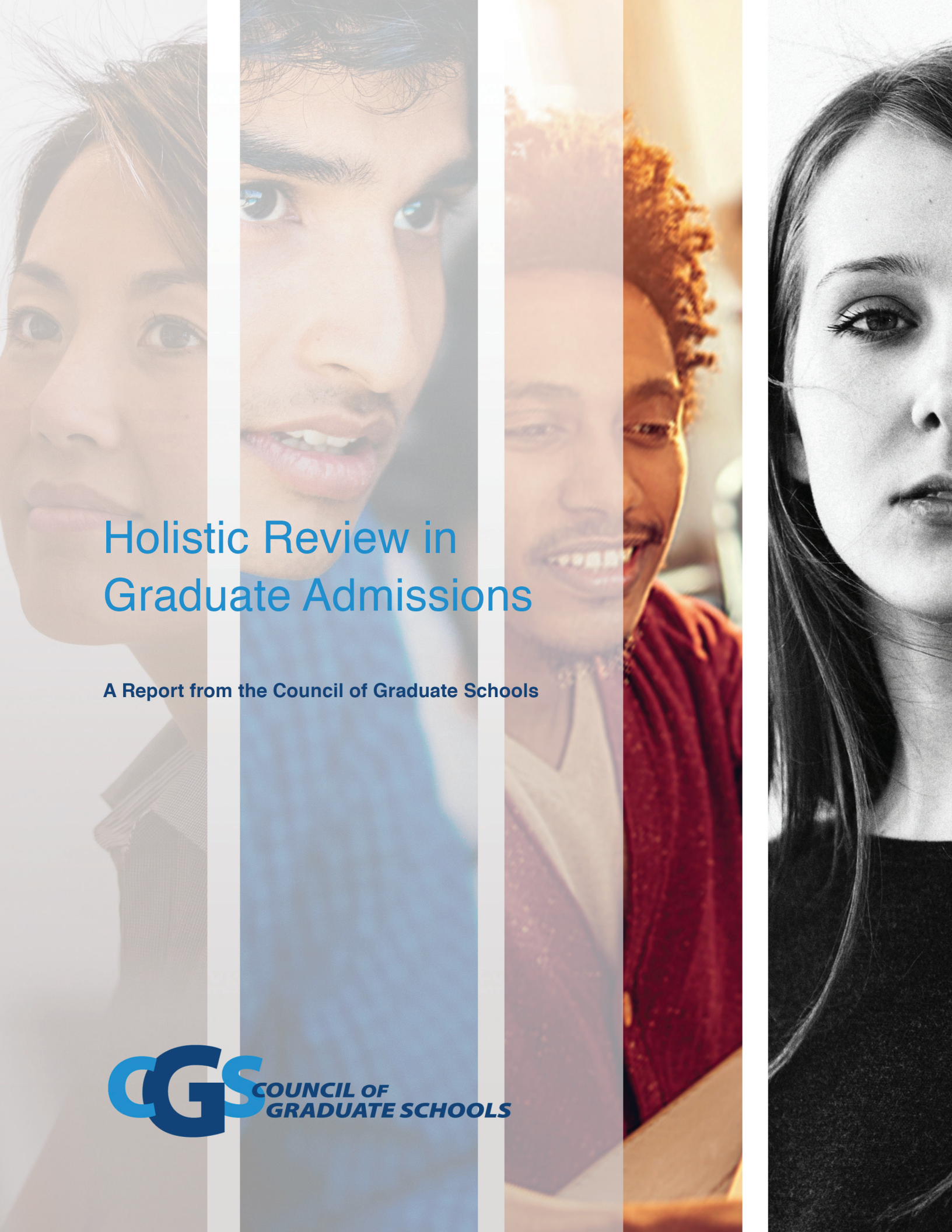

Holistic Review in Graduate Admissions

A Report from the Council of Graduate Schools

COUNCIL OF GRADUATE SCHOOLS

Holistic Review in Graduate Admissions

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Executive Summary

If performed well, graduate admissions processes support the key missions of universities and the vitality of graduate programs. Thoughtful, evidence-based procedures increase the likelihood that a student admitted to a master's or doctoral program will be among those most likely to succeed as a degree candidate and to make meaningful contributions to the learning environments making up the "whole"—labs, seminars and departmental cultures.

Holistic review, or the consideration of a broad range of candidate qualities including "noncognitive" or personal attributes, is a growing strategy for widening the evidence base that graduate programs consider when evaluating a candidate for admission. Two key trends drive this strategy.

First is a well-justified concern that undue weight on quantitative measures of student merit such as standardized test scores and GPA may not accurately predict success in graduate school, and may disadvantage underrepresented, non-traditional and older students (Awad, 2007; Louderback, 2008; Sternberg and Williams, 1997). Landmark legal cases concerning race-conscious admissions, most recently the Supreme Court's *Fisher* decision, have also condoned a holistic approach to admissions as an alternative to directly considering race as a factor.

A second reason for the current interest in holistic admissions processes is that decision-making at all levels of the university is becoming increasingly data-driven. To ensure that they are investing in the best students for a particular program, graduate institutions want to ensure that they are using the most predictive measures of a student's merit and likelihood to succeed in the program.

Graduate deans, graduate admissions professionals, faculty, diversity officers all stand to benefit from a deeper understanding of holistic review processes and their likely outcomes. This report is based on a one-year project consisting of a review of existing literature and initiatives on holistic review, a survey of CGS's 540 graduate institutions in the U.S. and Canada, and a workshop of 35 stakeholders and experts. Key findings of the project are summarized below.

Key Takeaways:

Findings related to the contexts surrounding admissions processes:

- **Compared with other higher education contexts, graduate admissions have a decentralized admissions process.** Of graduate school staff who responded to the survey, 75% reported that master's admissions are primarily the responsibility of academic units; this number was 78% for doctoral programs. This feature of graduate admissions is likely to pose special challenges for implementing holistic review processes, since procedures may be loosely tied to institutional mission, diversity objectives, or an overarching admissions strategy.
- **Graduate institutions are calling for more data that demonstrate the link between admissions criteria and student success.** A growing body of research has established this link in contexts outside graduate education. In a CGS survey summarized in Part IV of this report, 81% of graduate school staff respondents reported that these data are needed in the context of their own institutions.

