Rethinking the Dissertation: An Opinion Piece

The stance of modern North American universities, and particularly public and land grant institutions, has been that universities have a primary mission to create knowledge and to disseminate it publicly. A part of the mission statement of the University of Nevada, Reno (2014-15), for example, typifies this position:

“The modern land-grant university fosters the acquisition of knowledge and the distribution of newly discovered information. It enlivens curiosity, cultivates critical judgment and encourages the contribution of its informed students to the development of American society. The University of Nevada, Reno is committed to these land-grant goals and to the maintenance of an academic environment which advances the free exchange of ideas.”

Recent controversies about the purpose of doctoral education and the meaning and uses of the dissertation have prompted me to examine the dissertation rationale and process in the 21st century. To do so, I first recount the tradition of scientific inquiry from which the modern university sprang, the relation of its research to the emerging and mature nation state (primarily in the United States), and recent stress on the university system in publication and dissemination of information. I explore how recent stresses have caused many stakeholders to rethink the role of the dissertation in education for the public good.

The Roots of Scientific Inquiry

The “universitas” in medieval Europe was a collection of groups of students from different nations and the scholars who taught them. It formed into a guild for mutual protection against and within the Church, home city or principality. The idea of “academic freedom,” or the free circulation of scholars between universities, was codified by the University of Bologna in the founding document Constitutio Habita, 1158, which guaranteed the right of a traveling scholar to unhindered passage in pursuit of an education. The associated principles of acquisition of knowledge and distribution of new information have been a part of the European university tradition since at least the era of humanism and the beginnings of the scientific revolution during the early modern era. While universities may have hindered the development of new ideas by insisting on continuing adherence to scholasticism, they were nevertheless the training ground for scientists and philosophers who were infused with Humanist values. As the old scholastic model began to give way to experimentation based on personal observation and knowledge, new knowledge developed. The presentation of verifiable experiments and collection of information became the core of the academic endeavor by the time of the enlightenment university. The use of this new knowledge by rulers of nation states (for manufacture, munitions, road and water infrastructure, land reclam ation, exploitation of new energy sources, governance, and warfare) is a characteristic of the modern era.

The training of students still retains some of the oldest features of medieval guild life. The apprentice still seeks to learn the craft from a master. The old guild system was a closed market, such that the number of masters was carefully controlled so there was not a glut of experts in the city or region.

In contrast to the non-growth model of the guild, the modern university grew to have a second founding narrative during the early modern era and the emergence of the nation state. Producing new, verifiable knowledge addressed demands for continued expansion and application of discoveries. This need dictates an increase in the number of protégés any master should train. The new knowledge created has uses in industry, government, and diplomacy. It is a growth model.

So since the early years of universities, there has been pressure to disseminate new scientific and academic information for the benefit of the nation state, as well as for the free flow of ideas across national boundaries. These core values sometimes stand in conflict, when the needs of the state countermand the needs of free exchange of ideas internationally. But nevertheless,
universities have clung ever since to these core values in their modern form, as typified in the Humboldt idea of the university (1810). This was a reform of the German university focused on verifiable scientific knowledge, with an emphasis on academic freedom and autonomy of the professoriate. This German university model for research and doctoral education was adopted in the U.S. by leading universities in the late nineteenth century; Canadian universities soon followed suit.

Universities have been able to maintain these inherent contradictions in a creative tension for two centuries, primarily because of the ever-expanding need for expertise in local industry, the economies of colonialism, the growth of cities, and the advent of universal public education. There was enough demand in non-university areas within the nation state to absorb the new creative doctorally-trained talent, while still replicating the unique “master” within the university doctoral system. The demand has now changed, and the contradictions in the founding narratives are becoming more acute.

Public Interest vs. Private Advantage
Scientific discovery has always been commoditized and used for private and national gain, and certainly has been during the last two centuries. We even celebrated this commodification in the Land Grant Acts of 1865 and 1890. When the aims of private industry and the nation state were more closely aligned, the commodification of knowledge was cloaked in the rhetoric and the reality of being for the public interest or common good. Public interest is the civic area where expertise contributes not directly to capitalism, but rather to the shared, non-competitive environment of mutual benefit. Since the advent of multinational corporations rather than local, state-based industry, and the retreat of national and state government from certain types of public works projects, the alignment of scientific discovery, private gain, and the common good has been stretched to the breaking point in the 21st century.

Americans increasingly do not believe that scientific research will contribute to the common good, except in certain isolated cases. These cases generally have to do with military strength and armaments, international security, law enforcement, highly specialized medical research on individual diseases and conditions, agribusiness, and financial globalization.

These are areas where the interests of multinational corporations still align with the perceived needs of the nation state. So the scope of collaboration between industry and state for what is perceived as the common good is ever shrinking.

