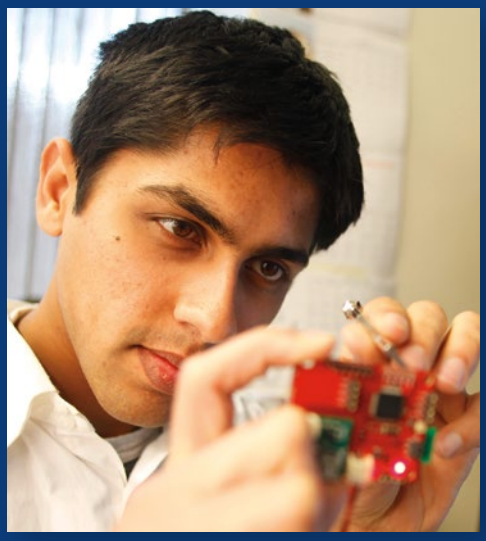
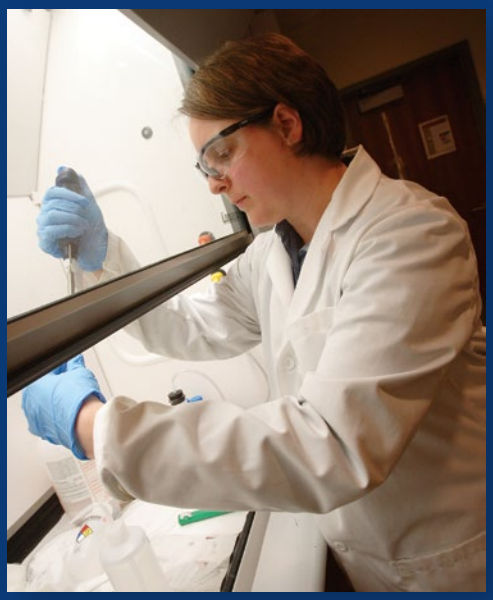
Articulating **Learning Outcomes** in Doctoral Education





CGS COUNCIL OF GRADUATE SCHOOLS

About the Council of Graduate Schools

The Council of Graduate Schools (CGS) is an organization of approximately 500 institutions of higher education in the United States and Canada engaged in graduate education, research, and the preparation of candidates for advanced degrees. The organization's mission is to improve and advance master's and doctoral education, which it accomplishes through advocacy in the federal policy arena, research, and the development and dissemination of best practices.

Acknowledgments

This project was supported by a grant from Lumina Foundation. The authors would like to thank Holly Zanville, Senior Advisor for Credentialing and Workforce Development at Lumina Foundation, and Amber Garrison Duncan, Strategy Director at Lumina Foundation, for their input throughout the project. We are also thankful to Judith Eaton, President of the Council for Higher Education Accreditation (CHEA), for helping CGS to conduct a survey of chief officers of accrediting bodies in CHEA's membership. We are grateful to the participants of the fall 2016 workshop "Doctoral Education and Learning Outcomes Frameworks," co-hosted by Lumina Foundation and the Council of Graduate Schools, for the rich discussions that informed this paper. We also thank the graduate deans who contributed their expertise to a May 2016 focus group on the topic of doctoral learning outcomes, and the many people representing professional and regional accrediting bodies who provided reflections on research questions through one-on-one interviews. Finally, the authors would also like to thank CGS consultant Diana Carlin and staff members Keonna Confesor, Hironao Okahana, and Julia Michaels for contributing their help and expertise to this and prior project reports.

Cover photos courtesy of the University of Southern California.

Articulating **Learning Outcomes** in Doctoral Education

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Suggested citation:
Denecke, D., Kent, J., & McCarthy, M.T. (2017). *Articulating learning outcomes in doctoral education.* Washington, DC: Council of Graduate Schools.

ISBN: 10-digit 1-933042-51-6
13-digit 978-1-933042-51-0

Printed in the United States

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Executive Summary

ARTICULATING LEARNING OUTCOMES IN DOCTORAL EDUCATION

In higher education, student learning outcomes are statements of "knowledge, skills, attitudes, competencies and habits of mind" that students are expected to demonstrate at the end of a course or program.[1] In other words, what can a degree candidate expect to know and do as a result of a particular course of study? Learning outcomes are valuable tools for improving the quality of higher education, and have been a focus of reform efforts at the associate and bachelor's degree levels for some time in the United States. Only recently, however, has this focus expanded to include graduate degrees. This report considers the role of student learning outcomes at the doctoral level.

The U.S. graduate education community has a strong stake in defining the goals of doctoral programs. Clear and explicit learning outcomes may help candidates to more successfully navigate important milestones. Defined learning outcomes may help doctoral students from diverse backgrounds weigh the costs and benefits of their educational investments, or help universities specify the learning goals of graduate assistantships. Doctoral outcomes can also help programs more purposefully prepare their students for a variety of career paths. Conversely, a lack of clarity about the goals and intended outcomes of doctoral education puts programs and institutions at risk. Heightened scrutiny of learning outcomes by accrediting bodies and governing boards, for example, has spurred many institutions to define what counts as success, rather than wait for a definition to be imposed.

This paper distills the results of a CGS research project in a global and national context that have shaped the development of learning outcomes and competency frameworks at the doctoral level. It aims to inform the development of thoughtful learning outcomes assessments for doctoral programs, and to provide recommendations for faculty and higher education leaders working to define and clarify program goals.

Key Findings

In 2016, with support from Lumina Foundation, CGS conducted a research project on contexts for the development of doctoral learning outcomes and competency frameworks. CGS surveyed its member universities; held in-depth discussions with U.S. accreditors and graduate education leaders from around the world; and facilitated a workshop for graduate deans from U.S. and Canadian doctoral institutions, disciplinary society leaders, and experts from relevant national higher education associations.

The Drivers of Growing Focus on Learning Outcomes in Doctoral Education

Both internal and external forces are driving a growing focus on learning outcomes at the doctoral level, including the following:

- increasing demand for workers with advanced and specialized knowledge and skills;
- greater scrutiny from accreditors with respect to doctoral-level outcomes;
- growing dissatisfaction with traditional measures used to assess the quality of research doctorates;
- pressures on universities to demonstrate the value of a doctoral degree in the wake of decreasing public investments in graduate education;
- new efforts to diversify the pool of students who pursue doctoral education; and
- concerns that if universities and faculty themselves do not lead the way, doctoral-level skills and competencies may be defined for them.

Widespread Use of Doctoral Learning Outcomes

The majority (65%) of institutions responding to the 2016 CGS Pressing Issues survey reported all or most of their doctoral programs had developed learning outcomes. This widespread use of doctoral leaning outcomes is correlated with a surge in accreditors' interest in documenting and measuring these outcomes. A 2016 CGS poll of chief officers of relevant accrediting bodies found nearly three out of four accreditors (72%) agreed they are paying closer attention to outcomes assessment in doctoral education than they did in 2011 (Fig. 1). A large majority (80%) of responding accrediting bodies have guidelines specifically related to doctoral-level learning outcomes.

Potential Value of Degree Qualification Frameworks for Doctoral Education

An overarching doctoral degree framework, or set of reference points that defines general skills and competencies expected of all doctoral recipients, can inform learning outcomes assessment. Such a framework may be field-specific or cut across disciplines. This kind of tool offers a number of potential benefits.

Learning outcomes frameworks may

- offer graduate schools an independent threshold for doctoral program quality;
- make program requirements and milestones more student-centered and intentional;
- increase transparency to students by making implicit expectations explicit;
- encourage the articulation of educational goals for students beyond the discipline;
- improve public understanding of the value of doctoral credentials;
- better align doctoral training with career outcomes of doctorate holders; and
- help employers and prospective students by establishing comparability across a discipline, institution, or both.

Many countries and regions have developed degree qualifications frameworks including doctoral-level skills and competencies. In some instances, these are intended to apply to both research and professional doctorates. Lessons learned about implementation of these frameworks in other countries, however, suggest that a different approach may be needed in the U.S. to ensure broader adoption and use.

Lingering Questions

Although the potential benefits of doctoral learning outcomes and degree frameworks are evident, many unanswered questions remain.

Concerning *learning outcomes:*

- What processes are universities using to develop these outcomes, and what degree of consensus has been achieved?
- How granular or general are they?
- Are they accessible to, and used by, faculty and students? If so, how; and if not, why not?

Concerning *degree frameworks:*

- Can the U.S. PhD and professional doctorate be successfully included within the same framework, or do these distinct degree types merit different frameworks?
- How might a national doctoral framework build upon complementary work in the disciplines?
- If frameworks are designed to help prospective and current students, employers, and the public, what mechanisms might be used to inform these audiences about frameworks, and how might they in turn inform programs and outcomes?

Recommendations for Leaders in Higher Education

Based on the findings from CGS research, we conclude that greater collaboration among graduate schools, disciplinary societies, and faculty will help answer the aforementioned questions. The following recommendations have been developed for a broad range of leaders in higher education, including higher education associations, funders, accrediting bodies, higher education researchers, graduate deans, and graduate school staff.

1. **Engage graduate schools and graduate deans**, who typically oversee outcomes assessment and graduate student skills development on their campuses. Graduate deans are in a strong position to convene faculty leaders and advocate for quality graduate education across the disciplines.