- **It is more important than ever for graduate schools to articulate their diversity objectives and tie them to the missions of their institutions.** Doing so will make it easier for graduate schools to build a compelling case on campus for the need to review fairness and reliability of admissions practices.

Findings directly related to holistic admissions:

- **Holistic review is widely viewed as a useful strategy for improving diversity of higher education.** There is also some evidence that holistic admissions processes are associated with improved student outcomes. However, much of this evidence comes from outside graduate education contexts, and more work must be done to establish this connection in graduate institutions.
- **The graduate education community would benefit from a clearer understanding of what constitutes a truly "holistic" graduate admissions process for master's and doctoral programs.** A CGS survey conducted for this project uncovered that different types of admissions practices and goals are associated with the term "holistic review." A core set of practices essential to a holistic approach would give graduate institutions useful, practical guidance.
- **Limited staff and faculty time is considered the greatest barrier to performing more holistic admissions processes for graduate programs, according to the same CGS survey.** 58% of all survey respondents, which included graduate school staff, admissions professionals, faculty and others, reported time as a barrier.

Our hope is that this report will spark a wider national conversation about the practices of holistic admissions in graduate education, and ultimately, the creation of tools that can better demonstrate its value. An additional aim is to uncover strategies for making holistic review a rewarding and time-effective process for the many practitioners who may have a voice in the admissions process—faculty in particular.

To that end, the next pages of this report offer "Priorities for Graduate Institutions and Programs" seeking to support holistic review on their campuses. These principles and practices are designed to help graduate schools, graduate program directors, diversity officers and others work together to improve the strength of their programs through greater diversity. We hope that these resources, and this report as a whole, will be valuable to all those who support the admissions process on your campus.

Supporting Holistic Review: Priorities for Graduate Institutions and Programs

The following principles and practices emerged from CGS's workshop on holistic review in graduate admissions, which included graduate deans, researchers, and representatives of higher education associations and disciplinary societies. We encourage graduate institutions and programs to carefully consider these principles and practices when assessing graduate admissions processes at their universities.

First Principles:

1. ***Diversity is essential to the overall success of graduate programs.*** All students in a program, regardless of background, benefit from taking part in a learning environment that reflects various kinds of diversity.

2. ***It is critical to think beyond the admissions process when developing strategies for diversity and inclusion.*** Ideally, recruitment processes, admissions processes, and strategies for supporting student success should be mutually reinforcing.

3. ***Holistic review processes are most likely to be successful when well-aligned with a graduate institution's mission and with the goals of particular master's, doctoral, and professional graduate programs.***

Promising Practices:

We encourage graduate schools and program directors to work together to:

1. ***Demonstrate a clear commitment to excellence through diversity throughout the graduate education system at your institution.*** Engage in discussions with other campus leaders about making this a priority, and consider how policies and requirements might be leveraged to enact change.

2. ***Gather and analyze department-specific data on graduate admissions.*** Programs can use these data to:
   - identify gender- and race-based patterns in admitted and rejected student characteristics.
   - test whether evidence of student outcomes supports prevailing assumptions about who is likely to succeed (those with a certain GPA or standardized test score, for example).[1]

1 The specific benefits of analyzing department-specific data on graduate admissions were outlined by Julie Posselt, a University of Michigan researcher and faculty member, in her workshop presentation.

3. ***Provide faculty members who make admissions decisions with the context needed to evaluate students appropriately.*** In particular,
   - ensure that faculty have opportunities to learn about the quality of undergraduate education at various Minority-Serving Institutions.
   - give faculty opportunities to work with underrepresented minority undergraduates (e.g., through summer programs) and build relationships with undergraduate institutions they may be less familiar with.
   - Provide additional information to the reviewers of applicant files to help them contextualize key criteria.

4. ***Provide faculty with information on the appropriate use of the Graduate Record Exam (GRE).*** The Educational Testing Service offers materials designed to help reviewers avoid "mistakes" in using the GRE (www.ets.org/gre/bestpractices), such as adding scores together and using cut-off scores.

5. ***Offer guidance on the optimal sequence for reviewing application materials.*** Guidance on which application materials might be most productively considered at the initial, final decision, and funding phases of admissions can help prevent programs from rejecting strong applicants in early rounds based on too few or inappropriate criteria.

6. ***Support communication and alliances between faculty and recruitment officers to ensure that admissions and recruitment efforts are well-aligned.*** Faculty in graduate programs and recruitment officers may have opportunities to observe aspects of an applicant that the other group has not; communication can yield a more complete picture of an individual.

7. ***Provide faculty with rubrics for evaluating applicants so that admissions criteria are more transparent and consistently applied.*** Rubrics have the added benefits of making evaluation processes more efficient and allowing faculty to more easily compare their assessments.

8. ***Consider alternative funding models (especially in doctoral admissions) that might enable new thinking about admissions.*** Because in many doctoral programs, students are funded by their primary advisors, there is a stronger tendency to match students to advisors in the admissions process without considering the contributions of each student to an entire cohort.

I. Introduction

Holistic or "whole-file" review is generally understood to be a process by which programs consider a broad range of characteristics, including noncognitive[2] and personal attributes, when reviewing applications for admission. There is a growing body of scholarly work suggesting that such qualities may be just as important as traditional measures such as grades and standardized test scores in determining a candidate's future success (ETS, 2011; Griffin, Muñiz, & Espinoza, 2012; Kyllonen, 2005; Schwartz, Stowe, & Sendall, 2011; Sedlacek, 2004). To date, however, little work has been done to understand what would count as a truly holistic approach to admissions in master's and doctoral education. Information is also needed about the extent to which holistic approaches are used by graduate institutions in the United States, and how—and whether—the impacts of such practices are measured. This report takes a first step toward addressing these gaps.