A short list of activities whose public benefits are being more frequently contested includes:
- Nutrition and preventive health measures (support programs).
- Publicly supported and financed universal education.
- Replenishment of infrastructure (roads, bridges, public transportation).
- Building of new civic infrastructure (universal internet access, modern schools, public spaces).
- International aid (other than military).
- Diplomacy and statecraft.
- Training and education of emerging leaders in developing countries.
- The public arts and humanities research.

These are activities which no longer directly support the needs of late capitalism and globalization; they are either too localized in scope or not necessary for privatized global expansion.

A corollary to this retreat from collaboration on the common good is the refusal to see higher education as a public interest, but rather to view it as a commodity for personal advancement. The mid-20th century saw American governmental support in aeronautics, science, math and engineering, world languages, and public policy, as well as support for graduates going into international and public service. Today we see the erosion of that support, reflected in reductions in student direct aid, favorable or forgivable student loans, and in the mechanisms of indirect university support of graduate activities in social sciences and humanities. We see privatization and outsourcing in services from agencies that support or monitor national infrastructure or international relations. Where government continues to play a role in interstate infrastructure, public education, and health, leaders contest these activities by reducing support, or instituting oversight and accountability measures. Education for positions in these now increasingly privatized spheres is regarded as private advantage for the individual, rather than for the common good.

Doctoral Education and Private Goods
As the nation state curtails the areas it deems to constitute the public good, individuals who participate in higher education in the newly “privatized” areas of inquiry and endeavor find themselves in a vicious circle of argumentation. If they argue for the central role their areas play in creative inquiry and expansion of ideas, they are told that their work is peripheral to national concerns. If they claim the need for expansion of civic and human capital through their research, they receive a lower priority than other social causes or costs, such as Medicare, Social Security, or incarceration. If they list the achievements of successful individuals in their area of endeavor, they are told that these achievements are individual, privatized success, and would be accomplished with or without governmental support. Above all, high individual achievement by advanced learners is used as an argument against public support, because relatively high salary and achievement is deemed a personal advantage.

Against this backdrop of shrinking national popular and governmental support for advanced higher education, let us turn to the doctorate.

Decoupling academic research and inquiry from the priorities of the nation state means that students seeking advanced degrees are increasingly regarded as private purchasers of career advancement, rather than future contributors to the public interest. The cost of doctoral education, which formerly was seen as an investment in America’s industrial research future, is now perceived by many as a drain on the federal budget. Even student loans—debt forgiveness programs and subsidized interest—are viewed as a boondoggle of welfare for the potentially rich.

Meanwhile, the shrinkage of the national research enterprise in many areas has created a glut in the production of new doctorates in certain areas and shrinkage in size of academic disciplines no longer perceived to be in the national interest. This has skewed demand for new professors, created demand instead for contingency labor in some areas of academe, expansion of non-faculty scientist roles, and has spilled over into greater expansion of non-teaching or expert non-academic employment for doctorates.

The research products of dissertators and newly minted doctorates are also newly contested territory. Many professors and
university administrators are slow to acknowledge the change in public academic communication—from products in a limited and protected sphere of free, public inquiry to commodities for personal use or sale in a multinational, multimedia profit environment.

The shift in the academic publication market reflects not only technological developments in publishing, but also the increased commodification of publicly supported and produced research findings. The shift began in dramatic increases in scientific journal publication costs, as journals were increasingly produced by large multinational publishing firms beginning in the 1980s. Universities previously supported the publication of research findings by subventions and their own university presses and support of locally housed journals. As a private good, rather than a public benefit, specialized research publication is no longer nationally subsidized except in areas of narrowly defined public interest. Publicly accessible, freely available research and creative information has now moved from a paper-based, monitored and controlled institutional environment (libraries, archives, labs, research institutes) to the internet.

Since the advent of fully available digital format dissertations through online repositories in the 1990s, and the revolution in the presentation of research data in digital media, there have been seismic changes in attitudes toward, and usage of, doctoral dissertations. There has been a swift adoption of electronically submitted and stored dissertations at all levels, and varying policies at universities and libraries about access, formats and platforms. With concurrent changes in the academic publishing market (rising costs, shifts in subsidy/support, move to digital environmental), the space which the traditional dissertation used to hold—with limited access to an academic public via abstract, photocopy, and microfilm at cost—has changed dramatically. Student and faculty concerns about future publication and unlimited access to results before they can be harvested by the originator have spurred a dramatic increase in embargoed dissertations. All of these trends, taken together, have created a new level of concern and anxiety among students and their advisors about the usurpation and dissemination of their own research products.

The positive side of technological innovation in dissertation format has created a broad opening for creative new research methods, access to new types of investigation and artistic presentation. These same new technological approaches create a rift between innovators and university faculty and administrators about acceptable format and content. Graduate deans will be in a unique position to adjudicate conflicts as the new definitions of scholarly presentation and dissemination permeate doctoral training. On the negative side, some commentators have called for an end to the dissertation process—too long, too obscure, and halting eventual public commodification of the student’s research products.