2. **Engage disciplinary societies** to understand whether and how transdisciplinary frameworks and discipline-specific reference points might mutually inform one another.

3. **Engage employers** to understand how frameworks might be used and encourage better public understanding of the value of a PhD.

4. **Conduct a research study to better understand challenges encountered in implementation** with a cohort of institutions that reflects the diversity of U.S. doctoral programs and institutions.

5. **Conduct a deeper inquiry into the dissertation,** the key milestone in the U.S. PhD, focusing on the skills and knowledge that PhD candidates develop through the process of completing the dissertation. Consider how frameworks and learning outcomes might be used

to encourage greater self-reflection and innovation concerning program goals, milestones, and assessment.

6. **Focus on the preparation of the next generation of future faculty.** Take advantage of existing programs to help future faculty understand the purposes of degree frameworks at all degree levels and help them to build competence and confidence in using these tools in outcomes assessment.

The trends identified in this paper suggest that the expectations for quality learning outcomes at the doctoral level will only increase. Faculty, graduate schools, and disciplinary societies must work together to ensure that such outcomes are articulate the values of today's doctoral programs while also meeting the needs of students, employers, and the public.

The Case for Doctoral-level Learning Outcomes

Doctorates and Higher Education Accountability

In recent years, rising educational debt levels for American families have brought national attention to issues of quality and accountability in higher education. Overall, strong correlations exist between degree completion, employment, and earnings.[2] But students who leave college with high debt and without degrees have triggered public concerns about the return on educational investment at U.S. colleges and universities. Educational institutions, the government, accreditors, and non-governmental organizations have all stepped in to answer the call for greater transparency about outcomes and improved resources for prospective students and their families.

Until recently, such efforts have focused almost exclusively on undergraduate education. By contrast, relatively little attention has been given to advanced degrees such as the PhD and the professional doctorate. Perhaps one reason doctoral education has not been scrutinized as much as undergraduate education is that the doctorate is much more specialized in scope, is more selective in admissions, and is regarded worldwide as a model of excellence. U.S. PhD programs produce many of the world's leading researchers who drive innovation and growth and who advance the state of knowledge in their fields. Although this paper considers the role of learning outcomes for the doctorate broadly defined, this section focuses on the PhD.

The PhD Under Pressure

Although the PhD has been largely exempt from external calls for improved accountability, today U.S. doctoral institutions face both internal and external pressures which suggest that change may be imminent. Among the major internal drivers of this change are the following:

1. **Growing dissatisfaction with traditional measures used to assess the quality of research doctorates.** Traditional measures of PhD program quality have typically included proxies for learning and skills development such as faculty reputation and publication activity, student selectivity, and grade point averages or standardized test scores of incoming students. Neither faculty scholarly output nor student "input" characteristics, however, necessarily correlate *with what students* learn in their programs or how well their PhD programs prepare them for career success beyond the doctorate.

   With leadership from U.S. graduate schools, disciplinary societies, and organizations such as the Carnegie Foundation for the Advancement of Teaching and CGS, doctoral programs have begun to engage in dialogue around a number of key issues. These include the purpose of a PhD degree, the meaningfulness of milestones, and the alignment of degree requirements

with the outcomes, skills, and competencies expected of PhD recipients.[3] As a result, many PhD programs are working to ensure that milestones such as qualifying or comprehensive exams and the dissertation are designed to evaluate the skills and abilities that students are expected to develop. This emphasis on explicit skills and competencies, as opposed to mere intellectual mastery of content, frames program quality in terms of students' needs. There is also a new focus on outcomes rather than aptitudes, with greater attention to students' success in completing their degrees, acquiring their first jobs, and launching successful careers.

2. **Overemphasis on academic research at the expense of transferable skills.** U.S. doctoral education has an outstanding reputation for preparing future researchers. Currently, however, professional development activities focus too narrowly on academic research at the expense of teaching and other skills valued in both academic and non-academic careers. Years of local and coordinated initiatives[4] have transformed some contexts, but in the absence of broadly accepted measures used to assess quality of U.S. doctoral programs, these reforms have had limited impact on the pipeline as a whole.

3. **Concerns about the loss of faculty autonomy.** Faculty autonomy and the structure of research funding in many fields are both a distinguishing strength of U.S. doctoral education and potential barriers to reform. Faculty must be deeply engaged in the definition and use of doctoral learning outcomes in order for these outcomes to be meaningful and useful. Unfortunately, many faculty members work within a system that primarily rewards their research productivity to the detriment of their important roles as educators. Additionally, those who perceive the push for improvements in learning outcomes assessment at the PhD level to be driven by accountability rather than self-initiated program improvement may consider efforts to clarify learning outcomes as threats to faculty autonomy and program excellence.[5]

In addition to these drivers *internal* to the doctoral enterprise, there are also *external* forces shaping the national dialogue around doctoral outcomes:

1. **Decreasing public investments in graduate education.** Diminishing or flat investments in master's and doctoral education at the state and federal levels have placed new pressures on universities to demonstrate the value of graduate degrees.[6] As universities communicate with policymakers, employers, and students, they face a growing need to demonstrate the efficacy of doctoral programs in achieving specific outcomes.

2. **Increasing demand for a workforce with advanced and specialized knowledge and skills.** Universities are the central source of the knowledge workforce of the future. According to the U.S. Bureau of Labor Statistics, jobs that require a doctoral or professional degree at entry level are expected to grow by 12.2% between 2014 and 2024. This is in comparison to 13.8% for jobs that require a master's degree, and 8.2% for jobs that require a bachelor's degree. The transition to a knowledge- and service-based economy[7] along with "changes in scope and complexity" in the healthcare disciplines[8] is a likely trend behind this projected increase. As careers for PhDs and professional doctorates become more fluid, students seek graduate degrees with a range of career options in mind. Increasingly, they seek to understand how a degree will prepare them to succeed in careers in research in a variety of settings, including academia, industry, government, nonprofit, and startups.

3. **The need to diversify the pool of students who pursue doctoral education.** The U.S. must draw from the talents and skills of an increasingly diverse population to meet its workforce needs. A growing body of evidence indicates that diversity improves the quality of educational experiences for all.[9] The next generation of doctoral students will benefit from training in environments that reflect the diverse workplaces where they will practice their professions, whether these are laboratories, universities, companies, government agencies, or healthcare facilities. Attracting diverse and non-traditional students clearly depends on a capacity to articulate and deliver on explicit and valued outcomes.

Doctoral Learning Outcomes: Recent Trends

To remain nationally and globally relevant, U.S. doctoral education must respond to the push for more transparency and accountability. This work has already begun: many U.S. universities are developing explicit program-level or university-wide learning outcomes for PhD programs. We next discuss the prevalence of doctoral learning outcomes for PhD programs at U.S. universities, outlining recent trends in accreditation that are influencing these programs' development and use.

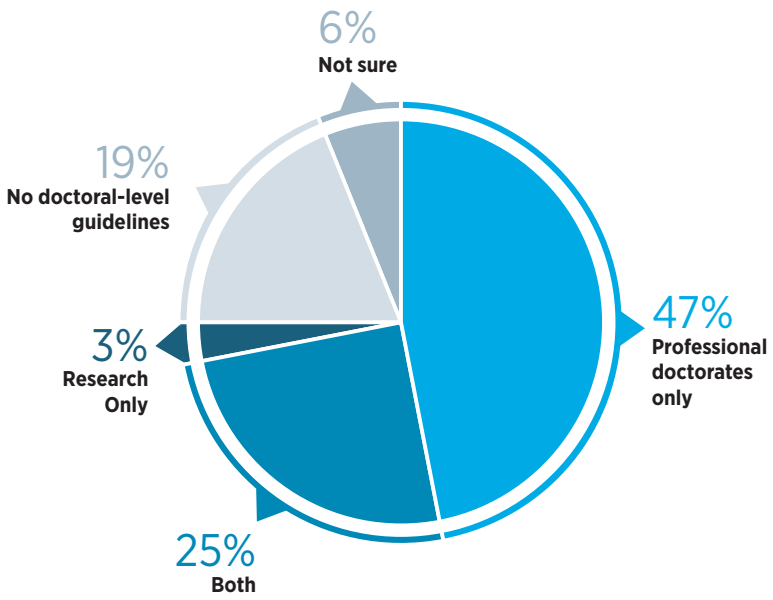
How Common Are Doctoral Learning Outcomes?