Today more than ever, it is clear that the graduate education community stands to benefit from this information. First, holistic admissions holds out great promise as a strategy for addressing issues of access and diversity—key issues for any graduate institution and for the U.S. graduate education enterprise as a whole. The educational benefits of diversity, broadly defined, are well-documented (See *Fisher v. University of Texas at Austin*, Brief for Respondents, 2015, p.10). Holistic review is often associated with diversity in higher education because traditional admissions criteria such as standardized test scores may have weak correlation with long-term outcomes, and have been found to disadvantage women and underrepresented minorities (Miller & Stassun, 2014) as well as older students (Awad, 2007). If exclusive emphasis is given to such measures in graduate admissions processes, departments and institutions may lose important opportunities to benefit from the breadth of talent and skills that a wider range of viable graduate school candidates could bring. There is also research suggesting that noncognitive variables correlate better with the outcomes of certain populations of underrepresented minority students (Nasim et al., 2005; Oliveri and Ezzo, 2014; Sedlacek, 2008; Sedlacek, 2010; Sedlacek, 2004a; Sedlacek, 2004b; Ting, 2000; Ting and Robinson, 1998).

Yet the value of holistic review goes beyond the "moral" imperative of diversity and the view that diversity enlarges the talent pool. A second reason that holistic review is an important topic today is that it may help graduate programs do a better job of evaluating all students, regardless of background. There is some evidence to suggest that holistic approaches result in similar or improved institutional performance on student success measures (Urban Universities for HEALTH, 2014). Along with studies questioning the reliability of traditional measures, such data raise important questions: Are graduate schools using the best criteria for determining whether a student is likely to succeed while enrolled, and post-graduation? How can institutions ensure they are accurately measuring a student's "fit" with a program's academic strengths and their potential contributions to it? How do admissions processes reflect institutional and programmatic missions? If master's and doctoral institutions can answer these questions with greater confidence, they will be in a better position to support the success of all students, and demonstrate greater accountability to a variety of stakeholders.

2 We use the term "noncognitive" here and throughout the report because, despite its limitations, it is a widely used term in the literature about holistic application review. A preferred term to describe those qualities and skills it might be productive to measure might be "success-critical" skills.

Like any trend that calls into question existing processes, however, holistic review has been associated with a number of challenges for graduate institutions that might be summarized as falling into the categories of **traditions, time constraints** and **tools**.

- ***Traditions:*** In many cases, implementing holistic review processes may require substantial changes in the way departments and programs sort through their applicants and evaluate their potential for success. They may even challenge the culture of programs by questioning long-held customs, habits, and notions of merit.
- ***Time Constraints:*** Holistic admissions processes are often perceived to add time and complexity to the work of admissions committees. Establishing cut scores for GPA's and standardized tests is among the methods used by some programs to winnow down applicant pools and make admissions processes more "efficient." Yet such practices may work against efficiency in the long run if a department or program does not admit the candidates most likely to remain in and succeed in a program, and cut scores on standardized tests are statistically inappropriate. These practices also violate the recommended uses of test scores (ETS, 2015a).
- ***Tools:*** While a body of literature and tools exists on the measurement of traits such as persistence, creativity and flexibility, there remains a great deal of debate about the reliability of various methods for measuring them, and the availability and use of such tools is not widespread, especially at the graduate level.

Despite these challenges, there remains cause for optimism. In a relatively short period of time, technology has changed the ways graduate institutions recruit and review applications for admissions. In this context, Julie Posselt, one of the few researchers who has pursued an academic study of graduate admissions processes, points out that holistic review may not be an inherently complex practice, but one that still needs to be studied and refined. "Structurally, reforms to graduate admission can work with the current pragmatism rather than against it by developing more efficient approaches to holistic review and strengthening incentives for diversity" (Posselt, 2014, p. 509).

Throughout this report, the goal is to help graduate institutions deepen their understanding of holistic review, laying the groundwork for more strategic approaches to graduate admissions. CGS also seeks to spark a conversation within the graduate community about what holistic admissions is, how it can be implemented in ways that are both efficient and effective, and how its outcomes might be measured.

Responding to the legal landscape

No discussion of holistic review in graduate admissions is complete without considering the legal landscape in which graduate admissions operates, which consists of a multitude of unique institutional situations at the intersections of local, state, and federal laws. The three most visible, recent, and relevant events influencing the national stage are the US Supreme Court Cases *Regents of Univ. of California v. Bakke; Grutter v. Bollinger et al.;* and *Fisher v. University of Texas at Austin.*[3] Although each considered a different kind of university admissions (medical school in *Bakke*, law school in *Grutter*, and undergraduate college in *Fisher I*), these decisions have implications for

3 The Supreme Court has agreed to revisit *Fisher* during the 2015-2016 term, and holistic review might be reconsidered (Grossman and Shapiro, 2015). The decision has the potential to revise the understanding of the constitutionality of race-conscious admissions. An amicus brief filed by the American Council on Education and 37 additional higher education associations, including CGS, argues against any such revision.

traditional (non-professional) graduate programs. In a variety of ways, they have also affected the national conversation about holistic admissions processes in higher education.

With each decision, the legal circumstances surrounding race-conscious admissions policies have shifted slightly. The court outlawed the use of racial "quotas" in *Bakke* (1978), but left open the use of race in admissions if "[t]he diversity that furthers a compelling state interest encompasses a far broader array of qualifications and characteristics of which racial or ethnic origin is but a single though important element." In other words, considering race in certain circumstances, alongside other applicant characteristics, was accepted. *Grutter* (2003) upheld the notion of a compelling interest in diversity, and allowed the consideration of race as one of numerous "plus factors" in the admissions process. It also cautioned, however, that "workable race-neutral alternatives" should be considered before opting for a race-conscious admissions policy. Guidance issued by the US Departments of Education and Justice (2011) clarified that "institutions should be prepared to explain how [a diversity] objective fits within their overall mission."

The *Fisher I* decision (2013) has reaffirmed this notion, stipulating that "the reasons for any [racial] classification [in admissions] be clearly identified and unquestionably legitimate." The burden has been placed on the university to prove under the test of "strict scrutiny" that 1) its diversity goals are centrally tied to its mission; 2) the methods it uses to achieve diversity directly support those goals; and 3) race-neutral alternatives have been considered. *Fisher I* emphasizes that admissions processes must be structured so as to "ensure that each applicant is evaluated as an individual and not in a way that makes an applicant's race or ethnicity the defining feature of his or her application." This ruling implies that any consideration of race in admissions necessitates a process that many would deem "holistic." In this context, it is not surprising that there has been growing attention to practices associated with holistic review in the higher education community more broadly and in the graduate education community in particular.

