership is to dispel such false assumptions. Here too adjustments may need to be made in acculturating not just the teaching postdocs to a new position but their mentors as well.

Arguably, the shrinking number of tenure track jobs available to Ph.D.s directly out of graduate school has been the most dramatic development in the academic job market over the past fifteen years. Arguably, too, teaching postdoc positions merely exacerbate this problem by devising yet another probationary period that lengthens the interval between graduate school and the opportunity for a young scholar to compete for the chance of a permanent position. And yet there is surely a difference between accepting a post that does little or nothing to enhance one's professional and pedagogical development and accepting one explicitly conceived with such a goal in mind. No one pretends that the teaching postdoc will solve the challenges surrounding placement in the academic world, but it does take a step toward engaging the needs of higher education and its next generation of scholar/teachers in a way that is more deliberate and self-conscious than past practices.

In the Trenches: A Graduate Student's Perspective of Placement – What Will My “End-Use” Be?

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Graduate school. It was a chore to get this far already. Now that I'm almost finished with my master's where do I go from here? This question of what do I do next is a very difficult one, especially, if one's degree is in something that is not directly linked to a job like a business degree might be. For example, my master's will be in the field of sociology; how will that get me a job to support myself? Realizing the difficulty of matching graduates, especially liberal arts and humanities graduates, to jobs, how can colleges help students find jobs or “end-uses,” as I have heard them referred to so lovingly? These questions are extremely important for graduate schools to answer, especially when attrition in many fields comes close to 50 percent (Howery, 2002). In order to illustrate the possibilities available, I will use my own experiences as an undergraduate and graduate student in the field of sociology at DePaul University as well as report on some of the findings from the National Association of Graduate and Professional Students (NAGPS) 2000 National Doctoral Program Survey as a way to guide graduate institutions on what needs to be done to help smooth the transitions between undergraduate, graduate, and working life.

Undergraduate Experiences: Opening at the Middle Game

As an undergraduate at DePaul, I took the first two years to decide my major and minor, which were sociology and professional writing. The time it took to figure this out allowed me to be exposed to a variety of ideas and prevented me from pigeonholing myself at the onset like some of my business major friends who were stuck taking classes they hated and didn't even know why they were taking them. This is important, for colleges should be emphasizing the idea that students should study and work for what students enjoy doing and for what students find passion in. That would be the first job of college: to make people conscious of their likes and dislikes as well as their strengths and weaknesses, at least academically. A college should help students pursue what they are passionate about learning in contrast to the sometimes prevalent “I need this piece of paper to get \$50,000 a year” mentality.

At the beginning of my junior year, when I knew my what my major and minor were, I began trying to figure out what I could do with a sociology degree, especially because everyone who finds out you are getting a degree in sociology wants to know what kind of job you will get when you are done. This is a very tedious question to answer in my life currently, but in those earlier years it was to the point where I had to make things up. I really didn't know what I was going to do; I just knew that I liked the ideas that I was studying. Analogous to my above point, passion is important in order to get through studies, but when “end-uses” are fuzzy how can students stay passionate if they feel they could be learning the same things on their own? Ultimately, I'd like to think that students and people in general would find places for themselves if they were honestly doing what they like. For example, I was a sociologist before I actually got a degree in sociology; the degree just enhanced and gave institutional approval to what I already was and thought.

During my junior and senior years at DePaul, I spent my time increasing my knowledge in the subject and enhancing my contact with those who were interested in the topics I'm interested in. Basically this was a networking process that is downplayed in college. In certain respects, all college is just a convenient central location for past knowledge and the accumulation of new knowledge and social network creation – it's not really the degree that gets you where you want to go, it's the people you meet: students, professors, and prospective employers. For example, in my case I met some professors doing research on high schools and youth culture – a topic that I'm fascinated by. These professors found me a job as a research assistant and helped me begin working on “real” research. This also eventually led to my presenting papers at conferences,

which has helped me to gain a better understanding of what it is that sociologists do with their research.

So, having explained some of my undergraduate experiences, what could institutions do to increase the number of prospective graduate students? First of all, at the undergraduate level students must be shown what is possible after attaining their degree. This should be made clear to students, especially for those who have entered into fields not directly linked to jobs. For example, no one in my family is an academic, so how can I learn to negotiate the academic world if no one is willing to take me by the hand at least a little and show me what that world is about? Fortunately, I found some professors who were willing to do that for me, but this is not an opportunity that all students have. It is at this point that “end-uses” must be made clear. How exactly can I make a living with my sociology degree – or any graduate degree?

Second, students must be given multiple opportunities to interact with those already doing work in their field. It would be to a school’s benefit to try to get students more involved in faculty research and/or to hook them up with alumni or people who apply that discipline in their everyday working environment. It should be very apparent to the students who to talk to if interested in one type of work or study.

Third, students should be approached in multiple ways about their future so that they have varying perspectives to deal with. For example, these issues could be touched upon in class, with department heads, with professors, with other students, in individual meetings, small groups, and/or large gatherings.

Last, students should be encouraged to take stands in order to sort out their thoughts. Bring in people who will challenge the discipline students are learning so they can become stronger and see the flaws in what they are learning.

Some of the things occurring at the undergraduate level are disheartening in that in some cases undergraduate education is becoming what high school education used to be and graduate school is becoming what undergraduate education used to be. In other words, people have to stay in school longer to get a job that a generation or two earlier required only a high school education. Educational institutions must ask themselves if they are actually educating people or if they are just accrediting bodies that perpetuate the class systems of this country, ultimately creating and perpetuating caste systems.

Graduate Experiences: The Master’s and Doctorate Endgame

The concerns that I raise in this section are echoed in the 2000 NAGPS survey of doctoral programs. Although this was an observational study and not a controlled experiment where participants were randomly selected, and responses may not fully reflect the opinions of the entire graduate student population, it at least begins to give a general picture of some of the major concerns graduate students have with their programs.

Part of the beauty of my undergrad program at DePaul was that I had the option to enter into an accelerated master’s program – essentially get my master’s in one year after I got my bachelor’s. This seemed like a logical thing to do; however, the advice that I got about this program was sketchy and contradictory depending on whom I asked advice from. Some people said go get a Ph.D. right now; others said take some time off; others said get the master’s now. According to the NAGPS survey, students gave their programs a C+ for information given to prospective students. Students are concerned about accurate information about the costs (total of tuition, fees, and living expenses) of the program; a realistic assessment of financial support (prospects for and levels of) while in graduate school; clear information about the requirements and expectations of the program; information about career prospects for Ph.D.s in their field; listings of places where recent program graduates were employed after graduation; the percentage of students in the program who complete the program with a Ph.D.; and the average time to degree for recent program graduates.

Some of these concerns relate back to undergraduate studies as well. Basically, at the master's level I feel that I have even less peace of mind and still don't understand if getting the master's was a good thing according to my goals, which may include becoming a professor someday. As I progress further in higher education the path becomes less and less clear. How do I become a professor? Or what can I do with a master's or even a Ph.D. if I don't want to be a professor?

According to the NAGPS survey, students gave their programs a B- for preparing them for a broad range of careers. This category raises these issues: is the program's curriculum broad enough to meet students' needs and prepare them for their career of choice; does the program actively encourage students to explore a broad range of career options; does the program encourage students to broaden their education through non-required activities such as coursework outside of the department, internships, and workshops; and how well do programs prepare students for academic careers as well as careers outside of academia? When asked directly about career guidance and placement services for academic and non-academic jobs, students gave their departments a C. Also related, students gave their programs a C for teaching and TA preparation; this includes making sure that students are prepared and trained to teach, are supervised, and are teaching courses they want to teach. Along these lines, it is one thing to learn the ropes of becoming an academic/professor, an entirely different thing to learn how to become a researcher, and a practical role reversal to learn how to apply sociology or other disciplines to "real world" or "working world" situations; graduate programs must help their students negotiate these life options.

So again, as in my undergraduate experience, how do I find a job—what will my "end use" be? For now my answer has been to keep going to school until I can find a job. However, this answer of staying in school is partly due to the networking I did as an undergraduate. I became a graduate assistant; the position paid for this entire year of school as well as gave me more experience at becoming an academic, but, still, what can I do if I don't want to be an academic? For now it looks like I may teach at De Paul as a part-time faculty member; however, what would I have done if I hadn't created the networks? This is one thing that needs to be done for more graduate students – give them more opportunities to take part in teaching and researching, and find them the opportunities to work outside of the university setting as well. It is also important to mention that funding education is expensive, and NAGPS survey students graded their programs with a C+ for sufficient financial support. If graduate programs want students they must be willing to pay for them and make it worth the students' while to study. Why should students and people in general have to pay for their own job training? To make sure that more people have the opportunity to go to graduate school, more positions and funding must be found for students who want to work in their discipline with their professors or professionals who work in a related field in the vicinity of the college. This would not only help students find jobs after their graduate studies, but it would also keep more students in school because of the increase of support they would feel from meeting other students and professors.

Another possibility, especially for programs like mine, is organizing more social opportunities for graduate students to mingle with each other. Barbara Lovitts (2001), author of *Leaving the Ivory Tower*, argues for the importance of students connecting with the graduate student subculture, which seems to come more easily to students who share an office, serve as research assistants, and otherwise spend time on campus and are in frequent daily contact with other graduate students. "Pluralistic ignorance flourishes in graduate school," states Lovitts, and for this reason students need to be able to tie into the peer culture of school or else they might as well be going to the library to study. Another way to get students together would be to have them work in groups with professors in the department. Basically students need to talk to each other and must be encouraged by the programs to do so – social support systems are key to gaining an education and completing studies.

Where Do We Go From Here?

In order for graduate schools and colleges in general to help their students find worthwhile and desirable “end-uses,” programs need to accomplish at least four things. First they must develop their students’ passions, not their marketability; marketability will follow people who do what they like. Second, they must make clear what the degree will allow graduates to do as well as making the students’ end use possibilities apparent. Third, graduate institutions, especially liberal arts and humanities departments, must subsidize more grad students because of the high cost of attaining graduate degrees. This goal could be reached by programs utilizing their students’ abilities and by having professors and students work together more often (Lovitts, 2001; Howery, 2002). Fourth, the programs need to facilitate more social interaction between students, professors, alumnae, and prospective employers.

One concrete example of a solution to the job placement and graduate school attrition problem may be community colleges. According to Carla Howery, the American Sociological Association’s director of Academic and Professional Affairs Program, “Faculty positions are on the rise in community colleges – retirements are projected to increase in the next decade, and student growth will further fuel this increase. Over 3,000 full-time faculty positions were advertised in 1999-2000, and sociology was number seven out of the top ten fields requested in job advertisements” (Howery, 2002). So, this illustrates that there are places to go; graduate students receiving their master’s or doctorate just need their programs to light more brightly the paths to these “end uses.”

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Establishing a Pipeline between Master's and Ph.D.-Granting Institutions

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One means to help your students answer that overpowering question of “What’s next after I finish the master’s degree?” can be provided by establishing relationships with research doctoral institutions. Particularly in those academic areas in which you have excellent master’s degree programs but no terminal degree, these relationships or “bridges” to other institutions will not only improve your student completion rate, but will also build a solid regional base of students from which to draw.

For the most part, until recently, we had a tendency to overlook even our finest undergraduate students when recruiting for our master’s degree programs. This, of course, is short sighted on our part because we already have performance indicators on these students that prove they are some of the best potential graduate students available. But recruitment was not done because the “standard” was that students interested in higher education as careers needed to study under a variety of different philosophies to broaden and deepen their knowledge base. So our own baccalaureate graduates were not actively recruited into our graduate programs.