Given these current conditions, I think it is important to challenge the graduate community to imagine the dissertation of the future and to anticipate new structures and data needs associated with those anticipated changes. The Council of Graduate Schools is about to embark on a project in collaboration with ProQuest on the “Future of the Dissertation.” We will hold a small workshop of experts and stakeholders in January 2016 to explore issues and challenges that graduate deans face as they seek to guide students and faculty advisors through the troubled waters of change in dissertation format, dissemination, and function.

Our workshop plans to address these questions:

- How are scholars now communicating with one another and what are the trends in the uses of dissertations, theses, and other scholarly communication?
- What skills and research capabilities should a dissertation now demonstrate—for both academic scholarly communication and for extra-academic career needs?
- Do the skill sets for academic and non-academic career goals overlap, and do they still match the required format and content of current dissertation requirements for curation purposes?
- Are there new questions to address about the conditions and feasibility of permanent archival retention?
- How should graduate deans advise faculty advisors in understanding the new research/publication environment for dissertators and junior scholars?
- How should graduate deans lead faculty and administration in reconsidering the book-and journal based peer review process in an era of open access?

Graduate deans cannot control the profound rifts created by a new business model for research dissemination. They cannot restore the dominance of the nation state and local and civic economy in defining public interest. They cannot control globalization. But they can make the case for maintaining the core standards of rigorous inquiry, demonstration of mastery, and research integrity, even in this new environment while reexamining the purpose of the dissertation. They can guide students and their advisors to make informed intellectual choices about their own research. They can turn the conversation, and critique the newly narrowed scope of public interest, using the tools of the university guild: research and public discourse.

By Jeannine Blackwell, Dean in Residence, Council of Graduate Schools

Endnotes


“Published yet Unpublished: The Dual Rise of Open Access and Dissertation Embargoes.”

“Defusing the Fear: Publishing A Book Based on a Non-Embargoed Dissertation.”

“To Embargo Your Dissertation, or Not?”
The Leadership Role of Graduate Schools in Preparing the STEM Workforce of the Future: Preliminary Findings from the CGS Student Life Cycle Survey

It is now common knowledge that over 50% of those who earn doctorates in science and engineering (S&E) fields work in careers outside the academy (see Figure 1 below, source: National Science Foundation 2014, Figure 3-10). Such careers are often referred to as “alternative” careers for PhDs, but the numbers show that it is the academic job, not the career outside the academy, that is the “alternative” career path for the S&E PhD. Despite this fact, many agree that U.S. doctoral programs, and U.S. graduate programs generally, remain narrowly focused on preparing candidates with the skills they need for successful careers in academic research (National Science Board, 2015; National Research Council, 2016; National Institutes of Health, 2016; American Chemical Society Presidential Commission, 2012; CGS and ETS, 2012). Of course there are exceptions to the rule, including—at the master’s level—the successful Professional Science Master’s programs explicitly designed to provide master’s students with core education in research while at the same time also providing students with specialized skills outside that core field of research to meet employer needs (CGS 2011). Such exceptions aside, however, the majority of graduate degree recipients in science and engineering fields will embark on STEM and STEM-related careers outside higher education in industry, government, non-profit organizations and self-employed enterprises with excellent preparation in research skills but too often having received little or no explicit preparation in a host of other skills valued in those sectors.

Students in today’s graduate research programs need more resources, opportunities, and structured programs to help them gain greater awareness of the variety of careers open to them and acquire the skills needed to succeed in non-academic as well as in academic faculty careers. Universities, federal agencies, and industry are already working together to remedy the potential misalignment between the skills our graduate programs provide and the careers our graduate students ultimately pursue. But much remains to be done.

The Council of Graduate Schools has been listening to graduate school leaders on this topic on what would be most helpful to move forward. On the graduate community’s “to do” list, for example: more data are needed on just what skills today’s employers seek but find lacking in recently hired PhDs, as well as on what skills students themselves are seeking, generally and by field of study. More information is also needed on what career pathways students follow after graduation, what factors contribute to the successes and challenges alumni met in their career paths outside higher education, and why they made the decisions they made to follow the careers they now pursue (a topic that is the focus of CGS’s “Career Pathways” project, http://www.cgsnet.org/understanding-career-pathways).

We know that universities already provide some level of skills development to research master’s and PhD students beyond core research skills acquired in their graduate programs. But more information is needed on what obstacles prevent more students from taking advantage of current opportunities. Universities need more information, as well, about what works and what institutional hurdles they may face in delivering appropriate and effective skills training to larger numbers of students and postdoctoral fellows across diverse disciplines and with different career objectives. Better understanding is also needed of which federal funding structures for graduate student research and education encourage, and which inhibit, broader skills development (Stewart, 2014), as well as what skills and competencies employers anticipate that graduates will need for success in the STEM workforce of the future. The enhanced understanding that would result from better answers to all these questions could help funding agencies, employers, and universities work together to structure more effective programs to support the needs of society and the future STEM workforce.

