A Guide for Graduate Program Assessment

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This document provides an overview of good practice in graduate program assessment (for all graduate degrees), and is intended to serve as a guide for existing and emerging graduate programs at the University of Denver. The unique challenges of graduate assessment are addressed, and the diversity of types of graduate programs is acknowledged. Readers will gain suggestions for the development of learning outcomes, the organization of graduate curriculum and the effective measurement of student learning for program improvement. Suggestions are provided in the context of the University of Denver, but are meant to apply generally to graduate education regardless of institution.

Part I: Graduate Program Student Learning Outcomes

Graduate program student learning outcomes should be distinguished from general graduate program outcomes. While there are many measures of the quality and success of graduate programs, they do not always reflect the achievement of learning outcomes. For example, job placement rates and the prestige of institutions that hire program graduates may be used to evaluate the quality of the program, but those measures are not directly related to what students in the program actually learn.

Graduate program learning outcomes should be distinguished from undergraduate program learning outcomes (and doctoral outcomes distinguished from masters-level outcomes). Those who successfully complete graduate programs should exhibit skills and complex knowledge structures that they did not (and were not expected to) develop as undergraduates. Graduate outcomes should reflect more complex learning as reflected in the skills of analyzing, evaluating, creating and applying (see Bloom's Taxonomy).

At the University of Denver, graduate program learning outcomes are also expected to align with the University Graduate-Professional Student Learning Outcomes (see Appendix A).

Graduate program learning outcomes depict the qualities and abilities that all individual alumni should exhibit. These outcomes should reflect the unique qualities of the program and the institution. For example, what qualities, abilities, and knowledge characterize the MBA graduates from Daniels College of Business and differentiate them from MBA graduates from other schools?

In general, graduate programs have learning outcomes in two areas: content knowledge and methodology. The following are examples of typical graduate-level outcomes:

- Demonstrate knowledge in the field of study
- Conduct research projects
- Solve problems related to the field of study
- Communicate effectively (written and oral)
- Use a variety of sources and evaluate multiple points of view to analyze and integrate information
- Use appropriate technologies to communicate, collaborate, conduct research, solve problems and conduct reasoned arguments

Graduate learning outcomes may also differ based on the type of graduate program (or degree type):

- Professional practice graduate programs (e.g., MSW, PsyD, EdD) typically place more emphasis on learning outcomes associated with the application of knowledge to practice. Professional practice programs that are individually accredited may have to establish learning outcomes based on the standards or requirements of the accrediting body.

- Terminal degrees in creative fields (e.g., MFA) have a strong emphasis on public performance and exhibition. Learning outcomes in these fields often emphasize the ability to work as a professional artist.
- Doctoral (PhD) learning outcomes are typically distinguished from lower-level graduate learning outcomes (at minimum) by the ability of the student to produce original contributions to the field of study through independent research. Substantial research skills are also part of the learning outcomes expected in many fields that offer the PhD.
    - It is recommended that programs preparing students for academic careers include teaching competency in their learning outcomes.
- Another type of graduate program is the industry-specific master's program. Typically offered to working professionals, these programs seek to improve the effectiveness of their graduates in particular industries and areas of specialization. Learning outcomes for these programs include content knowledge, but emphasize the application of knowledge in the workplace, and the ability to act as a professional.

Part II. The Graduate Program Curriculum

Curriculum mapping

Like undergraduate program assessment, graduate program assessment is a curriculum improvement process. A critical step in the development of a graduate program assessment process is to align the required curriculum with the student learning outcomes that have been identified. This alignment (called a curriculum map) identifies the aspects of a graduate program where students are developing the skills and knowledge that are expected of program graduates (where does learning take place?).

For graduate programs whose curriculum is primarily coursework, it may be relatively simple to create a curriculum map consisting of the required courses that provide opportunities for student learning. However, there are a variety of models for graduate curricula, and many include learning experiences that are not bound by coursework. For example, the following experiences may also be included in a curriculum map:

- Internships: For some programs, internships are a critical aspect of the curriculum. Students learn to apply knowledge to specific situations and to develop professional identities by working in the field.
- Practicum experience: Professional practice programs often require extensive practicum experience. In these settings, students develop (generally with extensive feedback) the key attitudes and skills that are expected of a program graduate. Practicum hours often cross multiple terms of graduate work, and complement coursework and other learning experiences.
- Research experience: In more academically-oriented programs, research or lab time is often an expectation that is not explicitly part of the required curriculum, yet it is where much of the critical learning takes place. For programs where the research is strictly focused on a thesis or dissertation, it can be easier to identify the learning experience, but other programs may simply expect graduate students to be heavily involved in the lab. Paid research assistantships may also be important learning experiences in the program (although not all students typically hold such positions).
- Mentoring/Advising: Feedback and guidance from an advisor or mentor may be the most direct way of learning of critical methodological skills, performances, written and oral communication effectiveness, or professional behavior and ethics. Again, this learning experience is not usually explicitly part of the graduate curriculum, but is most definitely important to student learning in many programs.
- Teaching experience: Many programs expect that their graduates will engage in teaching, either in a formal position as an academic, or in informal ways, such as helping laypersons and organizations understand important issues in the field. Teaching assistantships provide opportunities for students to learn effective teaching skills, but are not universally available. Like other implicit expectations,

teaching experience is not typically recognized as a part of the graduate curriculum, but may be an essential resume element.