Most of us know that there is a sufficient enough difference between undergraduate and graduate courses and professors that unless students specifically limit themselves to a single professor or two they will receive a reasonably broad and differing educational program between the two degrees. While it is always good for students to attend different institutions, whether the change is between the bachelor’s and master’s or the master’s and the Ph.D. is a matter for the student and the mentor to determine. What we have done is made it more attractive for our best students to remain at Eastern for the first graduate degree.

Creation of such pipelines can either be done through a 3-2 program, as we have in Accounting, Occupational Therapy and others, or it can be accomplished by building relationships with strong doctoral programs for students to matriculate into following the completion of their first graduate degree.

Eastern Michigan has opened relationships through bridges to the doctorate programs with institutions located regionally in several of our master’s programs, particularly in Chemistry and Biology. Those programs are located at the University of Michigan and Michigan State University. EMU master’s students submit their application credentials to these institutions following a period of research activities established through the major professors and their colleagues at the University in question.

Pipelines are also established with other doctoral institutions in the states of Michigan and Illinois through the King-Chavez-Parks Future Faculty Fellowship initiative and our relationships with IMGIP/ICEOP programs in Illinois. Following completion of their master’s degrees at Eastern, KCP students can choose to continue to their terminal degrees at these sister institutions and apply for financial support as a known quantity coming from a KCP institution. These minority students have a 90% plus graduation rate from Eastern Michigan programs and have excellent admissions records into doctoral programs.

The most recent effort taken by the EMU Graduate School has been the involvement in an NIH grant developed by the University of Michigan’s School of Public Health. This Partners grant application includes three predominately master’s institutions – EMU, UofT-San Antonio, and Morehouse University Medical School – which have agreed to prepare their students for eventual admission into the UofM School of Public Health. Students will be selected for admission into selected EMU academic programs that provide preparation for careers in public health. A number

of Eastern academic departments have agreed to participate in this NIH grant that will provide funding, research training and mentorship for up to two minority students per year from each of the three partner institutions. These students will receive financial support for the initial semester attendance at the partner institutions and then be selected for approval into the Partners grant. They are scheduled to receive academic support services, mentoring, travel and research support, tuition, fees and a wage to be provided on a monthly basis.

While the actual grant has not yet been approved by the NIH¹, we are very hopeful of support and above all it has opened cooperative channels between the Partner institutions that had not existed prior to this endeavor. These contacts developed simply because the deans and program directors had worked with each other in the past in trying to improve admissions and financial support for minority students.

These efforts can be replicated at any institutions that want to work together to help their best students move into research doctoral programs. Just by contacting your counterparts to inquire regarding their willingness to either recruit on your campus or develop a cooperative relationship you can open up a very positive opportunity for your students.

¹Subsequent to the MAGS meeting funding was approved for this grant.

Forging an Alliance with the Career Services Office

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I am excited to have the opportunity to address the topic of “Retention of Graduate Students.” I have viewed part of my work with graduate students and the role of a career services professional as providing a “safety net” or a “place to reflect” on decisions they have made about their careers before making hasty next steps. Providing such support can lead not only to retention in graduate school but also to reconceptualizing and recommitting to careers in academia. It can also mean students will be more confident when finding suitable placement in other career fields using their skills and graduate degrees.

I became interested in working with graduate students through a combination of my personal experience as a Ph.D. student in counseling at Howard University and my clinical training and work at other Research I University Counseling and Career Services offices across the nation. My comments come from these perspectives and my goal is to provide some insight into the work of career services, provide practical information as to how to work with the career services professionals in your institutions, and finally to spark discussion and reflection.

In my opinion, career services offices can help graduate student retention in a number of ways:

- Teach graduate students academic and non-academic job search skills
- Support graduate students in the middle of their programs who cannot see the value in continuing
- Work with non-academic, teaching, or research-type employers and create recruitment activities and special events
- Help to recruit new graduate students who are concerned by the “placement” rates of departments
- Assist with finding suitable non-academic positions or alternative teaching and research positions
- Offer alumni services
- Provide dossier services

Reflective Exercise

“What meaning did your career path have for you?”

Take a few moments and think back to your experiences prior to entering graduate school. What were the circumstances leading you to decide to attend graduate school? What were the obstacles? What was happening to your colleagues you started with? Now think about the end of your graduate work. How did you land your first job? Was it what you expected? Was the journey smooth and what you expected before you started, after the second or third year? How had it changed?

As you reflected upon those experiences, my assumption is that you may have had a variety of reactions. Some may have had smooth roads to success; others may have not been so direct. These events may have been influenced by your gender, ethnicity, citizenship status, or family

needs, as well as by the needs of your faculty advisor or department. The reality is that the life of a graduate student can span from two years to a decade or more. Graduate students enter school at various ages and for different reasons.

Career Services and Faculty Meeting Students' Needs

Graduate schools, career services professionals, and academic departments have the common purpose of preparing students for the world of work. Each has the responsibility for some aspect of this reality. The January 2002 Chronicle of Higher Education article "A Little Advice from 32,000 Graduate Students" summarizes graduate student responses suggesting that they would value their Ph.D. preparation more highly if they had the support of their department and faculty in pursuing traditional academic and non-traditional academic career paths, as well as non-academic pathways. (This article was only a summary of responses to the actual study conducted by Golde and Dore (2001), entitled "At Cross Purposes: What the Expectations of Today's Doctoral Students Reveal about Doctoral Education.") Building programs that will increase the "value" that graduate students place on their degree is one area where we can begin to collaborate to improve retention of graduate students.

I recognize that graduate schools' mission is to prepare students for the world of teaching and research. Additionally, writing for the Council of Graduate Schools, Kahil (1990) observes that "The Doctor of Philosophy program is designed to prepare a student to become a scholar, that is, to discover, integrate, and apply knowledge, as well as communicate and disseminate it. Such skills may lead to careers in social, governmental, business, and industrial organizations, as well as in university and college teaching, research and administration." The trouble is that some graduate students assume the department is completely responsible for the totality of their development. When challenges present themselves, the result is for the student to blame the department or to blame himself or herself for making a bad choice, which leads to an unhappy student who does not feel valued in the situation and subsequently will leave without a smooth transition. Mostly graduate students come in wanting to feel secure and confident in their abilities to find employment. When they don't see this happening, then they begin to "take flight" and consider leaving.

Career services professionals provide support to students and academic departments and support the teaching and research missions of college and university. We can do this by intervening in or delaying the graduate student's "flight" from school. Our work is to teach students the skills necessary to seek and attain employment upon graduation from the college or university. Graduate students enjoy career counseling assessment because they can talk about themselves as well as begin to see a variety of options. Others also need job search strategies and access to internship and employment opportunities. Many career services offices provide alumni career counseling as well to support your student after she or he graduates. Others also provide reference file and dossier services. Another area of strength is that most career services professionals have the expertise to create specialized career events for students and employers. These are the types of experiences that graduate students see and value as they are progressing through school.

Before I describe some successful programs, I want to briefly answer a question that many faculty ask me, which is, "How does Career Services work with the student?"

How Does Career Services Work with Graduate Students?

Only a handful of graduate students enter the Career Services office knowing exactly what they want and how to get there. It is more common for students to have many questions about careers and to need to learn how to look for a job. In fact, many are like seniors going on the job market. Here are some reasons graduate students have used to explain why they came to Career Services:

- I was never given the chance to look at other options for my career. There are other things that I am seeing that may be interesting. How will I know?
- I am considering leaving graduate school because this program was the wrong choice for me.
- There are problems in my department and my advisor suggested that I seek other options.
- I am being excused from my doctoral degree and I need to find work.
- I am curious why corporations are interested in me.
- Before I make this great leap into academia, I want to be sure this is right for me.
- I don't like teaching, but I do like research (or vice versa).
- I don't have any work experience to make me useful beyond academia.
- This is a second career for me – I am worried now that I am older that I won't be viewed as strongly as a younger applicant.
- I have concerns or questions about qualifications and job search issues related to ethnicity or sexual orientation or gender.

A career services professional works with students by listening closely and then helps them to normalize the problems they are facing and points out where they need to begin working to achieve their goals. Most graduate students are in two of Super's five stages of life-long career development (Luzzo, 2001). The Exploration stage (15 – 25 years of age) is characterized by students developing job-related skills, enrolling in graduate or professional or trade school, learning more about occupations of interest, selecting among the most preferable career opportunities, and determining the duration and training required. The Establishment stage (25 – 45) follows, which involves achieving stability in an occupational choice, improving one's chances of advancement within a career field, and becoming proficient in a career. In reality, students do not progress through all the stages smoothly or in a sequence.

Finally, career professionals teach students how to search for full time jobs. We do this through workshops, individual consultation, and special events and services. Common for many graduate students is how to write a resume, network with employers, practicing interviewing skills, research careers, and utilize the internet for job search. Other services are to help students write cover letters, negotiate salaries and benefits, as well as store departmental references through dossier services.

Graduate Department Alliances with Career Services

How can you develop a relationship with the office? I suggest that you approach this as you would with any professional relationship by establishing some rapport, finding a common ground, and then strategically planning how you can work together. The best way is to set up a meeting with the career services leadership in your institutions and learn about the Career Services in your institution. In most institutions, the career services professionals want to work with the academic departments but find it difficult to do so because of organizational structure. As you begin to work with the Career Services office, please recognize that these are professional staff, usually counselors, psychologists, or, in many offices, individuals with industry-specific experience. Most have graduate degrees themselves and are highly regarded among students.

You will want to learn where the career services are located in your institution. Are they in a centralized Career Service office on campus? Located in the graduate school? Do they operate in conjunction with the counseling and psychological services? Ask if there are counselors familiar

with the needs of master's and doctoral students. Are there Ph.D. level counselors in the office? Learning the kinds of resources the students find useful is another area as well as wondering about career events that career services professionals have successfully hosted.

It will take a person at the dean or director level to spearhead these efforts. These are the people who can help encourage faculty about the importance of career services, as well as set the stage for the group to work together and assure that students use the services. I also suggest developing a mechanism for tracking and evaluating successful events. You may also want to work collaboration strategically and collect statistics and data about the success of your students.

Examples of Collaborative Efforts

Here are a few examples of successful collaborative efforts in which I am directly involved or with which I am familiar. Other examples abound, but I just wanted to highlight these activities:

- The Chicago Science Career Forum is a unique event for Ph.D. and post-doctoral students in the Life Sciences at the University of Chicago and Northwestern University. This two-day event is hosted on consecutive days by one of the two schools. This program is a perfect example of a "relationship between" offices in that the planning committee involves the department heads from NU and University of Chicago's faculty pairing up with the Career Services staff. The events combine a poster session and career fair for employers who themselves have Ph.D.s. The idea, in my mind, is to give the Ph.D. students an opportunity to showcase their work to employers who will understand what kinds of skill they have. Career Services holds CV and "preparing-for-career-fair" sessions which discuss networking etiquette and appropriate attire. We also coordinate the logistics of the event and work to create a resume book which is given to employers. The departments work on getting students to the forum, help career services identify suitable employers for their students, and work with preparation of application materials. Both the departments and career services staff the event to help students network and to show support.
- A second example is the Beyond Books Series (Academic Focus) at Northwestern. This series is a collaboration between Career Services, Preparing Future Faculty, the Graduate School, and Center for Teaching and Learning. This series of panels and practical experience is designed to help graduate students entering the academic market prepare for the realities of university careers. Teaching portfolios, minority academic job search issues, CV writing, speakers on academic job search, and interviewing are a few topics in this relatively new program.
- At Stanford University I coordinated a program called the Ph.D. Pathways Program for students who were considering non-academic options. This program consisted of a four-week series of workshops which included career assessment and interpretation, practical job search skills training, and roundtable discussions, as well as non-academic panel presentations by alumni. The departments collaborated by providing talented alumni and funding for the event. This event was very successful, with over 100 students enrolled in the last years prior to my leaving.
- In early March, the University of California schools, spearheaded by the career center staff, had their first UC-wide meeting of career services professionals and graduate deans. The results are still coming, but some ideas that emerged at the meeting were to create listservs, to share web and networking resources, and to look into collaborative programming. Other leading Research I universities such as the University of Michigan, Harvard, University of Pennsylvania, and University of Texas-Austin have interesting programs as well.