As an initial step in shedding light on some of these questions, CGS is engaged in a range of activities supported by a grant from the National Science Foundation (NSF #1413827), “Graduate Students and the STEM Workforce.” This capacity building project seeks to map the landscape of professional development efforts currently in place and to lay the groundwork for a more comprehensive, evidence-based research study to identify the characteristics of institutional models and strategies that effectively align professional development training with degree requirements and career outcomes. The primary activities consist of a CGS member survey, a workshop of key stakeholders, and a culminating publication. The publication, which will be

Figure 1: Employment of S&E Doctorates by Employment Sector, 2010

![Graph showing employment sectors of S&E doctorates in 2010](source: National Science Foundation, Science and Engineering Indicators 2014)
released in early 2016, will include project results, a framework for future action, and a compendium of existing model programs. These activities will involve different types of institutions throughout the U.S. and industry leaders from multiple STEM employment sectors.

In April 2015, as part of this project, CGS launched the Student Life Cycle Survey, which included 16 questions about existing professional development programs for graduate students. We asked about program goals and motivation, scope, funding and administrative structures, program content (e.g., skills taught), challenges faced, and future needs. We inquired about both central, university-wide as well as unit-level professional development programs, as well as hybrids of the two, and so sought perspectives of different university leaders. We queried graduate deans, professional development directors, academic college deans, and graduate program leaders (such as department chairs and directors of graduate study). The survey was originally open from April 21 through May 11, but was reopened on June 8 in response to expressed interest from CGS members. The survey closed on June 19.

What follows is a brief discussion of selected, preliminary results from graduate deans and graduate school staff responses, only. (A future paper scheduled for publication in fall 2015 will include final results from the complete data set and from all respondent groups.) As of May 11, we had received 225 responses from graduate school institutional representatives (graduate deans, associate deans of the graduate school, etc.). CGS is grateful to each of you who completed this survey.

**Universities may be doing more than they are generally given credit for, if less than is needed, to prepare STEM graduate students for a variety of career paths.**

Of the 225 graduate school deans and personnel who responded to the survey, approximately two thirds reported that “their institution currently has” programs that offer professional development in skills beyond core research skills acquired in their programs to graduate students.” Among those who responded that such programs were in place, the majority (84%) reported that these programs prepared students for both “academic and non-academic careers”; a small percentage (10%) reported their programs to prepare participants for “academic teaching and university research careers” only; and few (5%) reported skills programs that prepared students for “non-academic careers” only. Findings may reflect some degree of response bias as individuals from institutions without such programs may have been less likely than others to complete the survey. The number of responses, however, and the additional details provided in response to subsequent survey questions suggest that CGS member universities are actively engaged in providing graduate student professional development for a broad range of careers and are seeking to enhance existing programs.

**What do these programs emphasize?**

General skills, such as communication/presentation, writing, and job search and professional networking skills were all noted by more than two thirds of graduate school respondents who reported having professional development programs, as were teaching and research ethics. Additionally, leadership and mentoring were noted by over half of respondents with reported professional development programs. Analysis of responses from academic program leaders and professional development directors will provide details on STEM-specific skills such as science policy; data science; technology commercialization and entrepreneurship; and governance, risk and compliance.

**Graduate schools play a key leadership role in the prioritization, coordination, and financial support of graduate student professional development programs.**

Graduate school leadership is a key factor in "motivating the creation" of professional development programs for graduate students; “Strategic priority of university and graduate school leadership” was tied with “Graduate student interest/demand” as the most frequently cited factor (by 82% of graduate school respondents) as (“very important”), and was also among the top three “very important” factors noted by respondents from academic colleges (at 69%) and by professional development program directors (at 80%). This graduate school leadership is also reflected in the fact that the graduate school is the most frequently cited source of funding (by 85% of respondents), as compared to an academic colleges, graduate programs, federal grants/traineeships, student fees, and volunteer contributions. Among graduate school respondents, approximately 70% reported that their institutions’ programs are “hybrid” in structure, that is, they “contain both centralized components (i.e., not offered by a specific department or program) and offered to graduate students from across the campus, focusing on issues that pertain to multiple fields and programs” as well as “program-specific components and participants”; approximately 18% reported that their programs were centralized only, and 10% reported program- or department-specific professional development programs.

Other preliminary survey results show that:

1. While universities already provide more professional development to graduate students (beyond core research skills) than they are generally given credit, they struggle to scale up such activities to meet the needs of large numbers of students from diverse fields of study and with distinct career trajectories.