Student learning outcomes are statements of "knowledge, skills, attitudes, competencies and habits of mind" that learners are expected to acquire and demonstrate at the end of a learning experience.[10] In the spring of 2016, CGS conducted a brief survey of its 241 doctoral-degree-granting member institutions to find out how far the work of developing learning outcomes has extended to the PhD. That survey, with a response rate exceeding 60%, found that at 65% of the responding institutions, all or most PhD programs had developed learning outcomes for their own use (Fig. 2).[11]

Heightened Pressure from Accreditors

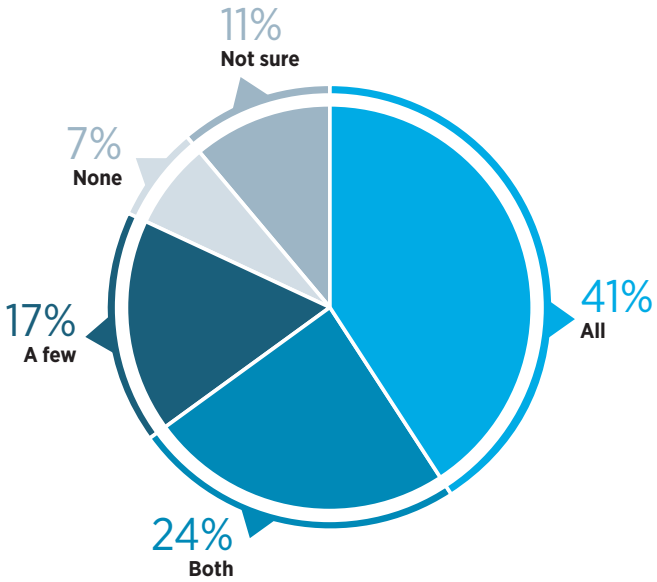
One factor accounting for the heightened focus on learning outcomes at the doctoral level is increased pressure from accrediting bodies and governing boards for more institutional accountability.[12] In 2016, CGS surveyed chief officers of accrediting bodies whose scope of accreditation includes doctoral education. Among the 32 valid responses, representing an 80% response rate, nearly three out of four accreditors (72%) said that they were paying closer attention to outcomes assessment in doctoral education than they did in 2011. The primary focus is still on professional doctorates. While three-quarters (75%) of responding accrediting bodies have guidelines specifically related to doctoral-level learning outcomes, the majority of these (75%, equivalent to 47% of the total) have guidelines for professional doctorates only (Fig. 1). While heightened scrutiny from accrediting bodies of learning outcomes at all degree levels has accelerated the pace of development of these outcomes for doctoral programs, graduate education leaders are also motivated by the numerous benefits of outcomes assessment for students, faculty, programs, and external stakeholders, as identified above. However, except in the case of certain professional doctorates, universities currently lack a common best practice framework for developing these outcomes and for ensuring they are used effectively to guide curricula or improve programs overall.

Figure 1. Most U.S. accreditors surveyed provide guidelines for doctoral-level learning outcomes.



Source: CGS Survey of U.S. Accreditors on Doctoral Learning Outcomes and Assessment, 2016. Council of Graduate Schools. Responding to the question: Does your accrediting body put forward guidelines specifically related to the assessment of learning at the doctoral level?

Figure 2. Most PhD programs have developed learning outcomes.



Source: CGS Pressing Issues Survey, 2016. Council of Graduate Schools. In answer to the question: What proportion of your PhD programs have developed student learning outcomes?

Doctoral Degree Frameworks: What Are They and How Might They Be Used?

What Are Doctoral Degree Frameworks?

A doctoral degree framework is a set of reference points that defines general skills and competencies expected of all doctoral recipients. Such a framework may be specific to a discipline or field of study or may cut across disciplines. A framework could potentially facilitate doctoral-level learning outcomes assessment. While *learning outcomes* are typically designed to reflect competencies and skills mastered upon completion of a specific course or degree program, *degree frameworks* refer to the broader set of tools used to align degree-level requirements across disciplines and institutions of higher education. Outside the U.S., as discussed in Part 3 of this report, transdisciplinary degree competency frameworks that encompass both the PhD and the professional doctorate are well established. In the U.S, a comparable tool might be useful, for example, as a touchstone in developing doctoral learning outcomes, assuring their completeness and quality.

While learning outcomes are typically designed to reflect competencies and skills mastered upon completion of a specific course or degree program, degree frameworks refer to the broader set of tools used to align degree-level requirements across disciplines and institutions in higher education.

Lumina Foundation has created two frameworks designed to provide shared reference points for high-quality credentials: the Degree Qualifications Profile (DQP) and the Beta Credentials Framework.[13]

Degree Qualifications Profile (DQP)

The DQP is a learning-centered framework for what college graduates should know and be able to do to earn an associate, bachelor's, or master's degree. Released in beta version in January 2011, the DQP was informed by U.S. and European educators, association leaders, government officials, and postsecondary education executives. It was finalized in fall 2015 following significant revisions over a five-year period of exploration and use by more than 500 colleges and universities. The DQP's novel approach uses *qualitative* learning outcomes rather than quantitative measures (such as GPA and number of credits completed) as the basis for awarding degrees. While these measures are important, the DQP answers the fundamental question posed by students and society: "So, you hold this degree. What does this mean you know and can do?"[14] The DQP framework incorporates both broad and specialized categories of knowledge, intellectual skills, collaborative and applied learning, and civic and global engagement. This

resource was informed by, and is compatible with, the Essential Learning Outcomes published by the Association of American Colleges & Universities.

Beta Credentials Framework

Following the release of the DQP, questions remained about certificates, industry certifications, badges, micro-credentials, and doctoral degrees. The Beta Credentials Framework is therefore designed as a complementary but independent effort to encompass all credentials. This framework uses competencies as common reference points for comparing and understanding the types of knowledge and skills that underlie all credentials—degrees, certificates, industry certifications, licenses, apprenticeships, badges, and other credentials.

Together, the DQP and Beta Credentials Framework offer reference points that may help institutions review new programs, develop learning outcomes for existing programs, and assess quality across U.S. postsecondary education credentials. However, as this report indicates, the decentralized nature of U.S. doctoral education makes it particularly challenging to achieve consensus on a single set of outcomes for doctoral education that would be broadly useful *and used*. Inclusion of the PhD and professional doctorate together in a comprehensive degree qualifications profile or competency framework demands careful consideration of the diversity within the system, as well as of the variety of contexts and currents that shape U.S. doctoral education.

How Might Doctoral Degree Frameworks Be Used?

Would doctoral degree frameworks created in the U.S. context be used? More work must be done to explore the potential uses—and roadblocks to use—of a framework that includes doctoral learning outcomes, and faculty will need to be directly engaged in answering these questions. As a foundation for continued work in this area, the workshop co-hosted by Lumina and CGS uncovered a number of potential uses:

> **Helping faculty evaluate whether a candidate is acquiring competencies along the way to a degree**

> **Helping employers and prospective students by**
- establishing comparability across a discipline or institution and
- improving alignment of doctoral training with career outcomes of doctorate holders.

> **Helping institutions and enrolled students by**
- demonstrating that institutions are proactive and engaged in learning rather than reacting to accountability-driven pressures or assessment models;
- potentially accelerating time-to-degree and increasing completion rates by supporting career diversity for PhD students;
- communicating and clarifying the value of PhD programs to students, employers, and the public.

- increasing transparency about the process for achieving mastery of research and other skills.

The extent to which graduate education leaders would accept and use doctoral frameworks will be determined by several factors: how well adapted these frameworks are to the context of American universities; faculty perceptions (e.g., whether these frameworks reflect their educational goals and are field-relevant); and the extent to which they are well integrated into existing university processes, including those in which graduate schools and deans play key leadership roles. The later sections of this paper explore each of these factors, but first we pause to consider lessons learned from international examples of doctoral degree frameworks.

PART 3

Doctoral Degree Frameworks in a Global Context

In many countries and world regions, including Canada, Ireland, Australia, and across Europe, general frameworks clearly outline competencies and proficiencies by degree level (distinguishing bachelor's, master's, and doctoral degrees). These international initiatives can inform the U.S. conversation about transdisciplinary doctoral frameworks. This section asks a number of questions intended to shape future work in this area:

- What are the similarities and differences between U.S. and foreign doctoral programs, and how might these be reflected in a U.S. framework?
- Looking at how frameworks have been received in other countries, what procedural considerations should be kept in mind?
- What aspects of the U.S. national context would support, or impede, the implementation of a general doctoral degree framework?

The Bologna Process and the European Qualifications Framework (Europe). The Bologna Process was a major effort spanning nearly two decades to create a common European Higher Education Area that today includes 48 countries. The process involved educational reforms and significant restructuring in many countries to harmonize higher education degree structures and expectations at multiple levels—first cycle, bachelor's degree; second cycle, master's degree; and third cycle, doctoral degree. Implementation of "third cycle" doctoral education reforms remains one of the greatest challenges to the Framework of Qualifications for the European Higher Education Area, developed through the Bologna Process.[15] According to a comprehensive series of "stock-taking" reports, both attitudinal and structural barriers have impeded the implementation of the framework at the doctoral level.[16]

The Swedish National Qualification Framework. Sweden has been a full member of the Bologna Process since 1999. In 2008 and through subsequent revisions, the Swedish government has adopted a qualification framework that features learning outcomes for eight degree levels. A national education agency oversees assessment implementation and quality assurance.[17] One early challenge of implementing the framework was a lack of integration of outcomes and assessment at the doctoral level. As of 2012, it was determined that "institutional curricular reform [had] not yet reached" doctoral education.[18]

The Ontario Qualifications Framework (Canada). In 2009, Ontario launched the Ontario Qualifications Framework, with the last of 13 levels encompassing both research and professional doctorates.[19] The framework mandated that every university establish expectations for each degree level. Degree-level expectations as defined provincially were intended to be broad enough to enable institutions to identify where their programs fit within those expectations. As one graduate education leader explains, the experience in Ontario was that the generality

of the framework "provided a nimbleness. The learning outcomes were developed from those degree-level expectations. When you add on indicators of achievement and transferability of skills, students are clear about the value add of the degree, and where each course fits into the rubric/matrix. Disability accommodations also became easier to identify and create from this framework." In the eight years since implementation, the framework has met little resistance.