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The Logic for Recent Changes to the GRE Program

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Abstract

A new measure of Analytical Writing is being added to the GRE General Test effective October 1, 2002, and the existing Analytical measure is being discontinued. The addition of Analytical Writing to the General Test aligns the test more closely with the kinds of analytical tasks graduate students are asked to perform. It makes the test a more broadly based assessment that allows students from a wide range of backgrounds to demonstrate their abilities. The General Test in its new format also has smaller differences between groups than was previously the case. We anticipate that the General Test in its new format will be more valid than the current test as a predictor of success in graduate school.

Introduction

The Graduate Record Examinations (GRE) Program at ETS has now existed for over 50 years. For the last 35 years, the GRE Program has been governed by an independent Board composed primarily of graduate deans. Members are appointed to the GRE Board by the Association of Graduate Schools and the Council of Graduate Schools. The GRE Board determines the policies that govern GRE tests and services and directs a research program dedicated to the improvement of testing for graduate admissions.

Continuity is an important value in the GRE testing program. Continuity enables graduate faculty to compare scores on tests taken years apart. It also enables admissions committees to develop a reliable body of local knowledge on what kinds of test scores and applicant profiles are associated with success in their particular program. Major changes in the GRE testing program are undertaken only rarely and only when alteration brings significant benefits.

It was with that mindset that the GRE Board authorized in June 2001 the most significant change in the GRE General Test since the early 1980s. A measure of Analytical Writing is being added to the General Test effective October 1, 2002. The Analytical measure, which was added to the GRE General Test in the early 1980s, is being discontinued. The measures of Verbal and Quantitative reasoning ability that are now part of the General Test will continue in their current format. Because the Analytical Writing measure is the same test as the standalone Writing Assessment now administered by the GRE Program, the Writing Assessment is being discontinued as of January 1, 2003.

The addition of Analytical Writing to the General Test aligns the test more closely with the kinds of analytical tasks graduate students are asked to perform. It makes the test a more broadly based assessment that allows students from a wide range of backgrounds to demonstrate their abilities. The General Test in its new format has smaller differences between groups than was previously the case. We also anticipate that the General Test in its new format will be a more valid predictor of success in graduate school. The addition of Analytical Writing represents a significant opportunity to improve the General Test, one that overwhelms the normal arguments in favor of continuity.

This article will describe the new Analytical Writing measure and will indicate how Analytical Writing scores and essays can be used to improve the quality of admissions decisions.

Measuring Analytical Writing Ability

Graduate deans and faculty often tell us that the two traits on which they wish they had more information at the time of making admissions decisions are the applicant's writing ability and critical thinking skills. In the early 1990s, the GRE Program embarked on a research program to determine the feasibility of measuring both those traits with a single new test. A national interdisciplinary advisory committee of writing experts helped ETS develop and pilot many different kinds of writing tasks to identify those that provided the best evidence of skills that contribute to successful graduate work. The Analytical Writing measure is the result of these efforts.

Effective October 1, 2002, GRE General Test takers are being asked to write two essays for the Analytical Writing measure. For the first essay, test takers are presented with two "issue prompts," or brief statements. Each prompt makes a claim about a complex issue that can be argued from various points of view. (See the text box for sample prompts.) Test takers choose one of those prompts and then construct an argument explaining the extent to which they support or oppose the claim. They have 45 minutes to develop their position, incorporating relevant reasons and examples into their argument.

After a brief break, test takers are then presented with an "argument prompt" that contains information, with a conclusion ostensibly derived from that information. The test takers have 30 minutes to analyze and critique the logical soundness of the argument. They may identify additional evidence that would strengthen the conclusion, question the relevance of evidence presented in the prompt, or cite alternative conclusions consistent with the evidence offered. Since all argument prompts are created with flaws in the link between evidence and conclusion, the test taker has a variety of possible approaches to constructing a critique.

In short, the first essay task asks a test taker to make an argument, while the second essay task asks for critique of an argument. The ability to make and critique arguments is a foundational skill for graduate students at both the master's and doctoral levels, in all fields of study. The essay responses are scored (on a 0 to 6 scale) for how well they

- articulate complex ideas clearly and effectively,
- support ideas with relevant reasons and examples,
- examine claims and accompanying evidence,
- sustain a well-focused and coherent discussion, and
- control the elements of standard written English.

The technical quality of the writing is not evaluated separately but rather in the service of critical thinking. When the quality of the writing is sufficiently poor, it impedes the ability to convey meaning. People who have a limited vocabulary in English, for example, will have difficulty conveying their thoughts in response to an essay prompt. In such cases, "control of the elements of standard written English" will affect the analytical quality of the essay and hence the score. Papers that are beautifully written but present a weak argument or critique, however, also receive low scores.

Scoring the Analytical Writing Measure

This measure of analytical writing breaks with past GRE tradition most visibly in the fact that it is based on free-response questions rather than on multiple-choice questions. This has the advantage of allowing test takers to demonstrate the process of analytical reasoning that leads them to reach a certain conclusion, rather than simply selecting an answer from a list of options. The GRE test-taking population has diversified enormously in the last twenty years. It is more international, more diverse in racial, ethnic and gender composition, and more varied in age and prior life experience. The Analytical Writing measure allows considerable flexibility in how the test taker demonstrates ability in analytical reasoning and critical thinking.

Of course, depth and flexibility in the assessment bring with it a degree of subjectivity in scoring that is not present in multiple-choice questions. Measurement experts know this as the trade-off between validity and reliability. The Analytical Writing measure has increased measurement validity in the sense that it enables test takers to show more fully and in a less constrained way their capabilities in critical thinking and analytical writing. It has somewhat reduced reliability compared to a multiple-choice measure because there is a much smaller sample of behavior (only two test questions) and because of the possibility that the same essay response would not always receive the identical score.

In the case of Analytical Writing, the GRE program has taken every possible precaution to minimize the subjective elements of scoring. The score scale runs from 0 to 6, with half point increments and with each scale point having a clearly defined meaning in terms of essay quality.¹ The scorers, or “readers,” are part of a nationwide network of college teachers, from all disciplines, who have undergone extensive training in the philosophy and methods by which this measure is scored. They must also pass GRE certification tests by successfully scoring a large number of previously rated essays. In addition, every day that readers score operational essays, they must first score a folder of ten “calibration essays” whose official scores are concealed from them. If their scores differ significantly from the official scores, readers must score additional calibration sets. Any reader who cannot demonstrate scoring accuracy is not allowed to evaluate operational essays.

Each essay response submitted receives two independent readings from these trained experts. The pay-off to the careful attention given to reader training and to the continued monitoring of reader quality is that 97 percent of the time the two scores match or are just one point apart on the seven point scale. In these instances, the score assigned to the essay response is the average of the two readers' scores. If the two readings are more than one point apart (as happens three percent of the time), the response is read by a third, highly experienced reader who determines the ultimate score. Scoring leaders monitor the entire scoring process, providing feedback to readers as needed.

The test taker's second essay response goes through the same process, so that the final score on Analytical Writing is the product of four independent readings spread across the two essays.² While the essay-scoring process necessarily involves human judgment, the GRE Analytical Writing measure binds that judgment to a set of rules that are clear, fair, and consistent.

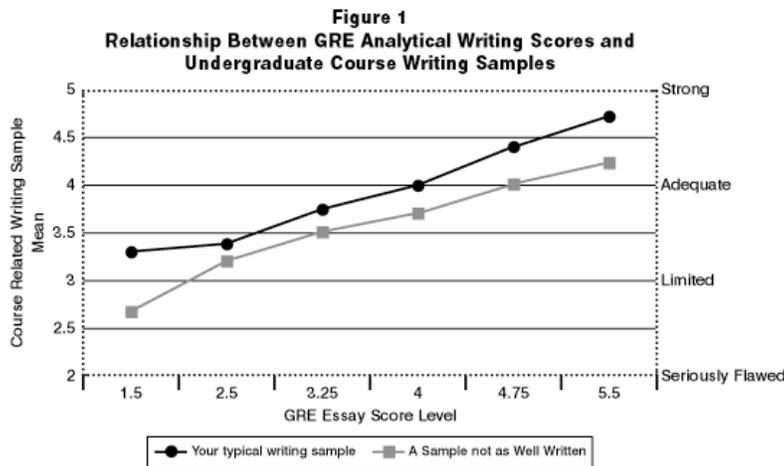
Validity and Fairness of Analytical Writing

The Analytical Writing measure is a recent addition to the General Test, but it is not a new test. As mentioned above, the measure has been ten years in development and was the subject of a great deal of research prior to being made operational in October 1999 as a standalone test called the GRE Writing Assessment.

Ultimately, the key measure of usefulness of any GRE test is the extent to which it helps predict the success of potential graduate students. We will not have predictive validity information for the Analytical Writing measure until it has been operational for several years. Only then will we be able to collect data on the relationship between students' Analytical Writing scores and their subsequent performance in graduate school.

However, we introduce the Analytical Writing measure in full confidence that it will make a significant addition to the predictive validity of the existing test. Our confidence stems in part from the logic of testing. We know that making well-reasoned arguments and critiquing arguments in clearly organized prose is a key skill for success in graduate school. We also know that the Analytical Writing measure is relatively independent of the other two measures of the General Test -- the Verbal and the Quantitative reasoning measures. That means Analytical Writing will have a great deal of value added in generating a total picture of applicant abilities.

Although we cannot yet generate predictive validity information, we do have data on "concurrent validity." One of the studies undertaken during development of the measure compared GRE Writing scores to an independent scoring of undergraduate papers written by the same students. We sought to learn whether essays written in the relatively restricted time frame of the Analytical Writing measure are a good proxy for the analytical quality of writing prepared under more typical conditions in which the student has an opportunity to review and revise his or her work. The data in Figure 1 show that Analytical Writing scores are in fact closely related to the analytical quality of papers prepared for a student's undergraduate courses.



The GRE Board and ETS staff are excited about the prospects for strengthening the overall quality of the General Test by adding the Analytical Writing measure. At the same time, we would be remiss if we did not pay attention to potential consequences of this change for the performance of different groups of GRE test takers. Accordingly, the GRE Board commissioned a research study in April 2001 involving 7,000 test takers from around the world. Each participant had taken the GRE General Test or a GRE Subject Test in previous months. For this research study they completed the Analytical Writing measure as well as a special half-length version of the existing General Test.

The results of this study show that members of underrepresented groups perform relatively better on the Analytical Writing measure, compared to how they perform on the multiple-choice Analytical reasoning measure. The most dramatic shift is found in the score differences between men and women, since women score – on average – as well as men on the Analytical Writing measure. Similarly, the difference between whites and African-Americans on the Analytical Writing measure is more than one-third smaller than the difference on the multiple-choice Analytical measure. We were especially pleased to learn from our research that there is more than a 25 percent reduction in the average difference between white and Hispanic test takers on the Analytical Writing measure. Since many Hispanic test takers speak and write English as their second language, their relatively strong showing on Analytical Writing adds to the evidence that the measure is not dependent solely on the technical quality of one's first-draft writing.³

The April 2001 research study also included many test takers over 25 years of age, most of whom would presumably be returning to graduate school after a period away from formal education. Though test takers under 25 perform better, on average, on the Analytical Writing measure, the gap between the two groups is 70 percent smaller on Analytical Writing than it was on the multiple-choice Analytical measure. This may be because the task in Analytical Writing more closely approximates everyday activities of making and critiquing arguments than does the puzzle-solving required by the former Analytical measure.