Another challenge to curriculum mapping at the graduate level is the role of elective courses in the curriculum. Graduate programs may differ in the way they view the function of electives. For example, here are some different ways electives may function:

- Electives allow the program flexibility in order to meet the specialized career goals and interests of individual students.
- Electives provide an opportunity for students to pursue a graduate-level minor or concentration.
- Electives provide students to the opportunity to develop breadth in the field of study.
- Electives provide students the opportunity to develop interdisciplinary knowledge and interests.
- Electives provide students the opportunity to apply and practice methodological and professional skills in various contexts.

The outcomes associated with electives are often missing from lists of graduate program student learning outcomes. A thorough look at the graduate program curriculum (and the development of the curriculum map) should include the role of electives in meeting the critical learning outcomes for the program.

Structure in the Curriculum

From an assessment perspective, the structured elements of a graduate program curriculum provide useful opportunities to gather information about student learning. Graduate programs with more structured elements may not have as much flexibility at the individual student level, but they can more easily track student progress in achieving the learning outcomes for the program. In addition, structured program elements serve as built-in milestones for student achievement that offer natural opportunities to gather assessment data. Here are some examples of structured elements that might be found in a graduate curriculum:

1. Foundational knowledge: Some programs include a required course or set of courses that provides initial graduate level knowledge or skills that are important prerequisites for later work. Assessment at this level could provide useful initial information about individual student capabilities and the need for additional support.
2. Methodological skills: Many programs have learning outcomes related to discipline-specific methodologies that are essential to continued scholarship in the discipline. Often, courses in methodology are required early on in a graduate program. Assessment of these courses can help to determine if the curriculum adequately prepares students for more advanced work.
3. Minor or concentration: In some programs, required minor or concentration course work serves to create an additional specialization or skill set. Assessment of the specialization coursework can provide insight regarding the match of the coursework outcomes to the objectives of the graduate major curriculum.
4. Qualifying or comprehensive exams: Particularly for doctoral programs, comprehensive exams offer the opportunity to assess a student's development in the field of study. Often, students must pass the exam in order to continue their graduate work. In addition to student strengths and weaknesses, these exams can reveal areas of strength and weakness for the program as a whole.
5. Culminating products, performances and experiences: Most graduate programs provide some opportunity for students to integrate their learning in a thesis, dissertation or performance. These signature assignments allow students to demonstrate learning gained from coursework as well as from the more informal or experiential elements of the program. Graduate programs that lack culminating signature assignments are difficult to assess, because students have no opportunity to apply their newly developed skills and knowledge.

For programs that lack structured elements, it is good practice to consider providing, at minimum, a structural element at the end of the program that gives students an opportunity to integrate and apply their program learning.

Part III: Measuring Learning

Summative Assessment

Summative assessment refers to the measurement of student learning at the point where students should have achieved mastery of the outcomes. Summative assessment is important to demonstrate the overall effectiveness of the program and to ensure continuing quality and performance standards. Summative assessment can also be used to identify program strengths and weaknesses as part of the program improvement process.

The following are typical summative assessment measures used in graduate program assessment:

- Comprehensive exams (content knowledge mastery)
    - Written and oral
- Dissertations & Theses
    - Written and oral defense
- Course-embedded assessments
    - Capstone courses
    - Any course where mastery of a learning outcome is demonstrated
- Papers submitted for peer reviewed publication or presentation
- Awards and/or professional evaluation of student professional work

Formative Assessment

Formative assessment refers to assessment of program student learning outcomes prior to the point where students should have achieved mastery. Assessing pre-mastery learning allows the program to provide important developmental feedback to students and also to identify individual students that may need additional support.

Although formative assessment is important in all graduate programs, it is especially important in programs that include qualifying or candidacy exams or other checkpoints that may result in dismissal of students from the program. In these programs, summative assessment is not available for students who leave the program, and it may be difficult to determine if the students failed the program or the program failed the students.