Recent analyses by Liliana Garces (2014; 2012 July; 2012 July/August) demonstrate the negative impact these decisions and state affirmative action bans have had on the enrollment of underrepresented minority students in graduate programs. To help universities navigate this complex and evolving legal landscape, professional and research associations have published guidance in the wake of the more recent decisions (Alger and Snyder, 2004; Association of American Medical Colleges, 2014a; Burgove et al., 2010; Coleman et al., 2013; Kahlenberg, 2014; National Academy of Education, 2007).

A CGS Initiative on Holistic Review

Over the past several years CGS member institutions have indicated a strong desire to learn more about graduate admissions and in shaping tools to support admissions processes. In 2013, CGS fielded an informal survey that asked a sample of graduate deans to identify commercial sectors in which they had sought or were considering seeking information. Of the 13 sectors presented as choices to survey- takers, "admissions and recruitment" was selected most frequently, with nearly 78% of deans indicating that they had sought or were seeking information from companies in this sector. CGS was able to delve deeper into members' perspectives on admissions and recruitment tools at the 2013 Global Summit on Graduate Education, which explored the promises and limitations of technology in graduate education. The discussion and debate that took place at this meeting indicated great optimism about new technologies for graduate admissions and recruitment, along with areas of concern. For example, some expressed the reservation that new technologies for admissions and

recruiting were making admissions processes too efficient, leading to rushed decision-making about candidate files.

For well over a decade, the CGS Best Practice division has conducted research with member institutions to improve completion and reduce attrition in master's and doctoral education. While the "completion projects" examined admissions as one area where retention strategies need to be focused, the holistic review project is the first CGS study that focuses exclusively on the front end of the student life cycle. The project also complements a suite of initiatives to support the retention of under-represented minorities in graduate education.

The key questions guiding this project are summarized below.

Key Questions:

1. *The Nature of Graduate Admissions:* How do graduate admissions processes differ from admissions processes in other contexts (undergraduate and professional graduate education)? How do these differences affect an institution's or program's capacity to effectively practice holistic review?
2. *Definitions:* How is holistic admissions generally defined? What is an appropriate threshold for determining whether an admissions process can be considered "holistic?"
3. *Institutional Processes:* What common challenges do graduate institutions encounter in creating and implementing holistic review processes? What structures are currently in place in graduate schools for supporting a holistic admissions process?
4. *Infrastructure:* What type of infrastructure is required to accept and evaluate the broader range of materials involved in holistic review? How might institutions ensure that the full range of available indicators would be considered and used appropriately in graduate admissions?
5. *Best Practices:* Are there examples of best practices in this area that could be emulated? How well are graduate schools prepared at this stage to effectively process and evaluate a broader range of performance indicators and applicant characteristics?
6. *Measuring Impacts:* What processes have been established to measure the impact of a holistic review process? What tools are needed by graduate institutions to track these impacts more effectively and efficiently?

To begin to answer these questions, CGS turned to a community of experts—graduate deans, graduate admissions professionals, researchers in the field of graduate admissions, and companies with a stake in the success of the graduate admissions process. This report reflects the input of these diverse groups. **Parts II and III** of this report are a review of the literature on holistic admissions processes, both inside and outside the context of graduate education, and a survey of previous efforts to advance holistic review in graduate education. This includes an assessment of the current tools to support holistic admissions processes. In **Part IV** we supplement this picture with a view from inside graduate institutions, providing the results of a survey of CGS member institutions. This survey was conducted to better understand the current infrastructure and practice with respect to holistic review and the challenges that graduate admission still face in this area. In the conclusion, **Part V**, we focus our attention on areas of potential research and action on holistic graduate admissions. **Appendix A** is the agenda for the stakeholder workshop held in October 2015 as a key component of this project, and **Appendix B** provides a summary of some of the highlights of the workshop presentations and conversation.

II. The Diverse Practices of Holistic Review

An Evolving Definition

The term *holistic review* is used to point to a wide range of admissions practices.[4] It is a practitioners' term—that is to say, although the scholarly literature contains some discussion of the term as such, it exists most vividly when describing or recommending specific practices.

The websites of graduate schools and individual graduate programs across the US describe their admissions processes as holistic, but institutions provide varying levels of detail as to what that approach entails. Some list the application materials considered by admissions committees as well as the goals of the admissions process. For example, "assess[ing] the potential success of each applicant" (Psychology, University of West Florida) or determining applicants' potential to become "research scientists" (Nutritional Sciences and Toxicology Molecular and Biochemical Nutrition, University of California, Berkeley). Some institutions, such as the University of Michigan's Rackham Graduate School (2015a), even make publicly available materials for faculty describing holistic admissions in graduate education, its value, the specific processes associated with it, and additional resources for learning more. Others indicate they "practice holistic admissions and review all application materials," without elaborating on the process or goals (Chemical and Biomolecular Engineering, University of Nebraska, Lincoln).

Graduate programs ranging in size, type, geography, and discipline advertise the holistic natures of their admissions processes (a sample list: Chatham University, 2015; Massachusetts Institute of Technology, 2015; Michigan Technological University, 2015; Pacific University Oregon School of Audiology, 2015; Princeton University Department of Chemistry, 2015; Stassun, et al., 2011; University of Illinois at Urbana-Champaign Department of English, 2015; University of North Carolina at Chapel Hill Department of Political Science, 2015; University of Washington Master of Education in Education Policy, 2015). Although programs habitually call their admissions processes holistic, it is unclear exactly what the process entails, or whether it remains consistent across programs and institutions. It seems likely that graduate programs with widely ranging processes each use this word to describe themselves, as is the case with the health professions (Urban Universities for HEALTH, 2014). Although the CGS Holistic Review project sheds some light on the variability of institutional processes for graduate admissions (see **Part IV**), more work is needed in this area to fully understand the meaning of holistic review in practice.

The scholarly literature reflects the ambiguity of the term *holistic review* in practice. Most consistently, the literature defines holistic review in the terms used in the US Supreme Court's decision in *Grutter v. Bollinger et al.* (2003), as:

> giving serious consideration to all the ways an applicant might contribute to a diverse educational environment. . . . Additionally, officials must look beyond grades and scores to so-called "soft

4 It should be noted that most of the work on holistic review focuses on undergraduate admissions, but this review focuses on the graduate level.

variables," such as recommenders' enthusiasm, the quality of the undergraduate institution and the applicant's essay, and the areas and difficulty of undergraduate course selection.