Finally, our research included many test takers who live outside the United States, most of whom have learned English as a second language. Not surprisingly, our analysis of their results show that ESL test takers do not do as well on Analytical Writing as do test takers with English as their native language. Even though scoring of the essay responses centers on their analytical reasoning and critical thinking qualities, an inability to express oneself clearly in written English will have an effect on performance.

Despite this anticipated difference in performance for international test takers, we believe that the measure of Analytical Writing is an appropriate measure for success in graduate school in a setting where most graduate students will be expected to write clearly in English. Moreover, our research data may overstate the degree of disadvantage that international students will ultimately face in the Analytical Writing measure. Our research subjects were seeing the Analytical Writing task for the first time when they sat down to take part in our study. That is not generally the case now that the Analytical Writing measure is an announced part of the GRE General Test. Prospective graduate students, both in the US and elsewhere, have the opportunity to practice the critical thinking and analytical writing skills necessary to test to the level of their ability.

The GRE Program has taken several steps to ensure that all applicants to graduate school have their best chance to succeed in the test of Analytical Writing. For one thing, all of the essay prompts used in the test are published on the GRE website. With about 150 prompts for each of the two essays, it is the view of the GRE Board that test takers should be encouraged to practice these skills as much as they wish. To make their practice as effective as possible, GRE PowerPrep software is also mailed to all General Test registrants and is available for free download from the GRE website. PowerPrep provides strategies for taking the Analytical Writing test, sample essays on several (non-operational) prompts at each score level, and commentary about the features that make the essay responses relatively weak or relatively strong.

Transitional Arrangements

The change to the General Test in October 2002 requires both the GRE Program and graduate schools to undertake a period of transitional arrangements. GRE test scores normally come to institutions with percentile information based on the most recent three years of test taker data. That will not be possible with the new Analytical Writing measure. We have posted estimated score distributions in percentile terms on our website, using data from the April 2001 research study. As of January 2003, the website contains revised percentile data based on the first three months of operational test data (October through December 2002). These percentile data should be used for the spring 2003 admissions cycle.

For graduate schools, the main element of transition will be the appearance of GRE test scores on two different measures for the coming five years, and particularly in the spring 2003 admissions season. There is no way directly to compare multiple-choice Analytical reasoning scores and scores on the new Analytical Writing measure. The score scales are, of course, very different (200-800 on Analytical and 0-6 on Analytical Writing). Far more important is the simple fact that the tests measure different skills, and that they do so in very different ways.⁴ The GRE Program recommends that graduate admissions committees use Analytical reasoning scores, when available, just as they have in the past. The spring 2003 admissions cycle, when Analytical Writing scores will be available for a portion of the applicants, offers a good opportunity to become familiar with Analytical Writing scores and with how they relate to other elements of the applicant's file.

A final element of the transition to Analytical Writing will take place on July 1, 2003. As of that date, essay responses produced by test takers will be made available electronically to designated GRE score recipients at the same time as the score report. The essays will be posted on a password-protected website. Members of admissions committees may access an applicant's essay by entering the website and then typing in an identification number unique to each applicant.⁵

The availability of essay responses will enable members of admissions committees to better understand how essays with certain traits are scored. In addition, review of essay responses will enable committee members to see for themselves an applicant's writing ability – though it must always be remembered that this is first draft writing prepared under time constraints and without the benefit of a spell checker!⁶

Why End the Existing Analytical Measure?

It is appropriate to conclude this examination of the new format for the GRE General Test with a note on why we are dropping the measure of Analytical reasoning. The GRE Board's primary motivation for making this change lies in its great enthusiasm for the Analytical Writing measure. Lengthening the General Test by including four different measures (Verbal, Quantitative, Analytical, and Analytical Writing) was not an option because test taker fatigue would likely make the scores less reliable and because of the greater expense of a longer test. Moreover, the GRE Board and Program share a number of concerns about the Analytical measure that suggested the best course of action was to eliminate it from further use.

The most important of those concerns comes from recent data indicating that many test takers have difficulty finishing the Analytical measure. With computer based testing, it is possible to examine not only what answers test takers give to a question, but also how long they spend answering the question. With respect to the Analytical measure, we learned that many test takers have trouble finishing the test. These test takers are essentially guessing their way to the end, a situation that can lead to a significant penalty on the final score.

Over a period of several years, the GRE Board directed ETS researchers to examine ways of reducing the time constraints ("speededness") of the Analytical measure by making the test shorter or by increasing the amount of time people have to answer questions. Neither course of action was possible if the psychometric and operational quality of the test was to be maintained.

A second concern is that the Analytical measure does not make a very large independent contribution to our understanding of test-taker abilities. The predictive validity of the General Test is nearly as strong with the Verbal and Quantitative measures alone as it is with the Analytical measure added in. (The Analytical measure adds about three percent unique variance to predictive validity.) Because Analytical Writing is less correlated with the Verbal and Quantitative measures, we anticipate that its unique contribution to predictive validity will be significantly higher.

A final consideration in deciding to eliminate the Analytical measure was simply that it never achieved the acceptance in the graduate community enjoyed by the Verbal and Quantitative measures. Twenty years after it was first introduced, many faculty members expressed uncertainty about what the Analytical test was measuring, and told us that they put less weight on Analytical than on the Verbal and Quantitative scores. Though the measure enjoys strong support from some faculty members, particularly in engineering and in the life sciences, our surveys of graduate faculty suggested that we were putting prospective graduate students to a great deal of trouble and expense to take a portion of the test that was in most instances less heavily weighted in the evaluation of their credentials for graduate school.

Conclusions

We believe that addition of the Analytical Writing measure represents a significant improvement in the General Test as a whole. The scores – and as of July 1, 2003 the essay responses that produced those scores – give admissions committees important evidence of analytical writing skills widely deemed essential for success in graduate school. The GRE Program is able for the first time to offer admissions committees a common yardstick for assessing graduate-level skills in critical thinking and analytical writing. The publication of all GRE essay prompts on our website is not only a fair way to enable all prospective graduate students to prepare for the test, but is

also a means of encouraging them to cultivate their analytical writing skills. Our research data indicate that racial and gender-based score differences are significantly narrowed in the Analytical Writing measure, compared to the Analytical reasoning measure that it replaces. In short, addition of the Analytical Writing measure to the GRE General Test is the kind of progressive change that greatly improves the quality of information available to the graduate community in making decisions on admissions and financial aid.

Notes

1For a summary of these score level descriptors, please see the inside back cover of GRE's Guide to the Use of Scores.

2The final score is the average of the two separate essay scores, rounded up to the nearest half point. Hence, the full scale runs from 0 to 6 at half point increments.

3Hispanics are not normally a single category of analysis for GRE test scores due to the differences between groups within the Hispanic population. In this particular research project, however, there were not enough test takers of Mexican, Cuban, Puerto Rican and other Hispanic origins to make possible separate analyses of those groups.

4The overall correlation between the Analytical measure and the Analytical Writing measure in the April 2001 research study was just $r=.29$.

5The identification number will be printed on the applicant's score report.

6 A spellchecker is not provided in order to equalize the tools available to students who do the Analytical Writing measure on the computer and those who choose to handwrite their essays.

Sample Issue Tasks

Directions: Present your perspective on the issue below, using relevant reasons and/or examples to support your views.

Sample Topic 1: In our time, specialists of all kinds are highly overrated. We need more generalists -- people who can provide broad perspectives.

Sample Topic 2: The best ideas arise from a passionate interest in commonplace things.

Sample Argument Tasks

Directions: Discuss how well reasoned you find this argument.

Sample Topic 1: The University of Claria is generally considered one of the best universities in the world because of its instructors' reputation, which is based primarily on the extensive research and publishing record of certain faculty members. In addition, several faculty members are internationally renowned as leaders in their fields. For example, many of the faculty from the English department are regularly invited to teach at universities in other countries. Furthermore, two recent graduates of the physics department have gone on to become candidates for the Nobel Prize in Physics. And 75 percent of the students are able to find employment after graduating. Therefore, because of the reputation of its faculty, the University of Claria should be the obvious choice for anyone seeking a quality education.

Sample Topic 2: The following is taken from a memo from the advertising director of the Silver Screen Movie Production Company.

"According to a recent report from our marketing department, fewer people attended movies produced by Silver Screen during the past year than in any other year. And yet the percentage of generally favorable comments by movie reviewers about specific Silver Screen movies actually increased during this period. Clearly, the contents of these reviews are not reaching enough of our prospective viewers; so the problem lies not with the quality of our movies but with the public's lack of awareness that movies of good quality are available. Silver Screen should therefore spend more of its budget next year on reaching the public through advertising and less on producing new movies."

References/For Further Information

NOTE: All documents cited here are available for download from the GRE website, www.gre.org.

GRE DataViews. 2000. Early validity evidence for the writing assessment. Princeton, NJ: ETS.

How to interpret and use GRE writing assessment scores – Score interpretive information and data.

The value of the Graduate Record Examinations.

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Workshops

The 2002 MAGS Meeting included the following four workshops:

Graduate Staff Networks

Organizer: Mark Brenner, Indiana University – Purdue University Indianapolis

The purpose of this session was to enable graduate school administrative staff to meet and discuss their roles in graduate admissions and student records.

Grad School Leadership

Organizer: Peter Diffley, University of Notre Dame

Presenters: Donald Brennan, St. Louis University
Christine Maziar, University of Minnesota
Carla Montgomery, Northern Illinois University

The panelists came from varied educational settings: University of Minnesota; St. Louis University; Northern Illinois University.

With regard to graduate school organization, all panelists agreed that there is not one size that fits all. The size and complexity of the graduate school will depend upon the number of students and faculty and the number of different responsibilities assigned to the graduate school. Besides the traditional duties concerned with graduate admission, financial support, student records, and faculty research, graduate schools may also be responsible for postdoctoral appointments, summer session, departmental reviews, and the university press.

All three panelists are in an office that assists both faculty research and graduate education and all agreed that this was a better arrangement than having separate offices because revenues can more easily be shared. For example, royalties could be converted into graduate fellowships. There is a problem, however, with linking the two staffs that have such different constituencies and duties. Dean Maziar suggested that positions be created with blended responsibilities.

Dean Maziar also felt that faculty should fill many administrative positions in the Graduate School on three year (term-limited) appointments. At the end of the term, faculty will go back to their departments with administrative experience and a better appreciation for what the Graduate School does. Continuity suffers, however, and Dean Montgomery stated that because of her long term in office and consistent interpretation of policy, faculty know which exceptions are worth asking for.

There were several questions from the audience concerning staff morale. Morale is inversely related to stress levels. Stress due to “crunch-times” can be alleviated by overtime payment, compensatory time off, or temporary labor. It might also be a good time for the administrators to pitch in and help. In dealing with students, staff must have answers or know the telephone number of one who does. Therefore, formal orientation and training is essential. In addition, this training should be extended to departmental secretaries who are often the students’ primary source of information.

Two natural allies exist to help accomplish the mission of the Graduate School. The first are the academic deans, who are very interested in the success of graduate education and research. The second are the board of trustees and/or state boards of education that may need to become better acquainted with the purpose and function of a graduate school. Strong professional relations need to be established with both of these entities. The hazard in developing such a

relationship is being the recipient of a really bad idea. Before reacting, it is important to tell where this idea originated and how tightly the provost holds it.

Enrollment Management

Organizer: Suzanne Ortega, University of Missouri

Presenters: Robert Thatch, Washington University
Suzanne Ortega, University of Missouri
Patrick Melia, Eastern Michigan University

The presenters discussed ways to adjust enrollment as well as to set enrollment objectives in new programs.