The Australian Qualifications Framework (AQF). The Australian Qualifications Framework, established as policy in 1995, comprises learning outcomes for each of 10 degree levels, specifications for the application of the AQF in the accreditation and development of qualifications, and additional policy requirements for linking qualifications and student pathways.[20] According to a graduate dean from an Australian institution interviewed by CGS, universities treat the Australian Qualifications Framework as a "reference point," and its success has depended on its ability to accommodate the variety of doctoral programs (coursework-heavy or not) delivered in Australia. In practice, however, the general nature of the framework has made it difficult to operationalize. Translating broad framework statements into specific, practical assessment rubrics has been challenging, and the diversity of program-level outcomes (many of which overlap or conflict) has proved a barrier to broader adoption.[21] The Level 10 criteria from the AQF are cited below (Fig. 3).

Lessons Learned from International Implementation of Doctoral Degree Frameworks

Below are some of the lessons learned by educators and policymakers abroad from implementation of doctoral reforms using doctoral degree frameworks:

1. Internal and external imperatives for change must be present. Degree frameworks must address a clear need.
2. Faculty and students must participate in the process, starting with preliminary discussions of degree qualifications development.
3. Outcomes and assessment must be linked. While it is possible in theory to define outcomes prior to consideration of rubrics and implementation of assessment strategies, experience suggests that both should be considered simultaneously.
4. Higher education governance structures impact the pace of change. In highly decentralized systems, some form of overarching guidance can assist with the process of implementing learning outcomes and assessment.
5. Outcomes discussions may suggest curricular adjustments—including the addition of courses specifically related to professional development and career success of doctoral students.
6. University leaders should assist faculty in developing new pedagogical and curricular approaches designed to achieve specific outcomes and articulate the benefits of these new approaches.

In sum, the experiences of other nations and regions illustrate both the promise and the challenges inherent in identifying and using a common doctoral degree framework. Much remains to be accomplished, particularly in achieving better integration of outcomes and assessment.

Figure 3. Australian Qualifications Framework level 10 criteria

Summary

Graduates at this level will have systematic and critical understanding of a complex field of learning and specialized research skills for the advancement of learning and/or for professional practice.

Knowledge

Graduates at this level will have systemic and critical understanding of a substantial and complex body of knowledge at the frontier of a discipline or area of professional practice.

Skills

Graduates at this level will have expert, specialized cognitive, technical and research skills in a discipline area to independently and systematically:

- engage in critical reflection, synthesis and evaluation
- develop, adapt and implement research methodologies to extend and redefine existing knowledge or professional practice
- disseminate and promote new insights to peers and the community
- generate original knowledge and understanding to make a substantial contribution to a discipline or area of professional practice

Application of knowledge and skills

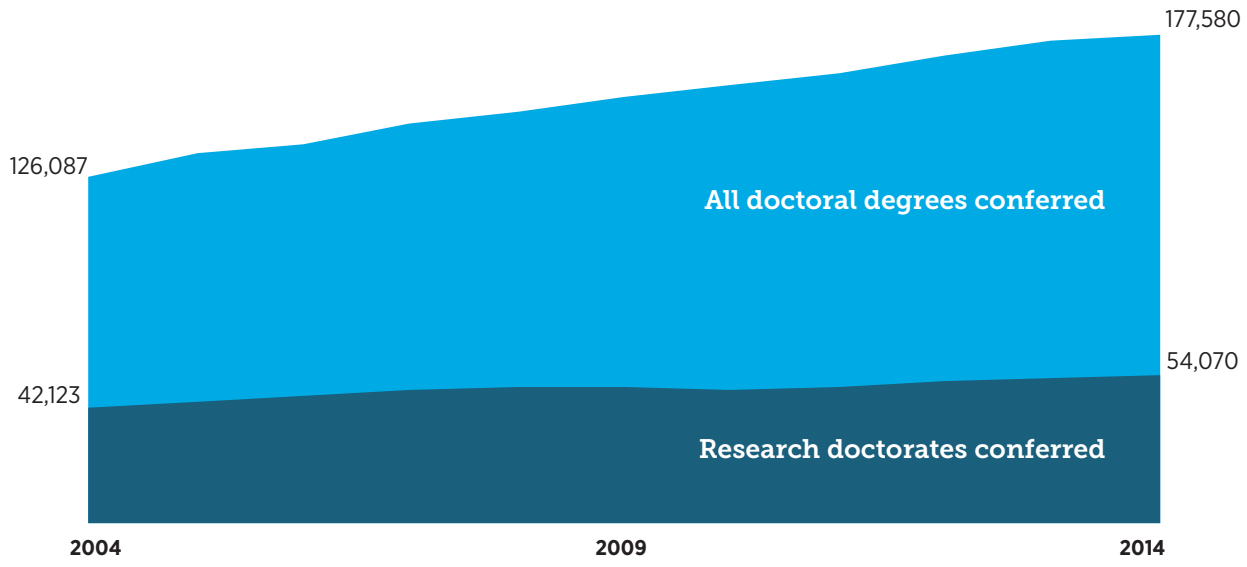
Graduates at this level will apply knowledge and skills to demonstrate autonomy, authoritative judgement, adaptability and responsibility as an expert and leading practitioner or scholar.

Source: www.aqf.edu.au. Reprinted with permission.

Do Professional and Research Doctorates Merit Different Frameworks?

Many countries with qualifications frameworks include both professional doctorates and PhDs in these frameworks. However, differentiating these two types of degrees may prove more successful in the U.S. context due to (1) the disparity of existing standards for professional versus research doctorates and (2) the decentralized nature of U.S. higher education (e.g., the lack of a centralized higher education ministry).

Figure 4. The recent growth of earned doctorates is largely attributable to professional doctorates.



Data Sources: National Science Foundation, Survey of Earned Doctorates (2015), Table 13, and U.S. Department of Education, Digest of Education Statistics (2015), Table 324.10

Although individual campuses may have developed doctoral learning outcomes, at the national level, limited guidance exists to define the outcomes for PhDs. In comparison, the growing popularity of professional doctoral degrees in the U.S. has prompted national organizations and accrediting bodies to clearly define the purposes and intended competencies of these degrees (Fig. 4). Accrediting bodies have issued guidance about degree requirements associated with newer professional doctorates such as the Doctor of Nursing Practice (DNP) and the Occupational Therapy Doctorate (OTD). Some long-standing professional degrees have licensure requirements and accreditation standards upheld by their respective accrediting bodies. These standards clarify skills and competencies for professional practice in important ways. The same has not been true for the PhD.

In the U.S., therefore, an outcomes framework that encompasses professional and research doctorates risks being applicable to neither. Educators designing professional doctoral programs already have requirements to reference, while those designing PhD programs do not. It follows that frameworks applicable specifically to the research PhD could serve to fill an important gap. In the next section, we explore some of the barriers to the broad adoption of competency frameworks for use in defining learning outcomes for the PhD.

PART 4

U.S. Perspectives on Doctoral Degree Frameworks

Broad nationwide adoption of doctoral degree frameworks in the U.S. would depend on their relevance to the national context. This section discusses some of the challenges doctoral degree frameworks would face in the U.S. system of doctoral education as well as opportunities for greater engagement with these frameworks.

Perspectives of Graduate Deans

Although faculty are the key individuals in deciding whether and how doctoral outcomes frameworks will be adopted and used, graduate schools also have an important role to play. Graduate deans, directors of graduate study, disciplinary societies, and accreditors can all advocate for greater faculty engagement with frameworks and doctoral learning outcomes to inspire broad conversations about doctoral program quality.

In fall 2016, Lumina and CGS co-hosted a workshop to bring graduate deans in dialogue with disciplinary society leaders and experts in learning assessment. The purpose of this workshop was to identify opportunities and challenges for implementing frameworks across the spectrum of U.S. doctoral degree programs (see Appendix A). Workshop participants identified a wide range of ways that frameworks and reference points might help graduate schools and other graduate education leaders improve the quality of doctoral education at U.S. institutions and programs. Specifically, workshop participants agreed that doctoral degree frameworks have the potential to do the following:

- **Offer graduate schools an independent threshold for doctoral program quality.** As one participant noted: "If you had a framework you could point to, you could ask: do you need a doctoral program, and what is the intention?" Starting these conversations for both new and existing programs could inform student learning outcomes and align programs with graduate school and institutional missions.

  Another participant suggested that frameworks might be used to help institutions and programs ask: "Is this really doctoral education, or not? […] Or is it a new name on a master's degree?" A threshold informed by such a framework could prevent the creation of doctoral programs that do not meet certain standards.

- **Make program requirements and milestones more student-centered and intentional.** Frameworks can serve as an aid to faculty in reviewing milestone events and defining doctoral outcomes. Graduate programs and faculty should ask: What are the skills

that students need to be successful in their profession and what is the program doing to provide those skills? Graduate schools often facilitate the process of outcomes development, and several participants noted that milestone events are perfect opportunities for assessment and revisiting of learning outcomes. Graduate deans can use outcomes to ask: What is the purpose of each milestone (such as a qualifying exam and thesis defense)? What does it accomplish, and why do we have it here?