Grutter powerfully frames the way scholars describe holistic admissions, and many use the same or similar language to the decision in their own definitions (Cantwell et al., 2010; Johnson, 2006). For example, Griffin, Muñiz and Espinosa's (2012) definition of holistic admissions in graduate admissions consists of "looking beyond applicants' GRE scores and undergraduate institutions," and Posselt (2013a) elegantly summarizes the process as "numbers in context."

Often, academic literature on admissions practices avoids the term *holistic review* in favor of related vocabulary (National Academy of Education, 2007; Poirier et al., 2009). William E. Sedlacek is well-known for developing the case for measuring what he calls "noncognitive variables" in admissions decisions (Sedlacek, 2008; Sedlacek, 2004a; Sedlacek, 2004b; Wilson, Sedlacek, & Lowery, 2014). Only very recently did the term *holistic review* make its way into Sedlacek's writing, and then only as an umbrella term for the processes that might involve the assessment of noncognitive attributes (Sedlacek and Sandlin, 2013). Other researchers also prefer the term *noncognitive* when discussing alternatives to the traditional admissions model that relies on test scores and grades as predictors of success (Kyllonen, 2005; Oliveri and Ezzo, 2014).

Diversity and access

Recent Supreme Court decisions instruct any institution with diversity objectives to first determine what those objectives entail, and second, to articulate how they relate to institutional mission. Several recent articles and national reports have made the case for positioning diversity not as its own objective, but as central to institutional excellence, particularly in graduate and professional education (Addams et al., 2010; Garces, 2014; Gurin et al., 2002; Milem, 2003; Milem et al., 2005; Nivet, 2011; Posselt and Garces, 2014). The importance of diversity to a strong educational environment has been articulated by a wide variety of groups (See footnote on p. 10, *Fisher v. University of Texas* Amicus brief, 2015). According to the National Academy of Education (2007, p.49),

> Racial diversity . . . provides the necessary conditions under which other educational policies can facilitate improved academic achievement, improved intergroup relations, and positive long-term outcomes.

Groups composed of individuals with diverse backgrounds and perspectives have been shown to be more innovative and better at solving problems than those that are more homogeneous (Loyd, Wang, Phillips, & Lount, 2013; Lount & Philips, 2007; Richard, Barnett, Dwyer, & Chadwick, 2004; Richard, McMillan, Chadwick, and Dwyer, 2003; Page, 2008; Phillips, 2014; Phillips et al., 2004). Representational diversity emerges, then, as a pillar of an excellence strategy.

Researchers with an interest in diversifying the graduate student pipeline have studied different aspects of graduate student admissions, underlining the complex challenges associated with attracting, admitting, enrolling, retaining, and graduating a diverse cohort of graduate students. Studies investigate institutional barriers (Griffin and Muñiz, 2011; Griffin, Muñiz, and Espinosa, 2012; Johnson, 2006), factors influencing student choice (Bersola et al., 2014), admissions processes (Bass et al., 2007; Holley and Joseph, 2013; Posselt, 2015; Posselt, 2013, August; Posselt, 2013), and how admissions criteria correlate with demographic characteristics (ETS, 2014; Leslie et al., 2015; Penner,

2015).[5] A consistent theme in the literature is the need for institutions and programs to more thoughtfully interrogate their own processes to ensure admissions criteria align with missions and goals.

Julie Posselt is one researcher who suggests institutions do not always appreciate the ways that admissions processes reflect implicit values. Her work (2013; 2014) provides insight into the doctoral admissions process at top-10-ranked programs in a range of fields.[6] Posselt (2013a, p.509) recommends that

> present values . . . be interrogated, because they evince an organizational culture in which notions of quality are caught up first with prestige, and only secondarily with principles of equity and diversity. Moving toward a culture of inclusive excellence will require . . . fresh understandings about what admissions considerations mean—and collective engagement by faculty and administrators.

Posselt concludes that "more efficient approaches to holistic review and strengthening incentives for diversity" are needed in order to successfully change the narrative about diversity in graduate admissions (509).

Predictive validity of the GRE

Another major challenge identified in the literature is that the predictive validity of many admissions criteria have not been tested. It is difficult for many reasons to definitively tie a portion of an applicant's record to future outcomes, and this is one area where more research is needed. The one exception to this rule is the Graduate Record Examination (GRE) General test, which has been studied extensively, and yet still remains the subject of intense debate.[7] Although ETS consistently recommends multiple criteria be used when using GRE scores for any decision-making (ETS, 2011; ETS, 2015a; ETS, 2015b), many studies have found graduate admissions committees continue to place more weight on the scores than is recommended (Attiyeh and Attiyeh, 1997; Landrum et al., 1994; Landrum and Clark, 2005; Lovitts, 2004; Oltman and Martnett, 1984; Posselt, 2013a; Posselt, 2013b). Because women and underrepresented ethnic and racial minorities attain lower scores on average than majority men (ETS, 2014), the position of the GRE in graduate admissions has repeatedly come into question.

In 2001, a meta-analysis by Kuncel, et al., found that GRE scores correlated with graduate GPA, comprehensive exam scores, and faculty ratings of student competence. Other studies have found the GRE valid in predicting first-year grades (Bridgeman et al., 2008; Holt et al., 2006; Wang, 2013), persistence at selective institutions (Attiyeh, 1999), and other academic success indicators (Perez, 2011; Reisig and DeLong, 2005), particularly in combination with undergraduate GPA (Holt et al., 2006; Willingham, 1976). The predictive validity of the GRE may decline as a student progresses throughout her career—some studies have shown it to be a weak predictor of completion (Micceri,

5 For a bibliography on "the road to the STEM professoriate for underrepresented minorities," see Poirier et al. (2009). The bibliography includes a section on graduate admissions (p.23-24), as well as good sources on the undergraduate experience of underrepresented minority students in STEM, their decision-making processes in graduate school admissions, and their reliance on financial aid, second jobs, and student loans.

6 See Posselt (2013a, p. 487 for a discussion of the role of the concepts of "fit" and "match" in graduate admissions.

7 The Graduate Diversity Program at the University of California, Berkeley (2014), compiled an excellent annotated bibliography on "The GRE and its predictive validity for graduate student success."