2. Graduate education leaders seek a number of opportunities for enhancing and expanding upon current efforts, including: greater clarity about the skills and competencies sought by employers on which to focus their investments, more “internship” opportunities for graduate students considering careers outside the academy, greater alumni engagement, and stronger partnerships with the external community, as well as additional financial and staff resources to enhance existing offerings.

3. Where universities struggle with challenges such as faculty resistance to the idea of co-curricular professional development for non-academic careers, or low student participation, they are interested in identifying sources of data and promotional strategies to foster these important programs.

If you were not able to complete the CGS survey and your institution currently has a professional development program, or specific programs, that prepare graduate students with skills for success in STEM careers, we invite you to share information about these programs so we may consider them for inclusion in the forthcoming compendium of programs.

**Contact:** Daniel Denecke, Associate Vice President, Programs and Best Practices, Council of Graduate Schools

**References**

The state of graduate enrollment management is constantly evolving, and sound decision-making should be informed, at least in part, by quality information. Data reported in aggregate can sometimes mask important differences between subunits, while more granular-level data may be too refined to operationalize in certain types of decision-making processes. Moreover, there are instances in which existing data, which can fill the gap between aggregate and granular-level information, simply need to be analyzed and reported.

This is the case with most broad fields of study, including the arts and humanities. With 101,221 total graduate students enrolled in Fall 2013, the field of arts and humanities, which includes English language and literature/letters; foreign languages, literatures, and linguistics; history; liberal arts and sciences, general; philosophy and religious studies; and visual and performing arts, is the sixth largest broad field of study out of 11 (Allum, 2014a). While the CGS Graduate Enrollment & Degrees by Field report (Allum, 2014b) and the American Academy of Arts & Sciences’ Humanities Indicators (2015) provide detailed information about enrollment and degrees in the arts and humanities and related disciplines, neither describe the number of academic programs available across all U.S. institutions. This article aims to supplement these resources, as well as departmental-level studies conducted in recent years (White, Chu, and Czujko, 2014; White, Ivie, and Czujko, 2009) with program-level information using data from the most recent Integrated Postsecondary Education Data System (U.S. Department of Education, 2013).

As depicted in Table 1, there were 2,183 graduate programs in visual and performing arts in academic year 2012-13. This discipline was the largest of all arts and humanities disciplines with respect to number of academic programs, most of which (1,853, or 85%) were master’s programs. The second largest academic discipline in terms of number of academic programs is foreign languages, literatures, and linguistics, with 1,256 academic programs in academic year 2012-13. The smallest discipline within the field of arts and sciences in terms of number of academic programs was general liberal arts and sciences, with 245 total programs, most of which (228, or 93%) were master’s programs.

Comparisons between number of programs and total enrollment can be estimated using the Integrated Postsecondary Education Data System (U.S. Department of Education, 2013) and results from the 2013 CGS/GRE Survey of Graduate Enrollment & Degrees (Allum, 2014b). It is

### Table 1: Number of Graduate Programs in Arts & Humanities, 2012-13

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Number of Master's Programs</th>
<th>Number of Doctoral Programs</th>
<th>Total Graduate Programs</th>
<th>Total Graduate Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Language &amp; Literature/Letters</td>
<td>722</td>
<td>186</td>
<td>908</td>
<td>5,977</td>
</tr>
<tr>
<td>Foreign Languages, Literatures, &amp; Linguistics</td>
<td>819</td>
<td>437</td>
<td>1,256</td>
<td>2,532</td>
</tr>
<tr>
<td>History</td>
<td>423</td>
<td>175</td>
<td>598</td>
<td>3,080</td>
</tr>
<tr>
<td>Liberal Arts &amp; Sciences, General</td>
<td>228</td>
<td>17</td>
<td>245</td>
<td>3,099</td>
</tr>
<tr>
<td>Philosophy &amp; Religious Studies</td>
<td>329</td>
<td>162</td>
<td>491</td>
<td>1,034</td>
</tr>
<tr>
<td>Visual &amp; Performing Arts</td>
<td>1,853</td>
<td>330</td>
<td>2,183</td>
<td>10,801</td>
</tr>
</tbody>
</table>

Note: The number of programs and total graduate enrollment reflect the results of different studies carried out among different, but generally national populations, at different points in time. Therefore, direct comparisons should be made with caution.

Sources: Integrated Postsecondary Education Data System, 2012-13; CGS/GRE Survey of Graduate Enrollment & Degrees, Fall 2013.