Program Assessment

Organizer: Les Sims, Council of Graduate Schools

Presenters: James Powell, University of Notre Dame
Barbara Braden, Creighton University

Associate Dean of the Graduate School James Powell presented Notre Dame's rationale and procedure for external review of academic departments. Reviews provide an opportunity for departments to "take stock," address current problems and plan for the future. They help the University make decisions about allocation of resources. Reviews are organized by the Graduate School on behalf of the Provost, and are currently conducted on an eight-year cycle. Departments prepare a self-study document following prescribed guidelines; reviewers visit during the semester following the self-study; review reports are read by the faculty of the department, the dean of the College in which the department is located, the Vice President for Graduate Studies and Research and the Provost. A follow-up meeting with the Provost to discuss major recommendations from the report takes place immediately after the review. A second follow up takes place three years later. Review teams ordinarily consist of three or four external reviewers and one from the Notre Dame faculty. At the end of a review cycle, the Provost and deans and the Graduate Council assess and may revise the self-study guidelines and the procedures for conducting reviews.

Dean Braden's comments focused on the challenges of implementing programs for assessment of learning outcomes at the graduate level and the approach she had taken at Creighton University to meet those challenges.

Dr. Montgomery, Dr. Melia, and Dr. Braden provided written versions of their remarks, which follow in this section of the Proceedings.

Grad School Leadership

Carla W. Montgomery
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(Author's note: Our workshop was not based on formal presentations but, after descriptions of our respective roles and Graduate School organizations, was largely driven by participant questions and comments. The following is an abbreviated summary/synthesis of information offered over the two workshop sessions.)

As the lone associate (or “trench”) dean on the panel, I bring a somewhat different perspective to this panel. With my boss, the graduate dean, having the title “Vice Provost for Graduate Studies and Research. . .” (and dean), and we being the only two deans in the office, the Graduate School responsibilities broadly divide so that he handles the graduate faculty/research issues, and I handle most matters relating to graduate students – overseeing graduate admissions/records (including for international students), running the Graduate School commencement three times a year, overseeing and disbursing funds for the student-fee-supported Graduate colloquium program, and so on. In a given fall or spring semester, we have about 4,500 graduate students, and another 1,500 students-at-large, who are graduate-level students not in a degree program – a challenging clientele also under the administrative jurisdiction of the Graduate School. On a daily basis, much of my time is absorbed in handling requests for exceptions – to policies, deadlines, admission or degree requirements, etc. I control no budgets; my only discretionary funds are in a small NIU Foundation account, supported entirely by contributions, from which I assist with expenses of students traveling to present at conferences and the like.

My principal constituencies are internal. One is students, and not only in the obvious sense that they have a specific stake in the outcome of a request to my office. Over time, a role for our office has emerged in representing the special concerns of graduate-level students around the university. Even where university committees provide for student representation, that representation is generally appointed by the Student Association, which rarely involves (or even claims to know!) graduate students. Sometimes we can suggest interested graduate students to be appointed, but quite often we have arranged for “Graduate School” representation (in practice, commonly, me), and in such cases, I make conscious efforts to be sure that the special concerns of grad students and the special challenges they face are kept in mind. My other major constituency is the department; I work most intensively with department chairs and graduate-studies directors, less often with other faculty, primarily in matters relating to student problems and exceptions, curriculum, and policy. In that connection, I can often serve a useful “backstopping” role, helping departments resist pressure to waive requirements; not infrequently, requests from departments for waivers or exceptions will be accompanied by a note, or preceded by a phone call, indicating that they'd just as soon I turn down the request!

In terms of staff morale, arguably some of the same things I do to provide some leadership on the campus help bolster staff morale too. Some of the student viewpoints I represent reflect issues the staff have highlighted for me; by addressing them, I reduce stress on the staff too, and they feel good about having helped to solve a problem. Some years ago, I put together an informal “graduate directors’ guide” booklet, not to duplicate the catalog, but to explain some of what lies behind the policies, and to include practical descriptions of what kinds of exceptions are or aren't requestable as a result. This helps the graduate directors work with our office, and helps staff understand the policies they implement. Staff have niches and “their” own sets of students – internationals, or a particular section of the alphabet – and they're encouraged to take some ownership of the students' success, to be proactive in recognizing potential problems for students and making suggestions to students, faculty, and departments of ways the problems might be solved. The staff and I will take the initiative to suggest policy or curricular changes to departments – I'll even write the language for them – when our office starts to see too many requests for a particular exception and an obvious fix. The staff also appreciate that the deans have established a culture of honesty, directness, and evenhandedness in the application of

policies (not a “squeaking wheel” approach). Exceptions require exceptional circumstances, which appeals to their sense of fairness. Many also assist with check-in at the graduate commencement, where they see “their” students graduate.

Funding permitting we send staff to professional meetings as appropriate – our international-student staff to NAFSA, other records staff to regional AACRAO meetings. Other than that, the fact that we operate under a civil service system limits what we can do financially to reward staff, because it’s a zero-sum game: the average percentage raise across the university is published, everyone knows what it is, and to give an above-average raise to one person requires that one or more others receive less than the average. It’s been years since we had notably substandard staff members (fortunately!), so there are no obvious places to take funds for extra increments, but the esprit de corps is such that the staff, recognizing the reality, seem comfortable with this; some, indeed, have been with the Graduate School longer than I, though well qualified to move elsewhere if they wanted to.

Enrollment Management

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Eastern Michigan University is assessing its graduate enrollments in light of the Strategic Planning Initiative recently instituted by President Samuel Kirkpatrick.

EMU is undergoing the same budget reevaluation that many of our sister institutions and states have experienced. Our governor, John Engler, has entered into an agreement with the public institutions of higher education in the state of Michigan to hold state appropriations static for the coming fiscal year. Higher education and the public K-12 sectors are the only governmental units within the state to avoid budget rescissions dictated by a significant shortfall in state income due to the increasing economic downturn.

The state will allow public colleges and universities to increase rates for undergraduate resident tuition by a maximum of 8.5% or by total of \$425 per credit hour whichever is greater. This will be the only allowed increase in state appropriations for the 2002-2003 fiscal year over the 2001-2002 budget appropriations.

This policy has caused the public HIED institutions to react with both consternation and with relief – relief that we will not face a budget cut in state appropriations but consternation from the standpoint that the proposed tuition increase is insufficient to meet the projected needs of the institutions. One public institution had already announced proposed tuition increases in the neighborhood of 26% for next year. These increases now must be reevaluated based on the state agreed-upon increase. (Any institution increasing tuition above the state-approved marker will have their state appropriations cut by an amount equal to the increase they receive from tuition.)

Eastern Michigan University will have a significant revenue shortfall just to meet the proposed budget. We are a unionized campus and recently negotiated union contracts that included a 5% contracted pay increase for regular faculty and pay increases for the recently organized lecturers bargaining unit, the professional-technical employees and the clerical union. The graduate assistants have also been promised a significant wage increase to help their grossly underpaid situation, even though they are not a unionized group.

The entire budget shortfall must now be balanced on the 8.5% tuition increase, which is approximately 5% less than was originally planned. The only solution to the shortfall becomes an increase in the total number of students enrolled (a major increase in FTE's) as well as charging the 8.5% increase in tuition to our current students returning for the 2002-2003 academic year.

This necessity brought graduate enrollment firmly into the focus of attention and brought the realization that graduate students are more than just low-cost help in the classrooms or administrative offices. After all, graduate students make up over 20% of the entire headcount and almost 20% of the total FTE's generated by students. Increasing enrollment of our students or just cutting the rate with which they "drop in and stop out" could serve as a major factor in achieving our institutional enrollment goals.

Enrollment Council

EMU has used Enrollment Council for many years to propose enrollment recommendations for the upcoming year and build in any expected issues that would either increase or decrease the projected numbers. The formula developed by the Enrollment Council has done a very accurate job over the years in forecasting the expected classes.

In previous years the changes in the number of graduate students and FTE's they produced had little impact in the overall budget due to the fact that almost 80% of graduate students were enrolled part-time according to established credit hours required to be considered a full-time student. This view of the impact of graduate students on FTE production is compounded by the fact that none of the "regular" graduate assistants were considered full time because we allow them to register for 6 credits per semester (rather than the standard 8 expected of a full-time graduate student). The changes in state budgeting have forced the Council to take a more detailed look at the previously "uneventful" increases proposed in graduate enrollment.

Graduate School figures in the Council had always been viewed as somewhat of an afterthought. The focus was in the state of the FTIAC's (First Time In Any College) and the losses that would be sustained as students transferred, dropped out, or were removed due to poor academic performance.

The graduate enrollment and proposals for increase have now become much more critical to balancing the budget and therefore to the health of the institution. The efforts taken by the Graduate School and the institution in general to improve the environment for graduate students has been only a start in the overall plan, but we believe they are showing some short-term success and we hope they will have long-term effect on our programs and the life of our graduate students.

What can we as graduate deans do to manage enrollment, and this of course includes avoiding attrition? It is the \$64 question since we technically don't have a student body of our own as college deans do nor do we have a faculty reporting to us. We have to work through persuasion and many times this includes a little horse-trading and some skullduggery.

Institutional Strategic Planning Efforts

EMU has entered into strategic planning to determine the major priorities we need to focus on in the next three to seven years. Many new ideas came from this effort, and through the President resources have been provided to address many of the shortcomings that were identified. A number of these issues included graduate students and their traditional fluctuation in enrollment. Fluctuation was caused by many factors. A number of these factors were under review; the Strategic Planning process allowed us to bring them to center stage.

Stipend And Quality Increase

The first priority is increasing our GA stipends to make them more competitive with our current and our aspirational peer group of institutions. We identified institutions we considered our peers and we determined we needed to increase our stipends between 10% and 50% to achieve a competitive equality for recruiting the best students. The literature indicates that if you increase the number of stipends offered you will increase the number of graduate students accepting your offers, but if you increase the value of your package you will increase the quality of the population of students accepting the offers. We determined that the first order of business was to increase the quality of the students accepting our GA offers and that the number of students will gradually increase in the future as we increase the number of offers following the "biting of the bullet" that has taken place for the coming year.

As graduate deans we have to be most interested in quality issues. You can always fill the classrooms with students of dubious quality, but your reputation and the future depend on the overall quality of your students and this is measured by your academic outcomes – where you place your students in jobs, the number going on for doctoral or post-doctoral work, the number of publications they produce, and even the amount of contributions they make back to their alma mater.

We use a centralized Enrollment Management approach with all admissions to the institution under the responsibility of the Vice President for Enrollment Services. While the Graduate School establishes and monitors quality of the graduate departments, the Office of Admissions admits students. The Graduate School staff works very closely with the VP's staff to insure that recruiting efforts include graduate students, and we have had a very good relationship with Enrollment Services. Graduate Deans attend many of the regional graduate recruiting fairs and our travel and program fees are paid for by the VP for Enrollment Services and Admissions Offices.

We have also been focusing more efforts into recruiting our own top undergraduate students to convince them to consider a second degree from Eastern. This had been an overlooked resource even though we place many of our undergraduates into many nationally ranked graduate programs. It has always been a waste to see our top students go on to other programs without a single effort to help them "stay home" if it is in their best interest academically to consider an EMU advanced degree.

Mentor and Space Analysis

The other major thing that was done by the Provost's Office was to contact each academic department and program and have them provide a realistic evaluation of how many new graduate (and undergraduate) students they could accommodate in the next two years. This included the number of graduate students that they have mentors and advisors available for, and the number of theses (and culminating projects) that could be produced with the number of faculty willing, able and sufficiently prepared to chair an increased number of thesis committees. These figures revealed that increases of 2.7% and 2.0% in the number of graduate students could be accommodated over the next two years with the current faculty already in place.

Common Sense of Enrollment Management

Now I would like to give you some just "common sense" ideas and issues affecting recruiting and retention that we are incorporating to improve our "enrollment management" of graduate students. Among these ideas are practices you may have already adopted. They are newly adopted at EMU.