One participant described using a student customer relationship management system to capture information about these milestones and use this information to deepen self-reflection among programs. Some programs reflected, for example, on the *comprehensive exam*, and found that much of their assessment simply repeated what was being assessed in final exams or administered in core courses, with very little assessment happening *across* courses. This finding prompted programs to conclude that comprehensive exams were not serving a purpose.

> **Increase transparency to students by making implicit expectations explicit.**[22] Clear degree requirements have been found to be positively correlated with completion rates in PhD programs, and may have benefits beyond completion, such as shortened time to degree or increased research productivity.[23] As Nettles and Millet (2006) note, a large part of doctoral education is learning the "rules of the game." The informal and implicit nature of this socialization process in graduate school can especially disadvantage first-generation graduate students and those from underrepresented minority populations. Such students often report feelings of isolation, heightened self-doubt, and dissatisfaction with mentorship.[24] Clarifying expectations could help to alleviate these problems. In addition, clear, publicized degree requirements can support well-informed choices by allowing prospective students to better understand a program's expectations and desired outcomes.

> **Encourage the articulation of educational goals for students beyond the discipline.** Frameworks may enable faculty to ask interesting and relevant questions about the alignment of their programs with the state of doctoral education in the field or with trends in professional development for graduate students. They may also bring methodological tools of the discipline to bear on questions such as how their doctoral programs emphasize knowledge *creation* rather than mere knowledge mastery. To this end, frameworks may provide new perspectives on how the dissertation is defined, developed, and evaluated.

One graduate dean observed that a framework is among the tools that can instigate a shift from thinking in terms of "my course" to "our curriculum" and from faculty-driven milestones to more student-centered ones. Another noted that this shift in thinking also has broader public benefits and implications for recruitment.

> **Improve public understanding of the value of doctoral credentials.** The graduate education community has made a good case for the private value of graduate education. The economic benefits of a graduate degree over a career are well documented. The public value of graduate education, however, has proven to be a more difficult message to communicate effectively. The need to clearly articulate the value of doctoral education as a public good

becomes more urgent as concerns about a lack of transparency and return on investment influence higher education funding. A national outcomes framework—and more concerted efforts to define outcomes at local levels—could potentially assist in this work by making doctoral education more transparent and by clearly aligning degree requirements with career skills.

> **Better align doctoral training with career outcomes of doctorate holders.** One participant noted, "If success is defined as a tenure-track job, you will choose students who have the greatest chance of getting a tenure-track job. If you diversify your idea of success, you will look at applications differently and diversify your student population." Frameworks may also weaken the hard divide between faculty of practice and those supervising PhDs in ways that benefit students and help programs value the diversity of student objectives, careers, pathways, and employer needs. Used in this way, frameworks can help departments make a shift toward preparing all their graduates for their eventual careers.

> **Help employers and prospective students by establishing comparability across a discipline, institution, or both.** Doctoral degree frameworks could inform prospective students who may be receiving contradictory messages about the value of graduate education (for example, from their undergraduate advisors, family and friends, or the media). Combined with information about career pathways and placements for degree recipients, clear statements of skills and competencies can help students make informed decisions that will help them pursue their intended career paths. Employers likewise would be able to reference frameworks to better understand the skills they may expect to bring to the table when they hire a PhD from a particular program.

Workshop participants cited ways in which graduate schools can require learning outcomes and assessment plans for all doctoral programs. These strategies included communicating that identifying learning outcomes encourages faculty to formalize *existing* expectations; and encouraging the sharing of rubrics among departments and PhD programs, even across disciplines.

While some participants focused on distinctions between PhDs and professional doctorates, others focused on campus discussions around distinctions between the PhD and the master's degree. Participants used outcomes frameworks to engage faculty in questions such as the following: Are there differences between how you are measuring and using knowledge? Is there overlap in coursework, and if so, are expected student outcomes different? Are these differences in expectations articulated anywhere for students? One participant stated that student learning outcomes might be the same for master's and PhD levels at the participant's institution, but the difference would be in the depth and level of achievement, criteria which are articulated in the assessment plan.

Potential Challenges

While workshop participants saw potential value in doctoral degree frameworks, they also identified a number of challenges that could hamper framework development and use in the U.S. context. The primary challenges identified included the following:

Lack of Faculty Ownership.

One of the distinguishing features of U.S. higher education is the autonomy accorded to faculty to define the student experience. In doctoral education, even more so than at any other level, "departments have tremendous power" and autonomy.[25] This autonomy typically extends from student recruitment to faculty hiring and promotion, student performance assessment, and syllabus and program definition. As a result, the "structure of the doctoral program varies enormously from department to department. Each discipline shapes the programs, as does each university."[26] A strength of this variety is that programs can be nimble and responsive to changes (e.g., in faculty and student research interests, funding streams, or employment opportunities for doctoral degree recipients). This same variety, however, could pose challenges to achieving a single, widely adopted reference point for doctoral outcomes assessment.

A 2009 survey found that "about four-fifths of provosts at doctoral research universities reported greater faculty engagement as their number one challenge" to implementing improvements in student learning assessment.[27] If faculty perceive the motive to be more about accountability than self-motivated desire for program improvement and if they see the process as bureaucratic, externally imposed, or top-down, then assessment is likely to meet with healthy skepticism.[28] Although faculty "are not opposed to using assessment information for accountability," Gold, Rhoades, Smith, & Kuh (2011) found that they "prefer that evidence of student learning be used by institutions to enhance the quality of the student experience."[29] Therefore, it is important to ensure faculty play a role in the development of a potential national doctoral outcomes framework. Rather than imposing minimum standards, a national outcomes framework should be an opportunity to inspire local conversations about doctoral program quality.

Lack of clarity about institutional uses of doctoral degree frameworks.

Advocacy for the use of national outcomes frameworks may come from accrediting bodies, national organizations, disciplinary societies, and graduate school deans. Whatever the source, it is important that those promoting such tools be transparent about how these frameworks should and should not be used. A national doctoral outcomes framework may be most welcomed by the doctoral education community if its advocates are careful to present the instrument *not* as a tool to impose minimum standards on doctoral programs but *rather* as a reference point for reflection, innovation, and customization. A framework should be an opportunity to inspire broad conversations about doctoral program quality rather than a rigid "rubric" for checking off boxes.

Individuality and difference.

Some members of the doctoral education community may be wary of a transdisciplinary doctoral framework, while others may question even the notion that a common set of reference points could be adequate to the diversity of learning goals within the same discipline or even the same program. According to some, in our current system of doctoral PhD education, "each doctoral

student's path is as distinctive as a fingerprint" and "every PhD is a PhD of one."[30] Whether such a model is the best possible structure for doctoral education is grounds for debate. Nevertheless, there are some distinguishing aspects of the PhD (such as the dissertation) that programs hold in common and that merit close consideration. Therefore, frameworks could potentially help U.S. institutions, disciplines, and programs establish greater consensus around doctoral-level outcomes even as they celebrate the individuality the PhD represents.

Viewpoints of Disciplinary Leaders

The diversity of disciplines and level of complexity within those disciplines may complicate the broad adoption of a national doctoral degree framework. Each discipline is unique, and learning outcomes should be informed by the expertise of faculty in that discipline. If conversations about the purpose of the doctorate do not begin at the discipline level, it will be difficult to gain traction around curricular reform. From these discipline-specific conversations, faculty may perceive a clearer path to changes that result in program improvement.

A national doctoral degree framework would need to incorporate and honor the results of disciplinary efforts, such as Lumina Foundation's Tuning USA initiative and the Lumina-funded Tuning the History Discipline and Learning Outcomes in Communication Projects. Tuning USA was modeled on the global Tuning Project and sought to "establish clear learning expectations for students in each subject area while balancing the need among programs to retain their academic autonomy and flexibility."[31] The locus of defining outcomes and networking within and across institutions in these initiatives is the discipline, and the common goal is to ensure quality, alignment of outcomes with assessment, and relevance of degrees in a given field. Tuning the History Discipline, for example, led by the American Historical Association, focused on the undergraduate history major. Although the PhD was not an explicit focus of either initiative, the process of hosting faculty-led activities to define discipline-specific outcomes could be a valued component of engaging faculty in the creation of doctoral frameworks.

In the fall 2016 workshop hosted by Lumina and CGS, disciplinary society leaders raised a key question: "Exactly how might transdisciplinary frameworks inform and be informed by complementary work in the disciplines?" Here, perhaps the value of a broader, transdisciplinary framework is that it could suggest outcomes *not* recognized and articulated by PhD program faculty in self-defined disciplinary outcomes and assessment activities. Such frameworks might help faculty to engage in critical self-reflection and support innovation in courses and degree requirements, rather than defaulting to existing structures such as favoring academic career pathways over others.

PART 5

Unanswered Questions and Recommendations

It is encouraging that most U.S. institutions have developed learning outcomes for the majority of their doctoral programs (Fig. 2). However, this finding raises questions such as the following:

- What processes were used to develop these outcomes, and what degree of consensus *was achieved*?
- How granular or general are these outcomes?
- Are they accessible to, and actually being used by, faculty and students? If so, how; and if not, why not?
- How do they meaningfully reflect, or shape, the curriculum, program milestones, faculty teaching, and mentoring?