### Table 2: Number of Graduate Programs in Arts & Humanities by Institutional Characteristics, 2012-13

<table>
<thead>
<tr>
<th>Type of Institution</th>
<th>Master's Programs</th>
<th>Doctoral Programs</th>
<th>Total Programs</th>
<th>Total Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>722</td>
<td>423</td>
<td>1,145</td>
<td>9,100</td>
</tr>
<tr>
<td>Private, Not-for-Profit</td>
<td>390</td>
<td>216</td>
<td>606</td>
<td>2,800</td>
</tr>
<tr>
<td>Private, For-Profit</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Carnegie Classification</th>
<th>Master's Programs</th>
<th>Doctoral Programs</th>
<th>Total Programs</th>
<th>Total Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctoral Institutions</td>
<td>139</td>
<td>428</td>
<td>567</td>
<td>4,920</td>
</tr>
<tr>
<td>Master's-focused Institutions</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Other Institutions</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Source: Integrated Postsecondary Education Data System, 2012-13; CGS/GRE Survey of Graduate Enrollment & Degrees, Fall 2013.
worth noting that IPEDS is a census of postsecondary institutions in the U.S., while results of the 2013 CGS/GRE Survey of Graduate Enrollment & Degrees were derived from responses to a survey carried out among CGS member institutions. Nevertheless, the comparison suggests that visual and performing arts is not only the largest discipline in terms of number of graduate programs, but also in terms of enrollment, with 10,801 graduate students enrolled in Fall 2013. Foreign languages, literatures, and linguistics, the second largest discipline within arts and humanities with respect to number of programs, is considerably smaller than most other disciplines with respect to total enrollments, with 2,532 students enrolled in Fall 2013. The third largest discipline in terms of number of programs, English language and literature/letters, is the second largest in terms of enrollment, with 5,977 students enrolled in Fall 2013.

According to the most recent series of data released by the Integrated Postsecondary Education Data System (U.S. Department of Education, 2013), the number of master’s and doctoral academic programs in 2012-13 varied by institutional control (see Table 2). By Carnegie classification, the majority of master’s-level academic programs in the disciplines of English language & literature/letters; foreign languages, literatures, and linguistics; history; philosophy and religious studies; and visual and performing arts, the majority of master’s-level academic programs are at public institutions. In 2012-13, for example, 298 of 423 (70%) of master’s-level history programs were at doctoral serving institutions, while 121 of 423 (29%) were at master’s-focused institutions, and (1%) were at other institutions, including baccalaureate and specialized institutions. Similarly, the number of doctoral-level academic programs in four of six disciplines (English language and literature/letters; foreign languages, literatures, and linguistics; history; philosophy and religious studies; and visual and performing arts) is the largest discipline within arts and humanities, in terms of enrollment, with 10,801 graduate students enrolled in Fall 2013. Foreign languages, literatures, and linguistics, the second largest discipline within arts and humanities, in terms of number of programs, is 5,977. English language and literature/letters, the second largest discipline within arts and humanities, in terms of enrollment, with 5,977 students enrolled in Fall 2013.

The third largest discipline in terms of enrollment, with 10,801 graduate students enrolled in Fall 2013. Foreign languages, literatures, and linguistics, the second largest discipline within arts and humanities, in terms of number of programs, is 5,977. English language and literature/letters, the second largest discipline within arts and humanities, in terms of enrollment, with 5,977 students enrolled in Fall 2013.

A slightly similar pattern can be seen when considering differences by institutional control. In four of six disciplines (English language and literature/letters; foreign languages, literatures, and linguistics; history; and visual and performing arts), the majority of master’s-level academic programs are at public institutions. In 2012-13, for example, 298 of 423 (70%) of master’s-level history programs were at doctoral serving institutions, while 121 of 423 (29%) were at master’s-focused institutions, and (1%) were at other institutions, including baccalaureate and specialized institutions. Similarly, the number of doctoral-level academic programs in four of six disciplines (English language and literature/letters; foreign languages, literatures, and linguistics; history; philosophy and religious studies; and visual and performing arts), the majority of doctoral-level academic programs are at public institutions, while two disciplines (general liberal arts and sciences, and philosophy and religious studies) had more programs in private, not-for-profit institutions. For example, 84 of 162 (52%) doctoral-level programs in philosophy and religious studies were at private, not-for-profit institutions, compared with 77 of 162 (48%) at public institutions, and less than one percent (4 of 162) were at private, for-profit institutions.

While there is a considerable amount of information regarding graduate education in the broad fields of arts and humanities, some of the information is not directly useful in the process of informing graduate enrollment management decisions, and other information has not been made widely available. This article, and future articles on academic program counts in other fields such as science, technology, engineering, and mathematics, education, and business, among others, hope to advance conversations further.

By Jeff Allum, Director, Research and Policy Analysis, Council of Graduate Schools

References

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CGS Board Nominations Sought

Nominations are being accepted for election to the CGS Board of Directors. If you are interested in serving on the Board, or if you would like to nominate a colleague, please send a CV to the attention of:

James C. Wimbush
Chair, CGS Nominating Committee
CGSBoardElection@cgs.nche.edu

New Members

Regular: University of Central Oklahoma (returning) Wagner College

DID YOU KNOW?