Barriers to Learning. We have tried to remove any barriers that impeded the smooth flow of students through the graduate endeavor. This was partially accomplished by actually creating a "Barriers to Learning" task force that looked at each step of a graduate student's interaction with the Graduate School, from recruitment to graduation, to see where barriers existed. It was a very enlightening experience to "see ourselves as others see us." Many simple activities that were critical (or so we thought) to our operations had not been evaluated in years and many were found to be outdated and in need of reassessment. These included the provision of a great deal more web-based information and the use of a "paperless application" process.

Community of Scholars vs. Residency. The recruitment and retention effort caused us, as a predominantly master's institution, to reevaluate our residency policy and to attempt to create a "Community of Scholars" approach that offered students opportunities to become intimately involved in departmental, programmatic and professional seminars, to engage in presentations and outreach, to accept internship opportunities, or a number of other activities that created a scholarly and professional community rather than a simple period of time required to enroll full time. This has worked very effectively in some disciplines and not at all in others, so the results are mixed at this time. One thing it did do was to decrease the number of "stop outs" and cut the "red tape" which students were required to meet through attendance.

Advisory Committees. Many programs have set up advisory bodies of interested individuals in the professional fields that employ their graduates. These bodies include both recent alumni and current graduate students. These advisory committees help to retain students by assisting students to find out about professional expectations, by providing information on the needs of the profession, and by also introducing employers to top quality potential new employees.

Accreditation, Assessment, Program Review, Curriculum Development and Analysis. In conjunction with our recent NCA re-accreditation and many other professional reviews, we have begun additional reassessment efforts of our graduate students and our academic programs. Many programs are restructuring their requirements based on new standards and information which they have received from accrediting bodies, our own assessment, and from the professionals mentioned above from “at home” advisory groups. This pre-assessment had improved the “value added” nature of not only the cognitive skills of our graduates but also their affective contributions that they can bring to future employers.

Our program review and curriculum analysis processes are finally assessing the most up to date changes in the area of curriculum to insure that our students receive this “value added” aspect. You also have to bring students into the process and let them know that what is taking place is in their best interest both professionally and academically.

Eastern has moved to increase the number of partnerships and double degree programs we have entered into with both domestic and international institutions. These partnerships and programs have not only allowed us to open markets to international students but have allowed our graduate students access to international experiences and employment opportunities.

We have increased the number of web courses and courses offered in non-traditional formats. We all know about the multitude of benefits web courses bring to an institution and to students, but you also need to be aware of the cost and constant attention these courses need to remain current. These courses increase enrollments from down the street, from rural areas of Michigan, and from the other side of the world. They advertise your institution and spread the good word about your programs.

Don't Leave Your Mission Behind/Strategic Planning

A note to the wise here is don't leave your mission-driven institutional niches to move into areas that are not historically your institutional areas of strength unless you intend to pour your life into them. These are expensive in both time and resources and will only “top off” a program or even out enrollment and retention dips unless you are prepared to really support them.

Grant Development Includes Students

We also have strongly encouraged faculty submitting grants to build in graduate research areas and graduate assistantships, and we have encouraged development of teams that include graduate students at every point in the process. Many times our researchers would come to the Graduate School requesting the contribution of a graduate assistantship to help improve the institutional contribution side of the ledger instead of creating new support for graduate students using external resources.

Graduate Deans can use indirect overhead and recoupment dollars from grant activity to make research efforts more available for graduate students as well as to make sure in internal reward systems that faculty who use graduate students in their research efforts or locate internships for their mentees are rewarded for their efforts.

Resources are sometimes the only method we have at our disposal to persuade faculty that keeping graduate students involved and graduating from our programs is much more cost effective than recruiting a new class of them each successive year.

Diversity Efforts

EMU has also made significant efforts to increase resources dedicated to improving our diversity and commitment to our minority and international graduate students. We have invested in recruiting McNair fellows to enter into our graduate programs and have had excellent success in this arena. These students also fit nicely into our King-Chavez-Parks Future Faculty Fellowship Initiative through which resources are provided to Michigan public institutions to support minorities planning to go into post-secondary teaching as a career. We currently have over a 90% completion rate of minorities in master's and doctoral programs compared to the graduation rate of about 50% for minorities in programs without the mentoring and financial support provided by this program.

Partners Agreements

EMU is also entering into Partners agreements with doctoral institutions, like the University of Michigan. EMU is one of three predominately master's institutions jointly submitting an NIH grant application with the University of Michigan to prepare minorities for entry into Public Health fields upon completion of their doctorate. Completion of the master's work at the partnering master's institution, with full assistantship support, is followed with admission into a public health related doctoral degree at the UofM on a university fellowship. This relationship aids all institutions in meeting their societal responsibilities as well as helps talented minorities go into a field in which they are underrepresented.

Campus Safety and Convenience

One final note that we learned in one of our studies is that campus safety is one of the prime factors in enrollment and retention of graduate students. Since many of your graduate students probably attend evening classes, as many of ours do, it would probably benefit you to have a campus safety and lighting survey done with your graduate students. Many of our female graduate students were intimidated and downright scared of walking to their cars following an evening class. This factor alone costs us students who would have enrolled in our winter semester but were nervous regarding campus safety.

This problem was remedied by addition of more lighting, more visible security patrols, security phones and boxes in each parking lot and escort services to and from the library at closing time. As an NCA external evaluator I found this same situation at several other institutions and it is sufficient a problem to have an impact on your retention and attrition. We only found it was a problem through the barriers project.

Manage What You Have

There are many things that impact filling and maintaining your classes. The main issue is whether you have the staff, the time, and the structure to institute changes to impact attrition and help manage enrollment on your campus. This takes approval and support of the people up the line, but it is becoming increasingly critical to our institutions that we accomplish these goals.

Making sure that your enrollment meets your institutional goals can be either simple or something that drives you over the edge. We have used a few of these concepts to make our graduate climate more conducive to retaining our students and making their time with us as little a struggle as possible. Graduate study by itself is difficult enough. I hope some of these issues that we have dealt with might help you manage those areas of enrollment over which you can actually have some control.

Challenges in Assessment: The Comprehensive, Master's Focused University

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There are a number of challenges in graduate program assessment, some of which are unique to comprehensive universities whose programs are primarily, but not solely, master's level. Many of these challenges, however, are common to all but the smallest graduate schools.

The first challenge is that the graduate school at a comprehensive university may have a similar number of programs as larger institutions. At Creighton University, for example, we have 21 programs housed in five schools/colleges, including three doctoral programs in the basic sciences. Furthermore, this diversity of programs makes it difficult to put together a centralized or overarching assessment program that would yield meaningful information for use in quality improvement initiatives. It doesn't take many years of examining centralized surveys to realize that the assessment plans most likely to result in quality improvement have to be program-based.

Implementing program-based assessment plans is fraught with another set of problems, of course. The 21 programs at Creighton, like those at many institutions, vary from those based on professional models in the health sciences and business to those based on traditional research models in the sciences or humanities. Further complicating matters is the fact that several programs are interdisciplinary and have more ambiguous goals and objectives than the disciplinary based programs.

Another serious challenge is the paucity of personnel to plan and implement these programs at smaller universities. At Creighton, a secretary and I staff the Graduate School office. Each of the 21 programs has a faculty director, who may or may not have the resources of time, secretarial assistance or the educational preparation to plan and implement an assessment plan. And, as in all institutions, there are some program directors who actively resist assessment as an incursion into the way the department and program have traditionally conducted their academic business.

Tradition can often be a barrier to graduate deans in their struggle to put together a viable assessment plan. One challenge that many of us face is the tradition of colleges and universities to concentrate resources at the undergraduate level, leaving graduate deans in a solitary struggle to be all things to all people. For example, it is not unusual to have centralized offices for Assessment and Institutional Research whose primary role and responsibilities are seen as involving only undergraduate programs.

Other university mores that must be overcome are those that involve traditional ideas about assessment. It is not unusual for faculty and administrators to rely on student evaluations as the sole measure of teaching effectiveness and student satisfaction or self-report surveys as the primary means of evaluating program effectiveness. In the basic sciences, there is a somewhat more helpful tradition of using preliminary exams, comprehensive exams and thesis research and defense as learning outcome measures, but there is the more problematic attitude that these traditional measures are sufficient for good program assessment. Finally, there is the mostly fortunate tradition of using faculty members with the highest research productivity to staff the graduate courses. Unfortunately, these faculty members have the least patience with work that does not directly relate to the research enterprise – and assessment of learning outcomes are usually viewed as well outside this realm.

How to Begin

Given these challenges and difficulties, what has worked? Where should one begin? Some of the principles I have used could be roughly ascribed to the theories regarding diffusion of innovation.

- Identify those who are already strong and enlist their help when possible
- Capitalize on those who are mostly likely to cooperate
- If the resistance is from a departmental chair, infiltrate the grass roots
- If the resistance is from departmental faculty, enlist the leader (formal or informal) who is most likely to influence them
- If there is a long way to go, always start small

Of these principles, the most important is the last one. Writing a full assessment plan can be a daunting task and, if little is currently in place, a complex plan soon defeats itself. In fact, when I am helping a group with little experience and high anxiety, I take them through the process one step at a time – without revealing the steps that follow.

While the following is incomplete and lacks the elegance of formal texts on assessment, this is the systems framework that I use when considering the potential areas for inclusion is an assessment plan.

Input

Admission criteria: are you getting the caliber of student that you want

Throughput

Learning outcomes by course

Developmental outcomes as students progress through the program

Output

Learning outcomes by program

Long-term outcomes

While it may seem counter-intuitive to start at the end of this list, the first step is always to identify the learning outcomes intended for the particular program. What do you want the student to be able to do when he/she graduates? What competencies do you want them to have at completion? What level of knowledge, skills and/or attitudes should the student have attained by the end of the program?

I had many failed experiments in educating both large and small groups of program directors to the intricacies of assessment, but eventually I found one program whose faculty and director were willing to cooperate. It is my hope that their work will become an example to others, particularly the other doctoral programs. This personable group also seems likely to work through a grass roots system to "infect" others with new methods.

What follows is a slightly abridged list of the learning outcomes or terminal objectives they identified.

Terminal Objectives:

1. Demonstrate advanced knowledge in field
2. Demonstrate independent critical and analytical thinking both within and beyond the scope of his/her research
3. Demonstrate competence in the laboratory
4. Develop oral communication skills necessary for active participation in scientific gatherings, both as a presenter and a discriminating member of the audience
5. Demonstrate skill in written scientific communication
6. Comprehend the importance of professional ethics
7. Develop skills required to educate and train others in the classroom and laboratory.

When this list was complete, I asked them to construct a grid to look at the instructional intent of each course in the program, with the objectives on one axis and the courses on the other axis (see Table 1).

Table 1. Instructional Intent Grid

Objective	MIC 541	MIC 617	MIC 619	MIC 727	MIC 745	MIC 791
1.	√	√		√		
2.			√			√
3.			√		√	
4.						√
5.					√	√

I then asked them to examine the grid to see if they could discern potential areas of weakness or concern. I suggested that the group

- Look for important objectives that are only being addressed in one course.
- Discuss important objectives that faculty believe are not being adequately addressed.
- Discuss important learning outcomes that are not being adequately examined.

Using Grading Rubrics for Program Evaluation

While they identified several potential areas of weakness during this process, I encouraged them to concentrate on one area at a time. I also encouraged them to take an approach of using grading rubrics, a part of the usual work that faculty perform. I suggested that the following student activities were well suited to the use of grading rubrics:

- Oral presentations
- Laboratory performance
- Comprehensive exams
- Dissertation defenses

The oral presentations given by students each semester was chosen for development of grading rubrics. An abridged version of the grading rubrics can be seen below.