In the discussion above, examples and insights from U.S. graduate deans and others shed light on answers to some of these questions. However, more thorough inquiry into the processes and products of learning outcomes for PhDs is needed. Particularly valuable would be improved understanding of the issues that might inhibit or encourage greater faculty involvement.

The following are some unanswered questions:

- How can the process of promoting a national doctoral framework among the disciplines best reflect and build upon complementary work in the disciplines?
- Would a doctoral degree framework function best as a definition of the common elements essential to the PhD or as a menu of options?
- Should certain broad skills (communication, collaboration, etc.) be expected at a higher level for the doctorate than for other degree levels?
- How might doctoral students and faculty be made aware of, and encouraged to use (or test) frameworks? How granular would they need to be so they are useful?
- How should doctoral learning outcomes frameworks be used to reflect and inform co-curricular professional development programs and experiences for PhD candidates who are considering multiple career pathways?
- If frameworks are designed to help prospective and current students, employers, and the public, by what mechanisms would these audiences be informed about frameworks, and how would these audiences in turn inform the respective programs and outcomes?
- What are the best roles for graduate schools, disciplinary societies, faculty, and funders to play, and how might these key groups work more effectively together?

The answers to these questions can help inform a roadmap to broader awareness and adoption of doctoral frameworks such as the Degree Qualifications Profile, Beta Credentials Framework, and Tuning instruments among faculty. We conclude with recommended next steps for answering these important questions.

Recommendations

The following recommendations derive primarily from input received at the fall 2016 stakeholders meeting, but also incorporate lessons learned from the international implementation of degree frameworks, and insights and suggestions from people interviewed and surveyed throughout this project. The overarching goal is engagement of key stakeholders, with a focus on reaching both current and future faculty. We next summarize the recommended strategies and rationale for each to achieve greater faculty engagement.

1. Engage graduate schools and graduate deans.

Graduate deans play a vital role in facilitating conversations across departments and programs around doctoral learning outcomes and doctoral reforms. Graduate schools can require or encourage greater transparency to students about doctoral skills and competencies, and promote deeper thinking about career outcomes through advocacy, research, and leadership.

Deans also have the power to convene diverse stakeholders from across campus, and they have access to levers of change that vary depending on the structure of the university. Graduate deans should provide clear information to faculty about how learning outcomes and evidence of student learning will—and will not—be used in administrative processes. For example, faculty and administrators need to be in close communication about whether or not incentives may be available to encourage greater faculty engagement in outcomes articulation and assessment.

2. Engage the disciplines.

The influence of university administrators, when coupled with disciplinary societies that can provide vision and leadership, could be particularly powerful, especially in those disciplines where there is strong support for doctoral reforms. Disciplinary societies have special credibility and can play an important role in ensuring a framework is a legitimate expression of disciplinary values. Disciplinary societies can engage faculty in defining and refining frameworks at the outset. They can reinforce the message of graduate schools about how frameworks are—and are not—intended to be used, and clarify internal uses (for improvement) and external uses (for transparency and accountability). They can also provide models for using frameworks to promote reflection, inquiry, and innovation.

3. Engage employers.

How might frameworks be used by employers? Could doctoral degree frameworks encourage better public understanding of the value of a PhD? These questions can only be answered by engaging employers in the process of outcomes articulation.[32] One major challenge associated with inviting employers to participate in the process of developing doctoral learning outcomes is knowing precisely who they are. Although identifying employers of PhDs is difficult, different approaches are being developed, including a CGS project to better understand PhD career pathways and another to explore professional development opportunities for STEM doctoral students for non-academic careers. The latter project included a workshop to identify employer perspectives on skills valued and needed across the STEM workforce.

4. Research challenges encountered in implementation.

A national coordinated initiative to pilot-test and assess approaches to using doctoral frameworks would leverage the strengths of these key stakeholders. Such a project should be of sufficient scale and scope to identify processes and implementation approaches taken and issues encountered at various doctoral institutions. This approach should encompass feasibility testing and evaluation, including research on unanswered questions, and a diffusion phase that includes advocacy and alliance building.

Research topics and components might include the following:

- Administrative processes used to develop doctoral degree outcomes; program and university leadership and staff engaged in facilitating this work with faculty; resources, including degree frameworks, used to develop these outcomes; statements of purpose from administration and faculty leaders and others (about ways doctoral degree outcomes will and will not be used); degree of faculty consensus achieved; degrees of granularity or generality of outcomes and resources used to facilitate outcomes work; accessibility to faculty, students, and the public; self-defined local (program), institutional (e.g., graduate school), and disciplinary resource needs; case studies and examples of actual use by faculty and students; challenges, barriers, and facilitators to faculty engagement, including levels at which definition is conducted or resources supplied to result in faculty adoption
- Differences by institution type and discipline for all of the above
- A web-based census of programs for which universities have already established clear PhD outcomes and have developed processes for using them. Use of frameworks to inform student learning outcomes might also be documented.

Resources informed by this research might include the following:

- An online compendium with summaries of the census (above) and links to the universities represented therein
- Sample student resources that indicate how doctoral outcomes might lead to consideration of multiple career pathways
- Background research documents and public relations documents that graduate schools can use in defining career pathways, PhD outcomes, and doctoral degree frameworks

Disciplinary associations would need to be key partners in this effort. As noted by project participants, other organizations have unsuccessfully pushed for reforms in doctoral education that were much less far-reaching than the development and broad use of a degree framework. Understanding why those initiatives failed, and why other doctoral initiatives succeeded, could inform this work. Chief among the lessons learned from decades of doctoral reform is that the work of disciplinary societies alone, without the support of the graduate school and university leadership, is insufficient, just as “top down” graduate school and national pressures without significant engagement from faculty will lack depth and staying power.

5. Conduct a deeper inquiry into the dissertation.

As the culminating expression of the knowledge and skills of a doctoral candidate, the dissertation presents a particularly good opportunity to assess PhD student learning. This work should be done with an awareness of new formats and technologies for dissertation work, which include opportunities for scholarly collaboration and forms of communication that are more accessible to general audiences. CGS recently engaged graduate deans in a discussion about the purpose, form, and evaluation of the dissertation as part of the PhD. A key part of this discussion, as expressed by the name of a recent CGS initiative, is rethinking *the future of the dissertation*. Some of the questions asked in that CGS project align with this paper's broader discussion about the development and use of learning outcomes:

- What is a dissertation?
- What is its purpose?
- Who are its audiences?
- What skills are demonstrated or should be gained as a result of writing a dissertation?
- What is the role of the dissertation in securing employment?

As one graduate dean noted at the 2016 workshop, when asked to justify why a dissertation merits approval or rejection, saying "I know it when I see it" should not be sufficient. A framework could help ensure that assessment of milestones is not merely rooted in subjective or implicit perceptions of unarticulated competencies. A framework might also serve as a reference point for committee members when it is difficult to achieve consensus. Several participants noted that a framework could help to move programs to think collectively about the dissertation as serving a purpose beyond developing deep expertise on a particular topic.[33] Learning outcomes and doctoral-level frameworks should be integral to this important work, which is at the heart of discussions of the purpose and future of the PhD.

6. Focus on the preparation of the next generation of future faculty.

Graduate schools commonly serve a leadership role in conducting graduate-level outcomes assessment. They have also provided leadership in improving learning assessment at the undergraduate level through the CGS Preparing Future Faculty to Assess Student Learning initiative. In that project, graduate schools collaborated with faculty, staff, and graduate students to create model programs to prepare graduate students who aspire to future faculty positions to assess undergraduate student learning using a range of approaches, including student learning outcomes.[34] Improving the use of learning outcomes to better assess student learning reflects a broadly perceived need to make higher education more student-centered and evidence-based, more transparent to students and the public, and more responsive to workforce needs.

These programs could (1) promote inclusion of skills and competencies in teaching and pedagogy as well as the broader set of faculty skills among programs' doctoral learning outcomes; (2) prepare graduate student participants in future faculty programs to understand how to use tools such as the Essential Learning Outcomes, the LEAP framework, the Beta Credentials Framework, and others in the context of undergraduate teaching and learning; and (3) prepare graduate students to consider how learning outcomes and frameworks may be used at the doctoral level.

Conclusion

The pressure from accrediting bodies for universities to define learning outcomes at all degree levels has sparked conversations about the purpose and future of the doctorate. But graduate education leaders convened by CGS in fall 2016 recognized a wide range of benefits of developing doctoral-level outcomes for current and prospective students, faculty, and others. They also noted that doctoral degree frameworks could be particularly useful in supporting this work.

This report described the status of learning outcomes assessment in the U.S. and global contexts for advancing the use of national frameworks at the doctoral level to improve the quality of U.S. doctoral education. The U.S. context presents opportunities and unique constraints that must be considered if degree frameworks are to be promoted for broader adoption in the improvement of doctoral education. One of the biggest opportunities is the rising interest of accreditors in learning outcomes for PhD programs. Accreditors have largely asked institutions to document the existence of these outcomes. However, if undergraduate and professional degrees are an indication of future scrutiny, the next step will likely be documentation that these outcomes *are being used* to improve doctoral programs.

The experiences of those countries and regions around the world that have developed doctoral-level skills and competencies can inform the next steps in the U.S. For the most part, the graduate community stands to benefit from guidance and best practices for developing doctoral-level learning outcomes and encouraging their use to improve doctoral programs. The recommendations presented in this paper represent an initial first step toward building capacity within the graduate community and resolving unanswered questions related to the use of learning outcomes and frameworks for program improvement.