2002; Willingham, 1976; Sternberg and Williams, 1997) and postdoctoral publication (Marston, 2009). However, others disagreed, and found it was in fact predictive of degree attainment, time to degree, and citation counts (Kuncel and Hezlett, 2010; Kuncel et al., 2001). Burton and Wang (2005) found that, in combination with undergraduate GPA, GRE score is predictive of cumulative graduate GPA and faculty assessments.

Despite evidence of the GRE's validity, many scholars have raised concerns about potential bias in the GRE since it is well-documented that majority men on average score higher on the test. This is particularly troubling considering a practice largely rumored but sparsely documented: using "cutoff scores" to eliminate a group of applicants before an initial application review. A large body of research at the undergraduate level suggests standardized tests routinely underpredict the academic success of underrepresented ethnic and racial minorities, especially African Americans and American Indians (Hood, 1992; Louderback, 2008; Young and Sowa, 1992). Sternberg and Williams (1997) suggest that the predictive validity of the GRE only applies to certain demographic groups, notably men. ETS researchers themselves (2015) warn that sample sizes of underrepresented minority students have remained small in their validity studies.

Other studies have found the GRE to be biased against international students (Mupinga and Mupinga, 2005) and older master's-degree-seeking students (Awad, 2007). However, Kuncel and Hezlett (2010) determined that, despite differences in average scores, the GRE is not biased. According to their 2010 study, the GRE "accurately reflects the capability difference between groups and . . . the nature of the relationship between capability and performance is similar for all groups." Sackett et al. (2008) concur with this finding, although neither study specifically examined the role race or ethnicity may have on the test's predictive validity (see Perez, 2011, p. 27).

Alternative predictors of success

Regardless of the scientific validity of the GRE, if increased diversity is essential to an institution's goals, relying too heavily on the test can be counterproductive (Glanz, 1996; Micceri, 2002; Miller, 2013; Miller and Stassun, 2014). One proposed solution is to use **noncognitive variables** in admissions decisions (Kyllonen, 2005; Kyllonen et al., 2011; Sedlacek, 2005). Noncognitive variables "refer to variables relating to adjustment, motivation, and student perceptions, rather than the traditional verbal and quantitative (often called cognitive) areas typically measured by standardized tests" (Sedlacek, 2004). They occupy a cornerstone in holistic application review because personal statements, recommendations, and extracurricular activities may be valuable indicators of desirable noncognitive qualities—a student's capacity for perseverance, for example.

Noncognitive variables in combination with or independent of the GRE have been shown to be better predictors of success for underrepresented minority students than the GRE alone (Sedlacek, 2010; Sedlacek, 2004a). Studies at the undergraduate level have returned similar results (Nasim et al., 2005; Oliveri and Ezzo, 2014; Sedlacek, 2008; Sedlacek, 2004b; Ting, 2000; Ting and Robinson, 1998). Milner et al. (1984) found that disregarding GRE scores in the graduate admissions process doubled the underrepresented minority student enrollment rate and did not appear to affect the quality of students. More recently, a coalition of major umbrella groups for health professions education found in the majority of cases, implementing a holistic admission process led to unchanged or improved measures of student success in health professional schools (Urban Universities for HEALTH, 2014, p. 14). This and other major recent initiatives are outlined in the following section.

III. Existing Resources

Major Initiatives

Over the past decade, a number of organizations and universities have mobilized to assess the prevalence of holistic review, test its outcomes, and disseminate guidance for implementing certain practices associated with it. These studies varied in context, focusing mostly on undergraduate or professional education. We highlight a number of these efforts to contextualize the CGS project and draw out some potential lessons for graduate education.

In a recent report, *Race, Class and College Access*, the **American Council on Education (ACE)** uncovered important findings on holistic review in undergraduate admissions through a survey of admissions and enrollment management leaders at 338 nonprofit four-year institutions. ACE found that a high percentage of the institutions surveyed reported using holistic review as well as individual practices that often accompany a holistic approach. Notably, holistic application review was the only strategy that was both widely used (76% of respondents) and considered effective in comparison to other strategies (67%) (ACE, p. 22).

While these findings do not shed light on *graduate* admissions practices in the United States, the ACE study suggests that holistic admissions, and certain admissions practices linked to a holistic approach, have gained prevalence in undergraduate education. We can speculate about a variety of factors that have enabled holistic review to become a self-conscious aim on the part of undergraduate institutions, possibly because legal standards for diversity in admissions have become more complex.8.Undergraduate admissions are typically more centralized than graduate admissions. For this reason it is easier for a college or university to create policies around the undergraduate admissions process, to tie these policies to a wider *institutional* mission, and to "enforce" them. For graduate programs, it is possible that more specific and relevant mission statements are housed at the level of the graduate school or academic department. Undergraduate liberal education in the Anglo-American tradition also historically has emphasized the education of the whole person and the development of individual character. One legacy of this concept is a US undergraduate admissions process that often places high value on personal traits and experiences that may be expressed in a student's personal essay and extracurricular achievements—admissions "data" that go beyond academic and quantitative measures of performance.

In graduate admissions, one might expect a "wider" view of the candidate to count less, since graduate education is characterized by specialized and/or professional training within a particular field. Yet two of the most prominent graduate-level projects on holistic review have been conducted by professional organizations in the health sciences.

The most comprehensive and sustained of these efforts is an initiative organized by the **Association of American Medical Colleges (AAMC),** which launched the Advancing Holistic Review Initiative in 2007. A member organization comprised of accredited medical schools, teaching colleges, and

8 Among those institutions that made a decision to ban the consideration of race in admissions following the *Fisher* decision, there was a marked increase in the reliance of certain admissions criteria that are often associated with holistic review (regardless of whether these institutions reported holistic review as a practice used at their institutions). Fifty-three percent of this subset of institutions reported increased consideration of a candidate's grit or ability to overcome adversity, while 50% reported greater attention to the essay or personal statement.

academic and scientific societies, the AAMC seeks to "develop mission-centered, admissions-related tools and resources that medical schools can use to create and sustain diversity" (AAMC, 2014b). One driver behind the AAMC's efforts is the increasing need for physicians to serve a diverse society, a need that is reflected in the missions of many medical schools. Indeed, the AAMC's handbook on integrating holistic review processes into medical school admissions offers several examples of ways that medical school missions may benefit a diverse student body, such as the need to teach students to address inequalities in health care that may be based on race and ethnicity, or to broaden the health care research agenda to include studies relevant to a diversifying population.