Table 2. Grading Rubrics for Individual Student Oral Presentation

	Poor (1)	Needs Improvement (2)	Adequate (3)	Good (4)	Excellent (5)
Concise and relevant review of literature		√			
Clear explanation of experimental design			√		
Inclusion of proper controls			√		
Critical analysis of data			√		

The instructor or a group of faculty who attend student presentations can use this rubric to evaluate the presentation of an individual student. While this is a common grading strategy, what is less common is to compile these data over time to evaluate student development or to group data across many students to evaluate program effectiveness.

Table 3. Charting the Development of One Student Over Time

	Fall 99	Sp 2000	SS 2000	Fall 2000	Sp 2001
Concise and relevant review of literature	2	2	3	3	4
Clear explanation of experimental design	3	3	4	4	5
Inclusion of proper controls	3	3	4	4	5
Critical analysis of data	1	2	2	3	3

In this example, a major advisor might see that the student is making progress in all areas but may need additional assistance in critically analyzing data.

Assessment of learning outcomes for individual students, however, is not that unusual. Pooling these same data for program evaluation is less common, but more congruent with the demand of accrediting bodies that we engage in evidence-based curriculum revision. When examining the data in Table 3, it is obvious that the strategies for teaching students to clearly describe the experimental design and to include proper controls in their research reports are succeeding. However, the teaching strategies being used to assist students to concisely describe literature that is relevant to their research and to critically analyze data need to be reevaluated.

Table 4. Compilation of Data from All Students for Two Semesters

	Poor (1)	Needs Improvement (2)	Adequate (3)	Good (4)	Excellent (5)
Concise and relevant review of literature	1	2	20	9	8
Clear explanation of experimental design	1	4	5	10	20
Inclusion of proper controls	1	3	7	9	20
Critical analysis of data	6	9	10	7	8

The frequency with which grading rubrics for various courses or learning activities should be pooled will vary, depending upon the number of students required to make a reasonable judgment concerning any given learning outcome. However, I recommend that the program directors hold an annual curriculum improvement meeting to accomplish the following:

- Review data for areas in need of improvement;
- Develop strategies for improving these areas;
- Keep good documentation of data reviewed and strategies undertaken to bring about improvement;
- Review results following year.

Other Evaluation Strategies

Portfolios. Like grading rubrics, portfolios can be useful in evaluation of learning outcomes for individual students as well as for assessment of program effectiveness in a given area. Many times grading rubrics are used in conjunction with portfolio collection. For example, some programs require students to write research critiques or process recordings. These can be collected by or for individual students to look at progress toward learning outcomes, and/or they can be collected by faculty to examine areas of weakness when looking at the pooled products of all students.

Syllabus Review. Syllabus review can be a tool for assessment at either the departmental or college level. Syllabus review should be systematic and minimally include an examination of:

- Course goals and objectives
- Learning strategies used to achieve objectives
- How are learning outcomes being assessed
- How do all of the above contribute to the program learning outcomes

Other Strategies to Assist Faculty

The Office of Assessment, Teaching and Learning on our campus sponsors several types of programs designed to educate faculty. These programs are not mandatory and tend to attract faculty who are willing to actively engage in assessment but need skill sets that were not part of their basic education. These programs are offered in a variety of formats.

Workshops. Four workshops are offered each semester. The topics offered during the spring of 2002 were

- What Do You Want Students to Learn: Identifying Course/Program Goals
- Portfolios in Departmental/College Assessment of Student Learning
- How's and Why of Using Grading in the Assessment of Student Learning
- Using Syllabi Review in Departmental/ College Assessment of Student Learning

These workshops have been very effective in educating a core of faculty across the campus who go back to their respective departments with new ideas and positive attitudes toward assessment.

Discussion Sessions. These sessions are less oriented toward teaching the faculty certain skills and more oriented toward sharing teaching-learning strategies in an informal setting. These are lunchtime meetings called "Soup and SOTL (Scholarship of Teaching and Learning)." The topics in Spring 2002 were

- Prior Knowledge and Learning
- Class Discussion as Vehicle for Learning
- Teaching as Community Property: Peer Collaboration and Review
- Classroom Research to Improve Learning

Teaching Teleconferences. The Office of Assessment, Teaching and Learning also arranges opportunities for faculty hear national experts talk about issues surrounding assessment. This past year, we linked with two national teleconferences:

- Teaching and Assessing for Critical Thinking
- Are We Testing What We Are Teaching? How to Construct Accurate and Useful Tests.

Conclusions

The new accreditation criteria are demanding and we cannot depend on traditional methods for evaluation of learning. Many people believe that existing methods of systematic program review will suffice. Mostly, these people will be wrong – unless the existing methods of program review include requiring evidence that learning outcomes have been identified, measured and achieved and that program changes focused on improving achievement of learning outcomes have been made.

MAGS Committee Reports

Auditing Committee Report

We reviewed the statements of assets, income and distribution, including the state of investments of the Midwestern Association of Graduate Schools for the period covering March 1, 2001 to March 1, 2002. In our opinion, the financial statements present fairly, in all material respects, the financial position of the Midwestern Association of Graduate Schools as of March 1, 2002.

Committee Members

Thomas P. Colgate, Chadron State College (2001)
Dennis L. Nunes, St. Cloud State University (2003)
Joseph Bast, University of Kansas Medical Center (2004)

Distinguished Master's Thesis Award Committee Report

On behalf of the Distinguished Master's Thesis Award Committee, I present the report of the 2002 committee selection process.

For the 2002 award, there were 46 nominated theses. The theses were sent to the eight members of the selection committee for review at their respective institutions. Most manuscripts were evaluated by three 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 new ParamGun Sood Distinguished Thesis award (funded by a gift from Dean Mohan Sood from Northeastern Illinois University). Committee members submitted scores to the chair, who arranged a conference call. In March, 2002, committee members discussed the reviewers' scores and comments for the highest rated manuscripts and selected the following recipients for the 2002 UMI/MAGS Distinguished Thesis Award and for the ParamGun Sood Distinguished Thesis award:

MAGS /UMI Distinguished Master's Thesis Awards

Chad S. Briggs, Southern Illinois University at Carbondale, "Supermaximum Security Prisons and Institutional Violence: An Impact Analysis," 2001.

Abstract. Institutions designated for supermaximum security are charged with housing and controlling the "worst of the worst," the most recalcitrant inmates from the general prison population. In this way, supermaximum security facilities function as a prison for prisons. With its extreme restrictions on movement and interaction, the supermax model is designated to incapacitate those housed within, produce a specific deterrent effect for the supermax "alumnus," and to generally deter inmates located in lower-level security institutions. In each case, the expectation is that the implementation of a supermax facility in a given prison system will have a mitigating impact on system-wide levels of institutional violence. Despite the lack of empirical evaluation, this expectation has been a driving force behind the proliferation of the supermax model over the past twenty years.

This study represents the first evaluation of the efficiency of the supermax model to have a mitigating impact on system-wide levels of institutional violence. The results from these analyses generally failed to support the hypothesis of mitigation. The opening and operation of the four supermax facilities included in this study were associated with non-significant changes in 50% of the dependent series (DTS), increases in institutional violence in 40% of the DTS and decreases in institutional violence in just 10% of the DTS. Following a detailed state-by-state examination of the findings, possible explanations for the failure of these supermax facilities are posited and directions for future research are discussed.

Kevin L. Murray, "The Use of Ultrasonic Detectors in the Study of Bat Communities," Southwest Missouri State University, 2001.

Abstract. Two field studies to evaluate the effectiveness of Anabat II ultrasonic detectors as a tool in the study of bat communities were conducted. In the first field study, a survey of bat communities in Missouri during the summer of 1998 using mist nets and Anabat were completed. To test the relative merits of these two survey methods, a variety of habitats including ponds, streams, and forest corridors were sampled using Anabat and mist nets in a paired design. This allowed for the simultaneous sampling of bat community activity necessary for direct comparison.

Levels of intraspecific variation in search-phase calls of seven species of vespertilionid bats from several geographic regions in the eastern and central United States were also

examined. Echolocation calls were recorded from light-tagged bats using the Anabat II detector and associated software. Analook software was used to calculate values for five call parameters: duration, maximum frequency, minimum frequency, frequency of the body, and slope of the body.

ParamGun Sood Thesis Award

Daniel Fogell, "Seasonal Activity, Habitat Preferences and Natural History of the Timber Rattlesnake (*Crotalus Horridus*) in Southeastern Nebraska," University of Nebraska at Omaha, 2000.

Abstract. Timber rattlesnakes (*Crotalus horridus*) in Gage County, Nebraska, were observed over two complete seasons using field observations and radio telemetry. In Nebraska, timber rattlesnakes are at the periphery of their overall range; the geographic distribution of timber rattlesnakes in Gage County is restricted to the occurrence of adequate hibernacula along the Big Blue River and some of its tributaries from Wymore, Nebraska, to the Kansas border. Seasonal activity began with emergence from hibernation in early spring followed by a substantial period of inactivity while awaiting the completion of a molt. In late spring and after the first shed of the year, male and non-gravid female snakes immediately migrated to foraging areas where they remained throughout the summer. All food items identified were mammals. Gravid females occupied habitats that provided security and rarely left these habitats. With the onset of fall weather, a migration back to the vicinity of winter hibernacula was observed. During mid-October, snakes retreated into dens, where they remained until the following spring. Dens sites were generally located in rocky, limestone ledges that faced a southerly direction. Woodpiles and eastern wood rat (*Neotoma floridana*) houses were used for areas of cover and security during ecdysis, including the period immediately following spring emergence. Summer activity areas were varied and included woodlands, pastures/prairies, and agricultural fields. Migrating snakes were not restricted to woodland corridors when shifting activity areas and often traveled through agricultural fields.

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 2002 Midwestern Association of Graduate Schools spring meeting in Chicago, Illinois.

Respectfully submitted,
Tony Filipovitch, Chair
Dean, College of Graduate Studies & Research
Minnesota State University, Mankato

Committee Members

Tony Filipovitch, Chair, Minnesota State University-Mankato (2003)
Gail Scukanec, Central Michigan University (2002)
Peggy Harrell, University of Southern Indiana (2002)
Deborah Balogh, Ball State University (2004)
Maria DiStefano, Truman State University (2004)
Marilyn Urion, Michigan Technological University (2002)
Ken Nikels, University of Nebraska-Kearney (2003)
Jolyn Kuhlman, Indiana State University (2003)
Cheryl Evans, Miami University (2004)

The ParamGun Sood Distinguished Master's Thesis Award

Mohan K. Sood¹
Dean of the Graduate College and Director of International Programs
Northeastern Illinois University
Chicago, IL 60625

The 58th annual meeting in Chicago (April 2-5, 2002) of the Midwestern Association of Graduate Schools – an affiliate of the Council of Graduate Schools – served as the venue to launch the ParamGun Sood Distinguished Master's Thesis Award.

The award is established to honor the lives of two women extremely important in my life. The first is my mother Gunvanti (which means full of goodness), who died when I was three and a half years old. I have only a very faint memory of her. However, my father and other family friends and relatives have told me that she was a woman true to the meaning of her name. The second is my paternal grandmother Parameshwari (which means supreme like the Divine) who raised me. I had a great bond of love and immense devotion to my grandmother. She was not educated but was able to flawlessly recite mantras and prayers in Sanskrit from the Hindu scriptures. That is how she started her every morning in India. The name of the award – ParamGun (which means the supreme goodness or excellence) – is a synthesis of the names of these women. It is instituted to honor and celebrate their lives.

In her native wisdom, my grandmother inculcated in me the following five points of value to guide my life:

1. Education. Even though she was not formally educated she placed immense value on education, on learning, on acquiring knowledge, and on expanding one's mind. She always said that it is that wealth which nobody can ever steal from you.
2. Work ethic. You must work, and work hard and enjoy your work. Its reward and recognition will follow.
3. Respect for others. Learn to respect your elders (and all others) to receive their blessings and good wishes. Such intangibles, she used to say, would bring you happiness and prosperity in life.
4. Love. Learn to cultivate love. The feeling of love for others will perpetuate love in your own family life.
5. Giving. Learn to share, to give, to help, and to serve, as giving back to society benefits everyone. She always said, "When you give with one hand God gives you with both hands."