Notes

1. National Institute for Learning Outcomes Assessment (2012); Lesch (2012)
2. BLS (2017); Carnevale, Rose, & Cheah (2011)
3. For example, Carnegie Institute's Carnegie Initiative on the Doctorate encouraged greater reflection on meaningful program requirements and milestones, and CGS initiatives on PhD Completion and Attrition have yielded real data for benchmarking purposes, and have informed university-wide and disciplinary dialogues on factors underlying student success in PhD programs.
4. These include the U.S. National Institute of Health's Broadening Experiences in Scientific Training (BEST) program, the U.S. National Endowment for the Humanities' Nest Generation Humanities PhD program, the Graduate Career Consortium's ImaginePhD initiative, the Center for the Integration of Research, Teaching and Learning (CIRTL) Network, and CGS and the Association of American Colleges and Universities' Preparing Future Faculty initiative. For a review of broadening PhD career initiatives in the humanities, please see McCarthy (2017).
5. Denecke, Kent, & Wiener (2011)
6. Weeden (2015)
7. OECD (1996)
8. Association of Specialized and Professional Accreditors (2008)
9. Lount & Phillips (2007); Loyd, Wang, Phillips, & Lount (2013); Page (2008;2010); Phillips (2014); Phillips, Mannix, Neale, & Gruenfeld (2004); Richard, Barnett, Dwyer, & Chadwick (2004); Richard, McMillan, Chadwick, & Dwyer (2003).
10. Lesch (2012); National Institute for Learning Outcomes Assessment (2012)
11. Collectively, CGS institutions annually award more than 91% of all U.S. doctorates (Sowell, Allum, & Okahana, 2015) and may be considered a representative sample.
12. Association of Governing Boards of Universities and Colleges (2010); Chaffee(2014); Ikenberry, Ewell, & Kuh, (2016)
13. Lumina (2011); Lumina (2015)
14. Lumina (2011, p.5)
15. Crosier & Parveva (2013); Curaj, Scott, Vlasceanu, & Wilson (2012)
16. The major inhibitor to acceptance of the EQF in Europe was expressed by Toens (2009, p. 247), who examined the German experience: "Germany is the European country that quintessentially represents the 'Humboldtian' university model. Advocating the autonomy of single professors and students, this model stands in stark contrast to a stricter regulation of teaching envisioned by the advocates of the Bologna process." Similar points of tension were identified by Saarinen (2008) within the Finnish higher education system.
17. Swedish National Agency for Higher Education (Högskoleverket) (2011)
18. Curaj, Scott, Vlasceanu, & Wilson (2012)
19. Ontario Ministry of Advanced Education and Skills Development (2009)
20. Australian Qualifications Framework Council (2013)
21. A recent study described this tension as follows: "Criteria which may appear to be distinct in the abstract are often found to overlap, and occasionally even to interfere, with other criteria when an attempt is made to apply them meticulously. The various properties are not therefore mutually independent but, whether taken together or in clusters, refer to compounded qualities and meanings. Difficulties of a somewhat different type arise through the particular criteria that are explicitly or implicitly embodied in a rubric. In the process of rubric construction, choices among criteria have to be made. Some criteria are included, others not" (Sadler, 2014).
22. The concept of "making the implicit explicit" is inspired by Barbara Lovitts' book by this title (Lovitts, 2007).
23. Cardona (2013; Golde (2005); Nettles & Millett (2006)
24. Council of Graduate Schools (2010); Ellis (2001); González (2006); Sowell, Allum, & Okahana (2015)
25. Walker, Golde, Jones, Bueschel, & Hutchings (2008)
26. Golde et al. (2009)
27. Kuh & Ikenberry (2009)
28. Denecke, Kent, & Wiener (2011)
29. Gold, Rhoades, Smith, & Kuh (2011)
30. Cassuto (2015); fall 2016 Lumina/CGS convening participant
31. Lumina (2009)
32. Two possible models for employer-inclusive degree outcomes approaches are outlined in Tyszko & Sheets (2016, p. 12). The first would "improve accredited colleges' and universities' responsiveness to employer needs," whereas the second "would empower the business community to establish their own system."
33. For example, one participant noted: "A doctoral of philosophy in chemistry means you have become a knowledge expert, and it's a knowledge-based degree, conferring mastery of the discipline and the ability to move the discipline forward in some significant way. The skills are implicit. But this reinforces the public perception that getting the PhD is learning some piece of arcana that may have little application and little [broader public] interest and that it does not advance the preparation for multiple career paths."
34. Denecke, Kent, & Wiener (2011)
35. U.S. Department of Education (2006)

References

Association of Governing Boards of Universities and Colleges. (2010). *How boards oversee educational quality: A report on a survey on boards and the assessment of student learning*. Retrieved from http://agb.org/sites/default/files/legacy/AGBBoardsandEdQuality.pdf

Association of Specialized and Professional Accreditors. (2008, September). *Statement on professional doctorates.* Retrieved from http://www.aspa-usa.org/wp-content/uploads/2015/02/ASPA-Statement-Professional-Doctorates-2008.pdf

Australian Qualifications Framework Council. (2013). *Australian Qualifications Framework.* Retrieved from https://www.aqf.edu.au/sites/aqf/files/aqf-2nd-edition-january-2013.pdf

Cardona, J. J. (2013). *Determined to succeed: Motivation towards doctoral degree completion* (Doctoral dissertation). University of Michigan. Retrieved from https://deepblue.lib.umich.edu/bitstream/handle/2027.42/99774/jraya_1.pdf?sequence=1

Carnevale, A. Rose, S. J., & Cheah, B. (2011). *The college payoff: Education, occupations, lifetime earnings.* Washington, DC: The Georgetown University Center on Education and the Workforce. Retrieved from https://www2.ed.gov/policy/highered/reg/hearulemaking/2011/collegepayoff.pdf

Cassuto, L. (2015). *The graduate school mess: What caused it and how we can fix it*. Cambridge, MA: Harvard University Press. doi:10.4159/9780674495593

Chaffee, E. (2014, January/February). Learning metrics: How can we know that students know what they are supposed to know? *Trusteeship.* Retrieved from https://www.agb.org/trusteeship/2014/1/learning-metrics-how-can-we-know-students-know-what-they-are-supposed-know

Council of Graduate Schools. (2010). *PhD completion and attrition: Policies and practices to promote student success*. Washington, DC: Author. Retrieved from http://cgsnet.org/phd-completion-and-attrition-policies-and-practices-promote-student-success

Crosier, D., & Parveva, T. (2013). *The Bologna Process: Its impact on higher education development in Europe and beyond*. Paris: UNESCO International Institute for Educational Planning.

Curaj, A., Scott, P., Vlasceanu, L., & Wilson, L. (Eds.). (2012). *European higher education at the crossroads: Between the Bologna Process and national reforms*. Dordrecht: Springer.

Denecke, D., Kent, J., & Wiener, W. (2011). *Preparing future faculty to assess student learning*. Washington, DC: Council of Graduate Schools.

Ellis, E. M. (2001). The impact of race and gender on graduate school socialization, satisfaction with doctoral study, and commitment to degree completion. *The Western Journal of Black Studies, 25*, 30–45.

Gold, L., Rhoades, G., Smith, M., & Kuh, G. (2011). *What faculty unions say about student learning outcomes assessment*. Champaign, IL: National Institute for Learning Outcomes Assessment.

Golde, C. M. (2005). The role of the department and the discipline in doctoral student attrition: Lessons from four departments. *The Journal of Higher Education, 76*(6), 669–700. Retrieved from https://www.researchgate.net/publication/236827160_The_Role_of_the_Department_and_Discipline_in_Doctoral_Student_Attrition_Lessons_from_Four_Departments

Golde, C. M., Beuschel, A. C., Jones, L., & Walker, G. E. (2009). Advocating apprenticeship and intellectual community: Lessons from the Carnegie initiative on the doctorate. In R. G. Ehrenberg, & C. Kuh (Eds.). *Doctoral education and the faculty of the future.* Ithaca, NY and London: Cornell University Press, 53–64.

González, J. C. (2006). Academic socialization experiences of Latina doctoral students: a qualitative understanding of support systems that aid and challenges that hinder the process. *Journal of Hispanic Higher Education, 5*(4), 347–365. doi:10.1177/1538192706291141

Ikenberry, S., Ewell, P., & Kuh, G. (2016, January/February). Governing boards and student learning outcomes assessment. *Trusteeship.* Retrieved from https://www.agb.org/trusteeship/2016/januaryfebruary/governing-boards-and-student-learning-outcomes-assessment

Kuh, G., & Ikenberry, S. (2009, October). *More than you think, less than we need: Learning outcomes assessment in American higher education*. Champaign, IL: National Institute for Learning Outcomes Assessment. Retrieved from http://learningoutcomesassessment.org/NILOAsurveyresults09.htm

Lesch, S. (2012). *Learning outcomes, learning achieved by the end of a course or program knowledge-skills-attitudes*. George Brown College. Retrieved from https://www.uwo.ca/tsc/resources/selected_teaching_topics/curriculum_course_design/learning_outcomes.html

Lount, R. B., & Phillips, K. W. (2007). Working harder with the out-group: The impact of social category diversity on motivation gains. *Organizational Behavior and Human Decision Processes, 103*(2), 214–224. doi:10.1016/j.obhdp.2007.03.002

Lovitts, B. E. (2007). *Making the implicit explicit: Creating performance expectations for the dissertation*. Sterling, VA: Stylus Publishing.