Another recent project based in the health sciences was conducted by **Urban Universities for HEALTH (UU HEALTH),** a collaboration between several partner organizations[9] with strong investments in the preparation of a diverse healthcare workforce. UU HEALTH developed a survey, the National Study on University Admissions in the Health Professions, with the goal of understanding and evaluating the practice of holistic review at public universities with health professions schools. The UU HEALTH study identified a range of admissions practices associated with holistic review—examples include the consideration of non-academic criteria, and offering the admissions committee training related to school mission and/or diversity—and established a threshold score by which an institution could be understood to practice holistic review. One of the key findings of the UU HEALTH study is that among the institutions achieving the threshold score, the majority reported the same or improved measures of student success. Unchanged or improved outcomes were reported specifically for the academic quality of incoming classes, student retention, and student academic performance.

How can we build on these efforts?

As noted above, undergraduate institutions and health professions schools have an advantage when studying the practices of holistic review and measuring their value— a centralized admissions process. As the survey results summarized in **Part IV** demonstrate, graduate admissions processes are significantly more decentralized. One challenge for graduate education, then, is to develop a more organized national conversation about holistic review—establishing and sharing information about what the concept means, supporting the practices associated with it, and sharing evidence of its potential benefits. That work will need to include establishing measures for what counts as holistic review in admissions processes for master's and doctoral education specifically, as well as methods for measuring the impacts of these practices. Graduate schools may stand to benefit from evaluation instruments such as the one piloted by UU HEALTH, which helped establish a positive correlation between holistic review practices and student success.

An additional challenge for graduate education is helping establish a stronger connection between program diversity and educational benefits for all students. Graduate fields and programs represent a broad variety of fields, and disciplines and departments may not consider how training in a diverse environment helps prepare students for the professional demands of a particular field. What workforce demands make it important for a doctoral student in engineering, French, or chemistry to be trained in an environment of racial, ethnic, socioeconomic, gender, and international diversity? Why is this important for a master's student in public policy? The particular answers to these

9 These partnering organizations include the Coalition of Urban Serving Universities (USU)/Association of Public and Land-grant Universities (APLU), the AAMC, and the National Institutes of Health (NIH) National Institute on Minority and Health and Health Disparities (NIMHD).

questions may vary by field, and answering them will likely require the involvement of disciplinary and professional societies as well as funders of research in certain disciplines.[10] What graduate institutions *can* do is establish a stronger case for the value of diversity to graduate training, and to the workforce success of graduate degree holders, more generally. As noted in **Part II,** there is growing evidence that groups composed of individuals with diverse backgrounds and perspectives are more innovative and more successful in solving problems than those that are more homogeneous. Graduate schools are already in a position to share this body of research with faculty involved in making admissions decisions.

Essential Resources

The following resources will prove especially helpful for graduate deans and program directors interested in promoting holistic admissions processes on their campuses.

A set of sample materials from the Fisk-Vanderbilt Master's-to-Ph.D. Bridge Program, including resources for recruiting, admissions, mentoring, orientation, and progress tracking:

- Tool Kit for Practitioners: http://fisk-vanderbilt-bridge.org/tool-kit/
- A one-page flier from ETS on the proper use of GRE scores: http://www.ets.org/s/gre/pdf/infographic_5_mistakes.pdf

Guides for institutions

From CGS: An essential guide to graduate admissions. (2nd ed.). (2012): http://cgsnet.org/essential-guide-graduate-admissions-0

From the Association of American Medical Colleges' Advancing Holistic Review Initiative: https://www.aamc.org/download/358384/data/holisticreviewbrochure.pdf

- Roadmap to diversity and educational excellence: Key legal and educational policy foundations for medical schools, 2nd edition. (2014): https://members.aamc.org/eweb/upload/14-050%20Roadmap%20to%20Diversity_2nd%20ed_FINAL.pdf
- Roadmap to diversity: Integrating holistic review practices into medical school admissions processes. (2010): https://members.aamc.org/eweb/upload/Roadmap%20to%20Diversity%20Integrating%20Holistic%20Review.pdf

From NAGAP: Best Practices for Graduate Enrollment Management Professionals: http://www.nagap.org/bylaws

10 A positive development is that the American Physical Society (APS) has launched a project to understand and promote holistic review in physics, *Diversity-oriented admissions practices in physics doctoral programs* (R.E. Scherr and M. Plisch, personal communication, September 13, 2015).

What tools and resources have been developed?

Currently, there is no central source of tools available to support a holistic admissions process for master's and doctoral programs. In addition to the reports described above, we highlight three general categories of resources along with gaps that have yet to be filled.

Publications

The Council of Graduate Schools' *Essential Guide to Graduate Admissions*, a primer on graduate admissions processes received substantial input from members of NAGAP, The Association for Graduate Enrollment Management, and is one of the key resources available on graduate admissions for graduate deans, graduate admissions professionals and faculty. The current edition provides guidance on the topics of recruiting for diversity and general standards for evaluating application materials, but does not offer a definition of holistic review or a description of the practices associated with it. The report's advice on standardized tests comes closest to advocating a holistic approach, noting that a "test score should never be the sole criterion for acceptance or denial of admission" and that it is inappropriate to use "cutoff scores" to winnow down an applicant pool (CGS, p. 27). Given the widespread use of this publication by graduate institutions, it will be important to include basic information on holistic admissions processes when the publication is revised for upcoming editions.

The AAMC publications described above offer a number of resources to support holistic review processes in medical school admissions. Notable resources include a "Holistic Review Admissions Checklist" designed to assist medical schools in assessing their efforts to integrate holistic review into admissions processes and several webinars. Similar types of resources are still needed for master's and doctoral institutions, and will need to be developed through close engagement with the graduate community.[11]

Tools for assessing noncognitive traits

Several challenges surround the development of tools to assess noncognitive traits. If the assessment relies on external evaluators, it may be subject to the same forms of exaggeration or bias that may be found in letters of recommendation. If the assessment relies on self-reporting of personal traits, it may be unreliable, although some approaches have been developed to prevent individuals from selecting the traits he or she believe likely to be most desirable to a reviewer (see below).