Did you know that paleo-geneticists hope to sequence the complete genome from the 400,000-year-old Sima de Los Huesos human, found in a deep cave in northern Spain?

What to Expect Scientists to Do in 2015

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In 2009, the Council of Graduate Schools and Educational Testing Service created a new award, Innovations in Promoting Success in Graduate Education: Admissions through Completion. This program recognizes promising innovations in graduate education that occur after the student enrolls in graduate school. It is designed to encourage institutions to create and implement programs that work with admission and early stage information to ensure success for students. One institution is selected to receive a grant of $20,000 for a two-year period, matched by $10,000 from the institution.

Recently deans from institutions which received the award or were named as honorable mention were asked to respond to three questions designed to assist those preparing proposals for this award. Responding were Melissa Bostrom, Duke University (DU); Lori Henderson, Eastern Illinois University (EIU); Magnolia E. Hernández, Florida International University (FIU); Samuel Attoh, Loyola University Chicago (LUC); Karen Klomparens, Michigan State University (MSU); Venkat Allada, Missouri University of Science and Technology (MST); Douglas Paulsen, Morehouse School of Medicine (MSM); Jeffery Gibeling, University of California, Davis (UCD); and Francis Leslie, University of California, Irving (UCI).

The responses below were shortened for this article. The full responses can be found on the CGS website. In addition to the full description of the award, the website also includes PowerPoints from a workshop, synopses of winning proposals, and FAQs. Applications for this year’s award are due September 11.

**What was the issue you wanted to address with this project?**

**UCD:** Early on, we recognized that a traditional approach of working with students would have a limited impact. As an alternative, we decided to focus on faculty mentors as the keys to success of students and as a way to have a lasting institutional effect that would benefit multiple generations of graduate students. We also identified three critical stages in graduate education … that can be barrier points to success: entering graduate school, moving from coursework to research and making the transition from graduate school to career.

**MSU:** We focused on several of the important steps in the journey to producing a PhD graduate: 1) admissions criteria: if you do what you’ve always done, you’ll get what you’ve always gotten. So we set up discussions so they could look at the outcomes they have and compare to the admissions criteria they use. 2) We put our Setting Expectations and Resolving Conflicts workshop online. 3) We continued with our development of Career Success website… tracking the placement of students and the kind of professional development they received. 4) We added a component of writing for the discipline. Our Writing Center at MSU trained peer mentors to help students write proposals, draft documents, etc… we provide monthly “write-ins” to encourage 50-60 students to write for at least 4 hours.

**UCI:** Enhancing climate for diversity in graduate programs.

**DU:** Because recent research has found both that women and underrepresented minorities may experience reduced access to graduate school mentors in many disciplines, as well as that these groups follow different career pathways within STEM fields, creating an online tool that would provide access to all our students was a key motivation for the project.

**FIU:** The purpose of the project was to address the challenges that we are facing in doctoral education—high attrition and time-to-degree completion rates, especially among underrepresented minorities—by creating a synergistic, interdisciplinary, self-paced learning community for doctoral students.

**MSM:** The basic purpose of the program we proposed was to assure that all our students received more consistent support and training in many of soft skills not directly addressed in their coursework or laboratory training. In particular, we wished to focus on helping our students through three key transitions in their training program: first the transition from undergraduate to graduate school, then the transition from graduate student to degree candidate, and finally the transition from degree candidate to graduation and beyond into their careers.

**EIU:** Increased diversity rates in undergraduate enrollment were not being reflected in the graduate enrollment.

**MST:** We… wanted to put a higher focus on lessening time-to-degree for our students and we wanted to strengthen our students’ skill sets to create stronger and more successful outcomes upon graduation so that we have highly prepared STEM professionals for the workforce.

**LUC:** The goal of our project was to create a Loyola Humanities Institute in the Graduate School to: (a) explore the importance of the Humanities in contemporary life; (b) encourage interdisciplinary efforts that involve humanities faculty and students in collaborative research; (c) provide workshops and mentoring opportunities that will help prepare humanities students for multiple career pathways upon degree completion; and (d) house the Humanities Post-Doctoral Fellows program.

**How was your proposal developed?**

**UCD:** Writing the proposal involved a team effort of the deans and directors of functional units within the Office of Graduate Studies. We spent several sessions brainstorming ideas, eventually coalescing around the chosen topic and approach. Various individuals drafted different sections of the proposal with one person taking overall editorial responsibility for an integrated final product.

**MSU:** This was a collaboration… with several partner departments and colleges and across the Grad School staff. We started by analyzing the data we had and the research that was available in order to expand what we believed to be possible successful pathways to improve completion and career success of our students. Then we collected more data as the activity unfolded and used those data to feed into the various sub-projects for improvement.