These five values have guided me and played an important role in shaping my life. After leaving India in 1965, I obtained my graduate degree in Canada. I arrived in the United States in 1970. I believe these values have helped me to achieve a lot, both personally and professionally. I owe much to the generosity of the U.S. and the principles it stands for. My new country has provided my wife Minni and me with opportunities to realize our ambitions. Our greatest achievement, we strongly feel, is our family nurtured with these values. The award is my way of expressing thanks to the women in my life for bestowing those intangibles – their blessings and good wishes – for harmony in our life. What other way to celebrate and honor them than to name an award that recognizes excellence in education! I feel contented that I have established a tradition to continue. I am thankful to MAGS for accepting my offer.

I congratulate Mr. Daniel Fogell, University of Nebraska at Omaha, to be the first recipient of the ParamGun Sood award for his thesis entitled "Seasonal Activity Habitat Preferences and Natural History of the Timber Rattlesnake (*crotaius horridus*) in Southeastern Nebraska." I thank his advisor Dr. James Fawcett for imparting excellence in his students in the pursuit of knowledge.

1Current address for Dean Emeritus Mohan K. Sood, Ph.D., is 3014 Delta Road, San Jose, CA 95135. mk_sood@yahoo.com

Graduate Standards Committee Report

Proposal

To investigate how graduate schools, and their respective administration and staff members, might promote the ongoing review of academic programs, using learning outcome models as a framework for evaluation to define the effectiveness of each program, and assessing the external needs or demands for graduates with specific knowledge or skills in the degree or certificate area.

The ongoing review of programs, including a progressive use of assessment techniques, could yield a revised curriculum that attracts new students, thus sustaining (or enhancing) the viability of the graduate program(s) at an institution. These assessment activities would occur in concert with the faculty and department heads for each academic program.

Premise

The review of academic programs often includes traditional assessment techniques, such as the use of course evaluations, student retention data, and graduation rates. Given that course evaluations have been shown to focus heavily on the affective learning domain, it is suggested to use additional assessment strategies to evaluate the cognitive domain of learning. In order to do this it is recommended to establish a baseline of student knowledge at the beginning of a course or degree program. Upon developing specific learning objectives, and a curriculum to meet those same learning objectives, a framework to assess cognitive learning can be created and used for program review and evaluation purposes. Although the development of these objective-based learning models takes a considerable amount of time to create, the ability to assess student learning is considerably enhanced. Furthermore, students tend to appreciate a course much more if the limitations to their knowledge have been identified at the beginning of a course (using some sort of assessment technique), and at the end of the course they are able to complete the same assessment tool with a much higher degree of success. This assessment model suggests conducting programmatic reviews by assessing the learning outcomes for selected individual courses. While many approaches to assessment exist, this model relies upon embedding assessments in specific courses within a degree program as a methodology to review the program itself and the proposed learning outcomes designed by the faculty. To summarize, the systemic use of similar assessment techniques for each graduate program should provide very "rich" data for inclusion in the academic program review process, further confirming the viability and value of each degree program.

Potential Assessment Strategies

1. While portfolios are traditionally used as models of assessment in arts programs, they have not been widely adopted throughout the university context, including graduate degree programs. The use of portfolios in all disciplines has been a subject of discussion for several years. This assessment model provides students with the opportunity to compile a collection of their works/projects throughout their tenure in a degree program in order to provide "authentic" learning outcome measures to verify the value-added learning that has resulted from being enrolled in a degree program. For example, students in English could compile portfolios consisting of a selection of papers and class projects that have been completed throughout their degree program. This allows any individual with the university or from off-campus (possibly a potential employer) to evaluate a student's knowledge, skills and abilities that have accrued during the process of pursuing a degree. The assumption can be made that these works are exemplary of the student's abilities and are a direct result of the student's education. Theoretically, the portfolio should provide data that are developmental, with student performance and learning improving with the amount of time a student spends pursuing a degree. Therefore, use of the portfolio model should be given strong consideration by departments, requiring students to maintain a portfolio for a set of predetermined courses

and assignments in order to better assess cognitive learning and determine if learning objectives are being met as a result of completing a degree program.

2. An additional assessment strategy to consider is the development and inclusion of capstone courses, possibly in the form of a final seminar, in degree programs. Numerous programs on campuses nationwide have begun to use such courses as a culminating experience. The objective is to provide students with a course or learning experience that summarizes as much of their degree program as possible. One instructional strategy is to have students complete a course, including a final project, that incorporates a majority of the material that they have been exposed to throughout their degree program. Again, this also affords students an opportunity to demonstrate to themselves and their faculty and academic department just how much they have learned.
3. It is also suggested to include needs assessments from outside the institution in order to assure that the current degree programs are meeting the needs of the university's external constituents (e.g., employers). The adoption of this philosophy is imperative to the development and maintenance of degree programs that strive to maximize student learning and continuously improve the learning opportunities provided their respective students. It is suggested that the adoption of this philosophy is an ethical imperative, not just a strategy designed as a "survival mechanism" in response to program review and accreditation evaluation processes.
4. Note: The MAGS Graduate Standards Committee recognizes that countless outcomes assessment strategies can be developed and implemented. Those included in this report provide a few examples for consideration. The overall recommendation is to encourage all graduate schools to facilitate discussions to promote the adoption of new, innovative models of assessment. We recommend that each department, and their respective faculty, create and implement assessment models that "make sense" for the program being evaluated.

Summary and Recommendations

The development of efficient, yet thorough, outcome assessment techniques for inclusion in ongoing reviews of graduate programs is essential. The MAGS Graduate Standards Committee hopes that this report serves as a catalyst for ongoing discussion regarding the use of meaningful assessment strategies for all graduate programs. Graduate Deans should serve as the catalyst for such discussions and activities on their respective campuses.

In order to pursue this initiative further, the MAGS Graduate Standards Committee recommends developing a panel discussion at next year's conference, including a cross-section of panelists from various classifications of MAGS institutions, to discuss the development of outcomes assessment standards to incorporate into the program review and evaluation processes for graduate programs. Furthermore, it might be appropriate to designate specific discussions to address the potential differences in reviewing graduate certificate programs, master's, and doctoral programs of study. As suggested, the use of authentic assessment and program evaluation techniques has the potential to promote curriculum revision processes and program development activities, with the potential of attracting new students and sustaining or enhancing the viability of graduate programs offered by an institution.

Committee Members

Tim Downs, Chair, Emporia State University (2002)
Robert Johnson, Miami University of Ohio (2003)
Patrick Melia, Eastern Michigan University (2003)
Suzanne Ortega, University of Missouri-Columbia (2002)
Chris Ingersoll, Indiana State University (2004)

Membership Committee Report

The Membership Committee received inquiries for MAGS membership from several institutions since the meeting last year. The Membership Committee reviewed application materials and recommended membership in MAGS for

- Grand Valley State University (application review completed November 2001)
- Chicago State University (application review completed February 2002)
- Northern Kentucky University (application review completed February 2002)

MAGS membership as of the 2002 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, Ph.D., Chair
Associate Vice Chancellor for Academic Affairs
Associate Dean for Graduate Studies and Research
University of Nebraska Medical Center

Committee Members

David Crouse, Chair, University of Nebraska Medical Center (2002)
Margaret Coxwell, Northern State University, South Dakota (2003)
Dale Good, Walden University (2004)
James Van Keuren, Ashland University (2004)

2002 MAGS Member Institutions

Illinois

Bradley University
Concordia University
DePaul University
Eastern Illinois University
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 Illinois 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 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

Southern Baptist Theological Seminary
University of Kentucky

Michigan

Andrews University
Calvin College
Central Michigan University
Davenport University
Eastern Michigan 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
Mayo Graduate School
Minnesota State University, Mankato
Minnesota State University, Moorhead
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
Northwest Missouri State University
Rochhurst 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-Rolla
University of Missouri-St. Louis
Washington University in St. Louis
Webster University

Nebraska

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

Ohio

Air Force Institute of Technology
Ashland University
Bowling Green State University
Case Western Reserve University
Cleveland State University
Hebrew Union College - Jewish Institute
of Religion
John Carroll University
Kent State University
Medical College of Ohio
Miami University
Notre Dame College of Ohio
Ohio University
The Ohio State University
University of Akron
University of Cincinnati
University of Dayton
University of Toledo
Ursuline College
Wright State University
Xavier University
Youngstown State University
North Dakota
Minot State University
North Dakota State University
University of North Dakota

South Dakota

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

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

Texas

Baylor University
Texas Tech University

Wisconsin

Concordia University
Marquette University
Sacred Heart School of Theology
University of Wisconsin - Eau Claire
University of Wisconsin - Green Bay
University of Wisconsin - La Crosse
University of Wisconsin - Madison
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 17 – 20, 2001 meeting; these manuscripts were reviewed and edited, and the Proceedings of the 57th Annual Meeting were assembled.

Julie Low, lead report writer for Academic Affairs at the University of Illinois at Springfield, edited each of the papers in the 2001 Proceedings and designed the entire document. The Proceedings were printed by the University of Illinois at Springfield's Printing/Duplicating Services office at a cost of \$1,757.75 for 250 copies. The 2001 Proceedings volume was mailed to all attendees of the 2001 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 2002 meeting in Chicago. 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 2001 Proceedings and found them interesting. It includes nine main articles, two workshop summaries, six committee reports, instructions to contributors, and a listing of titles and authorships of meeting presentations that were not submitted for publication.

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

Committee Members

Harry Berman, Chair, University of Illinois-Springfield (2002)
Frank Einhellig, Southwest Missouri State University (2002)
Edie Raleigh, Madonna University (2002)
David Hilderbrand, South Dakota State University (2003)
George Green, University of Minnesota (2004)

Adjusted Treasurer's Report for FY 2000-2001
Period Covered - 3/1/00 to 3/1/01

ASSETS 3/1/2000

Checking Account	24,125.35
Money Market Mutual Account	7,851.80
Certificates of Deposit	32,354.61
 Total Assets	 \$64,331.76

REVENUE 3/1/00 - 3/1/01

Registration Fees for the 2000 Meeting	14,465.00
Late Membership Dues for 2000	2,425.00
Membership Dues for 2001 (Billed 11/1/00)	14,400.00

Interest From:

Checking Account (First Federal, Lincoln, NE)	444.33
CD#1 (First Federal, Lincoln, NE, 03-00021024)	534.99
CD#2 (First Federal, Lincoln, NE, 03-00021162)	526.37
CD#3 (First Federal, Lincoln, NE, 03-00021033)	621.19
Money Market (First Federal, Lincoln, NE, 01-00007905)	431.72

Total Revenue	\$33,848.60
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DISBURSEMENTS 3/1/00 - 3/1/01

2000 Annual Meeting Program Expenses	21,453.67
Executive Committee Dinner (2000 Annual Meeting)	1,183.61
2000 Annual Meeting Presenter Reimbursements	2,958.46
2000 Annual Meeting Executive Committee Expenses	1,032.68
2000 Summer Meeting Expenses	1,648.20
2000 December Executive Committee Breakfast Meeting	189.22
LaPidus Endowment Donation	1,500.00
Plastic Thermal Mugs for 2000 MAGS Meeting	413.82
Album for Jules LaPidus retirement	220.19

Total Expenses \$30,599.85

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

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

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

[signed]

May 1, 2001

Merlin P. Lawson
Secretary/Treasurer

Date

Adjusted Treasurer's Report for FY 2000-2001
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[signed]

May 1, 2001

Merlin P. Lawson
Secretary/Treasurer

Date

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 it 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.