Examples of formative assessment approaches in graduate programs include:

- Course-embedded assessment
    - Last course in a foundational sequence
    - Any course in mid-program
- Mid-experience practicum or internship evaluations
- Advisor-based assessment
    - Lab supervisor assessment
- Research projects (early and mid-program)
    - Write-up and presentation

Criteria for Acceptable Performance

As a final step in graduate program assessment, determining the criteria for acceptable performance is critical to maintaining consistency across students and assessors. The criteria need to be clear and easily interpreted

by all the faculty members engaged in assessment. In addition, the criteria should be crafted to maintain high standards and program quality, and to clearly distinguish between levels of student performance. The following are recommendations for good practice in developing and using performance criteria.

- Review learning outcomes: Learning outcomes can help to establish the standards for performance. Draw on the original intent of the learning outcomes and maintain high standards.
- Develop rubrics: It is highly recommended that programs create broadly applicable rubrics for dissertation and thesis defense evaluations as well as for comprehensive or qualifying exams, course assessments and mentor evaluations.
    - A minimum of three levels of evaluation is recommended (below expectations, meets expectations, above expectations).
    - Develop a clear definition of "meets expectations". Use faculty feedback to refine the definition.
- Provide a norming exercise: Get faculty assessors together to review a common student work (all assessors review the same work(s)). Discussion about the use of the rubric and the score for the student work will help to create consistency (inter-rater reliability) in the assessment of other students.

Part IV – Conclusion

Not only is graduate education qualitatively different from undergraduate education, but graduate programs are also qualitatively different from each other. The challenges of small samples, extensive elective offerings, individualized curricula and selective admissions make it difficult to provide a one-size-fits-all assessment process. Here are a few final recommendations that may transcend those differences:

1. **Communicate expectations early and clearly with students**. Let them know the expectations for coursework and outside-course performance and practice. Identify the key learning outcomes and share the standards for acceptable performance.
2. **Review your curriculum**. Ensure that the required elements (courses, experiences, projects, etc.) are sufficient for students to achieve the learning outcomes for the program.
3. **Include formative assessment**. Help your students to be successful by providing early feedback and assistance to ensure that they have the opportunity to meet the expectations of the faculty.
4. **Use the assessment process to improve and advance the unique experience of the program**. Create and maintain the highest quality graduate program that will attract the caliber of students who will be successful and represent the program well.

References

Baker, M. J., Carter, M. P., Larick, D. K. and King, M.F (2011). *Assessment and Review of Graduate Programs*. Council of Graduate Schools, Washington D.C.

Nyquist, J., and Wulff, D. *Recommendations from national studies on doctoral education* http://depts.washington.edu/envision/project_resources/national_recommend.html Accessed November, 2014.

Smallwood, B., and Phillips, L. (2011, December). *Assessing student learning in graduate degree programs*. Paper presented at the SACS COC annual meeting, Orlando, FL. https://louisville.edu/institutionalresearch/institutional-effectiveness/data-folder/Assessing%20Student%20Learning%20in%20Graduate%20Degree%20Programs%20-Smallwood.ppsx Accessed November, 2014.

Appendix A

University of Denver
Graduate-Professional Student Learning Outcomes
Approved by Graduate Council, May 6, 2009

Graduate and professional education is inherently different from undergraduate education in that the more basic student learning outcomes of the baccalaureate degree create a foundation upon which students may build independent, specialized, and advanced accomplishments in post-baccalaureate learning. The following graduate and professional student learning outcomes are intended to present broad categories that define what graduate and professional program students may accomplish in individual programs and degrees. We acknowledge the differences that are inherent among the arts, social sciences, natural sciences, and technical and professional programs at the University of Denver. Thus, each individual program interprets these guidelines through the lens of its own goals to develop learning outcomes and associated rubrics that define and measure program-specific learning outcomes. These learning outcomes flow from the University of Denver Mission Statement. As a living document, we acknowledge that these outcomes may evolve over time.

Advanced Theoretical/Disciplinary Knowledge and Skills Through Discovery, Application, and Expression

Graduate and professional program students develop, interpret, and express advanced theoretical and/or disciplinary knowledge by applying appropriate modes of inquiry, research, and skills.

Graduate and professional program students recognize the limitations of existing knowledge, create original works, and develop and apply new knowledge, skills, or creative expressions that synthesize critical, theoretical, historical, and individual ideas.

Professional/Ethical Identity, Values and Leadership

Graduate and professional program students develop professional and ethical identities, apply professional values, and demonstrate appropriate expertise, leadership and collaborative qualities.

Intercultural and Local/Global Engagement

Graduate and professional program students engage collaboratively with others in local and global communities, acknowledging the interdependence of the world's cultures and peoples, practicing inclusive excellence, and contributing to the common good.

Critical Intellectual Engagement

Graduate and professional program students demonstrate abilities needed to sustain learning and its application and expression, including critical intellectual comparisons, synthesis, and self-reflection.