**UCI:** It was a part of a Department of Education FIPSE grant that was being written simultaneously. The grant was funded.

**MSM:** Our graduate office leadership and staff, along with several key graduate faculty members, initially identified the need. Focus groups were then held during a graduate faculty retreat to help prioritize concerns to
be addressed. During a subsequent accreditation process, the school selected student mentorship as the focus of our required Quality Enhancement Plan (QEP) which involved the development of degree-program based Learning Communities for students in each of the school's degree programs.

**DU:** We identified all potential data sources that might help us develop the project, created new data collection processes to fill any gaps, searched for professional development competency models in graduate education and adapted them to a Duke-specific model, and met with technical colleagues to test the feasibility of our proposal and research the budget for the project.

**EIU:** We created the “Enrollment Quality and Diversity Board” who were charged with studying the issue. A year-long study revealed that most EIU undergraduate students were not being prepared or even introduced to the opportunities available to them for advanced study.

**MST:** We had determined a strong need for professional development in the female and underrepresented minority student population at S&T. Specifically, these students emphasized the need for an innovative institutional practice that encompassed mentoring, support programs, intellectual enrichment, and social support for female doctoral students via the Women as Professional Leadership in STEM (WAPLIS) initiative. Some of the specific elements…came from a previous program put together by [our institution] and the three other schools in the University of Missouri system (Columbia, Kansas City, St. Louis)…by borrowing specific programming from the already successful GLDP, we were able to develop a proposal to address promoting success in graduate education.

**LUC:** We worked in collaboration with campus partners, including our Office of Research Services, the Office of Institutional Research, and Graduate and Professional Student Enrollment Management.

**FIU:** Our proposal was developed based on the need for doctoral students to acquire interpersonal and intrapersonal skills along with cognitive and research skills. Our effort is an extrapolation of the National Research Council’s published work on “skills for life and work,” which addressed undergraduate needs. Our proposal was developed with the goal of bringing together all professional development opportunities in a structured fashion so that cohorts of doctoral students are trained in a holistic fashion and in a community setting.

**What activity in your proposal do you believe was most successful and why?**

**UCD:** We believe that the overall approach of focusing on faculty mentors has been very successful. The MCT program has evolved over the years, but we have sustained it through internal funding. It continues to attract faculty interest and we are reaching an ever broader audience…. At this point, we know that faculty are thinking about mentoring in new ways and having conversations relevant to supporting a diverse graduate student population.

**MSU:** The web version of Setting Expectations and Resolving Conflicts and continued expansion of Career Success website were our most successful... Both were completed using the funds provided AND are still being expanded using our own funds and those of other grants to help us collect data on many pathways towards careers (not in academe). We still collect data on the career and professional development aspects of graduate education, and still focus on this important aspect of being a PhD student headed for a career in any area and in any sector of the economy.

**UCI:** Creating faculty advisors in each program who were advocates for equity and inclusion.

**MSM:** This opportunity to focus on topics of common interest and to share ideas and resources with other students at the same stage, with near-peer mentors, and with faculty facilitators has helped to more quickly identify and address obstacles to progress. At the same time it has helped provide an overarching sense of community within the graduate program. It has also helped to strengthen the graduate student government association which has become more confident and effective in student-led efforts to address student needs.

**EIU:** The most successful activity has been our undergraduate mentoring program, which evolved to include an online incentive program called “Graduate Network for Undergraduates.” The online program allows students to participate in activities all designed to educate and prepare them for graduate study and allows us to follow their progress and include them in our network.

**MST:** Our proposal has not been implemented in its entirety since we were not final awardees…. We are still seeking funding within the University and are also reaching out to external sources for funding as well… however we have dedicated ourselves to implementing some pieces of the program, such as providing the StrengthsQuest strengths finder for many of our female students, and covering the cost of conference attendance for students receiving fellowships…. Covering conference attendance has allowed students to gain opportunities to further their knowledge of their program of study and gain networking and presentation skills as well.

**LUC:** We were most successful in establishing a post-doctoral program for humanities students, which resulted in some tenure-track job placements for them.

**DU:** Building the Duke OPTIONS (Online Professional development Tool for Individual Opportunity) tool is the core of our proposal. By making the tool available not only to all 2,500 Duke doctoral students but also to prospective students who visit the graduate school's website, we hope to share the message that PhDs can look forward to myriad career options and can pursue them successfully by starting their professional development early.

**FIU:** The most successful activity in the proposal has been the Saturday Community Meeting. These meetings…focus on a specific theme related to the students’ doctoral experience that they can learn from as a group and then incorporate into their everyday lives…we focus on a theme…presented to the students by staff or faculty members at FIU who have expertise in these areas; this adds to the community-building, engagement piece of AGILE as it allows students to interact with the university community through dialogue at a smaller scale and in a more intimate setting.

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