Loyd, D. L., Wang, C. S., Phillips, K. W., & Lount, R. B. (2013). Social category diversity promotes premeeting elaboration: The role of relationship focus. *Organization Science, 24*(3): 757–772. doi:10.1287/orsc.1120.0761

Lumina Foundation. (2015). *Connecting credentials: A beta credentials framework.* Indianapolis, IN: Author. Retrieved from http://connectingcredentials.org/framework/

Lumina Foundation. (2011). *The Degree Qualifications Profile*. Indianapolis, IN: Author. Retrieved from https://www.luminafoundation.org/resources/dqp

Lumina Foundation. (2009). Tuning USA: Lumina Foundation launches faculty-led process that will involve students and employers in linking college degrees to workplace relevance and students' mastery of agreed-upon learning objectives. Retrieved from https://www.luminafoundation.org/news-and-views/tuning-usa-lumina-foundation-launches-faculty-led-process-that-will-involve-students-and-employers-in-linking-college-degrees-to-workplace-relevance-and-students-mastery-of-agreed-upon-learning-objectives

McCarthy, M. T. (2017*). Summary of prior work in humanities PhD professional development.* Washington, DC: Council of Graduate Schools. Retrieved from http://cgsnet.org/ckfinder/userfiles/files/NEH_NextGen_PriorWork.pdf

National Institute for Learning Outcomes Assessment. (2012). Student learning outcomes statements. In *Providing evidence of student learning: A transparency framework.* Retrieved from http://learningoutcomesassessment.org/TFComponentsLOS.htm

Nettles, M. T., & Millett, C. M. (2006). *Three magic letters: Getting to Ph.D*. Baltimore: The Johns Hopkins University Press.

Ontario Ministry of Advanced Education and Skills Development. (2009). *Ontario qualifications framework*. Retrieved from http://www.tcu.gov.on.ca/pepg/programs/oqf/oqf.pdf

Organization for Economic Co-Operation and Development (OECD). (1996). *The knowledge-based economy. Paris*: Author. Retrieved from https://www.oecd.org/sti/sci-tech/1913021.pdf

Page, S. E. (2008). *The difference: How the power of diversity creates better groups, firms, schools, and societies*. Princeton, NJ: Princeton University Press.

Page, S. E. (2010). *Diversity and complexity.* Princeton, NJ: Princeton University Press.

Phillips, K. W. (2014, October 1). How diversity makes us smarter. *Scientific American, 311*(4). Retrieved from https://www.scientificamerican.com/article/how-diversity-makes-us-smarter/

Phillips, K. W., Mannix, E. A., Neale, M. A., & H. Gruenfeld, D. (2004). Diverse groups and information sharing: The effects of congruent ties. *Journal of Experimental Social Psychology, 40*(4), 497–510. doi:10.1016/j.jesp.2003.10.003

Richard, O. C., Barnett, T., Dwyer, S., & Chadwick, K. (2004). Cultural diversity in management, firm performance, and the moderating role of entrepreneurial orientation dimensions. *Academy of Management Journal, 47*(2), 255–266. doi:10.2307/20159576

Richard, O., McMillan, A., Chadwick, K., & Dwyer, S. (2003). Employing an innovation strategy in racially diverse workforces. *Group & Organization Management, 28*(1), 107–126. doi:10.1177/1059601102250022

Saarinen, T. (2008). Whose quality? Social actors in the interface of transnational and national higher education policy. *Discourse: Studies in the Cultural Politics of Education,* 29, 179-193.

Sadler, R. (2014). The futility of attempting to codify academic achievement standards. *Higher Education: The International Journal of Higher Education and Educational Planning, 67,* 273–288.

Sowell, R. Allum, J. A. & Okahana, H. (2015). *Doctoral initiative on minority attrition and completion.* Washington, DC: Council of Graduate Schools. Retrieved from http://cgsnet.org/doctoral-initiative-minority-attrition-and-completion

Swedish National Agency for Higher Education (Högskoleverket). (2011). *Certification of Sweden's national qualification framework*. Retrieved from https://www.uhr.se/globalassets/_uhr.se/english/1212r-certification-swedish-nqf-eng3.pdf

Toens, K. (2009). The Bologna process in German educational federalism: State Strategies, Policy Fragmentation and Interest Mediation. *German Politics, 18*, 246–264.

Tyszko, J. A., & Sheets, R. G. (2016). Changing the debate on quality assurance in higher education: The case for employer leadership and a roadmap for change. *U.S. Chamber of Commerce Foundation, Center for Education and Workforce.* Retrieved from https://www.uschamberfoundation.org/sites/default/files/Changing_the_Debate_Report.pdf

U.S. Bureau of Labor Statistics (BLS). (2015, December). *Projections of occupational employment, 2014–24.* Retrieved from http://www.bls.gov/careeroutlook/2015/article/projections-occupation.htm

U.S. Bureau of Labor Statistics (BLS). (2017, October 24). *Employment projections. Unemployment rates and earnings by educational attainment, 2016.* Retrieved from https://www.bls.gov/emp/ep_chart_001.htm

U.S. Department of Education. (2006). *A test of leadership: Charting the future of U.S. higher education*. Washington, DC: Author. Retrieved from https://www2.ed.gov/about/bdscomm/list/hiedfuture/reports/final-report.pdf

U.S. Department of Education. (2015). *Digest of education statistics.* Table 324.10

U.S. National Science Foundation. (2015). *Survey of earned doctorates.* Table 13

Walker, G. E., Golde, C. M., Jones, L., Bueschel, A. C., & Hutchings, P. (2008). T*he formation of scholars: Rethinking doctoral education for the twenty-first century*. Stanford, CA: The Carnegie Foundation for the Advancement of Teaching.

Weeden, D. (2015). *Higher education appropriations*. Denver, CO: National Conference of State Legislatures. Retrieved from http://www.ncsl.org/research/education/higher-education-appropriations.aspx

Appendix A: Participant List and Agenda, Doctoral Education and Learning Outcomes Convening, September 13, 2016

Participant List

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Southern Regional Education Board

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Kent State University

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American Historical Association

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National Communication Association

Lynn Pasquerella
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Karen Solomon
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Emory University

Donald Thomason
Dean, College of Graduate Health Sciences
The University of Tennessee Health Science Center

Sheryl Tucker
Associate Provost and Dean of the Graduate College
Oklahoma State University

Cathy Wendler
Senior Strategic Advisor
Educational Testing Service

Holly Zanville
Strategy Director
Lumina Foundation

Heather Zwicker
Vice-Provost and Dean, Faculty of Graduate Studies and Research
University of Alberta

Doctoral Education and Learning Outcomes Frameworks
Agenda
September 27-28, 2016

Objectives

- Consider promising approaches to preparing graduate students as future faculty to understand and effectively use student learning outcomes.
- Explore the use, value of and challenges associated with disciplinary and transdisciplinary descriptions of competencies at the doctoral level.
- Assist Lumina Foundation and its partners in exploring the usefulness of a learning framework to provide reference points for doctoral degrees offered by higher education institutions.

Tuesday, September 27, 2016

6:00 pm
Liberty A/B

Preparing Graduate Students as Future Faculty Dinner and Panel Discussion
Daniel Denecke, *Vice President, Best Practices and Strategic Initiatives,* Council of Graduate Schools
Natasha Jankowski, *Director,* National Institute for Learning Outcomes Assessment

Wednesday, September 28, 2016

8:30 am
Liberty A/B

Breakfast Served

9:00 am

Welcome
Holly Zanville, *Strategy Director,* Lumina Foundation

9:15am

Learning Frameworks in Doctoral Education
Discussant: Holly Zanville, *Strategy Director,* Lumina Foundation
Panel Members: Suzanne Ortega, *President*, Council of Graduate Schools
Paul Gaston, *Trustees Professor*, Kent State University

10:30 am

Break

10:40 am

Doctoral-Level Learning Frameworks in the U.S.: One or Many?
Discussant: Daniel Denecke, *Vice President, Best Practices and Strategic Initiatives,* Council of Graduate Schools
Panel Members: Janet Rutledge, *Vice Provost and Dean of the Graduate School,* University of Maryland, Baltimore County
Scott Herness, *Interim Vice Provost and Dean,* The Ohio State University

11:45 am
Brabo

Lunch

12:45 pm

Learning Frameworks in Practice: International and U.S. Perspectives
Discussant: Amber Garrison Duncan, *Strategy Director,* Lumina Foundation
Panel Members: Jim Grossman, *Executive Director*, American Historical Association
Heather Zwicker, *Vice Provost and Dean of the Faculty of Graduate Studies,* University of Alberta
Natasha Jankowski, *Director,* National Institute for Learning Outcomes Assessment

2:00pm

Advancing the Conversation
Discussants: Suzanne Ortega, *President*, Council of Graduate Schools
Holly Zanville, *Strategy Director,* Lumina Foundation

3:30 pm

Adjourn