Two tools from ETS are notable in this space: FACETS, an engine that is used to provide evidence of non-cognitive skills, and the Personal Potential Index (PPI). The FACETS platform forces applicants to choose from a series of two statements which best describe themselves. With these statement pairs, neither is obviously the better choice, which makes the test resistant to "faking good." For example, a test-taker may be asked to choose between the following options:

> Statement one: "I have had many setbacks and disappointments in my life and never seem to 'catch a break.'"
>
> Statement two: "I find it difficult to create new things."

11 The "Holistic Review Admissions Checklist" can be found in the Appendix to AAMC (2010).

Initial testing of FACETS at the Yale School of Management have proved promising, but more research is needed to adapt the tool for graduate education (Payne, 2015).

ETS's Personal Potential Index (PPI) was designed to provide universities with information on an applicant's noncognitive skills, including resilience, communication skills, teamwork, and ethics and integrity. However, the PPI has not been widely used and ETS has made the decision to discontinue its offering of the tool effective July 1, 2016.

Formal evaluation guidelines and rubrics

The third broad category of tools for supporting a holistic review process is formal evaluation guidelines and evaluation rubrics. These tend to be more "homegrown"—developed for use in specific programs and institutions or within fellowship competitions. The main purpose of a rubric is to prompt a reviewer to adopt a more self-conscious and objective approach to evaluation, one that uses a set of clear evaluation criteria.

Although CGS has not conducted an in-depth analysis of the use of rubrics at graduate institutions, we have identified a number of institutions that make formal guidelines publicly available on their websites. Some notable examples include:

- Rackham Graduate School at the University of Michigan (2015b) outlines best practices in admissions at various stages, and includes "review considerations" and a link to information on holistic admissions practices.
- The Graduate Diversity Program at UC Berkeley (n.d.) offers "Assistance for Departments" that includes best practices for recruitment, an annotated bibliography on the predictive validity of the GRE, and a "Guide to Recruiting and Retaining Diverse Graduate Students."
- The University of Washington's Graduate School (2011) offers recruiting scripts.
- Virginia Tech's (2015) "Recruitment resources for faculty and staff" outlines the many past and upcoming events targeted to diversity in recruitment as well as other resources available to faculty and staff.
- Huggans and Smith (2015) point to a possible rubric combining the data and expertise of the National GEM Consortium and Michigan Technical University.

A particularly rich tool kit of resources, including rubrics, is offered by one of the leading "bridge" programs in the U.S., the Fisk-Vanderbilt master's-to-PhD program (2014). In addition to a rubric for assessing non-cognitive attributes observed in the applicant interview, it includes additional resources such as an interview protocol, an applicant interview scoring sheet, and a recommendation letter cover sheet.

There is a clear need for additional resources in all three of these categories, and at least one if not several clearinghouses of tools and information that graduate institutions could use to supplement the information and guidance they provide to programs on their campuses. In the next section, we report the results of a survey which found that many graduate school staff members identify information and tools such as rubrics as resources that would make it easier for their institutions to implement a holistic admissions process.

IV. Experiences of Graduate Institutions

The CGS Student Life Cycle Survey

The CGS Student Life Cycle Survey asked about institutional practices related to various aspects of the graduate student "life cycle," including an initial section with questions focusing on the graduate admissions process.[12] The survey questions on graduate admissions were crafted to provide insight into the state of current admissions practices at U.S. graduate institutions, including whether institutions employ practices that might be considered holistic.

In April 2015,[13] CGS sent the Student Life Cycle Survey via email to its primary contact—generally the graduate dean—at each of its member institutions in the United States and Canada. These individuals were instructed to forward the survey to anyone with responsibility for graduate admissions (Graduate Enrollment Management professionals, department or program heads, graduate school staff) as well as anyone with responsibility for graduate student professional development (See footnote 10) or diversity. Of the 560 CGS member institutions contacted for the survey, 250 submitted at least one response, for a response rate of roughly 45%.[14]

A total of 857 individuals responded. The survey routed respondents into two groups: **graduate school staff** (29% of all respondents), and **faculty and staff located outside the graduate school** (71%). Of those located outside the graduate school, the majority (64%) indicated they were responsible for graduate studies in an academic program or department. Others indicated responsibility for graduate admissions (14%), professional development programs (10%), an academic college (6%), some other unit (6%), or diversity and inclusion initiatives (less than 1%). All groups received surveys with parallel questions. Graduate school staff respondents were asked to report for their institution and all other respondents were asked to report for the program(s) for which they are responsible). In the following analysis, please note that some results are reported in aggregate, including the responses of both groups, and some results are reported separately.

The results from the survey provide a snapshot of current graduate admissions processes at U.S. and Canadian institutions, and offer some insight into the future needs, directions, and priorities of graduate admissions.

12 An additional section of the survey included questions about graduate professional development programs. Responses to the section on professional development informed a CGS Best Practice project exploring professional development opportunities for graduate students (funded by NSF #1413827. The results of the professional development section of the 2015 CGS Student Life Cycle Survey will be reported in Denecke, D., Feaster, K. & Stone, K. (2015, forthcoming). *Graduate students and the STEM workforce: Toward a national strategy for enhancing professional development programs and opportunities.* Washington, DC: Council of Graduate Schools.

13 The survey was open April 21 through May 8, 2015, and then reopened at the request of CGS members from June 8 through June 17, 2015. In both cases, CGS member contacts were sent a pre-notification email the day prior.

14 *Limitations of the data:* Certain limitations should be taken into account when interpreting these data. Multiple respondents within the same institution completed the survey; and these responses came disproportionately from 10 of the 226 responding institutions. Consequently, results may not represent the full range of institutional cultures and practices. It is also possible that multiple respondents may have provided information about the same program.

Current state of graduate admissions processes

Responsibility and authority for making admissions decisions

The vast majority of graduate school staff surveyed identified ***academic departments*** *as the entities most directly responsible for making both master's- and doctoral-level admissions decisions. However, it is likely that graduate schools and academic units are responsible for different types of admissions responsibilities.*

For master's admissions, 75% of graduate school staff said this was primarily the responsibility of academic units, 15% the graduate school, and 5% an admissions committee located outside the graduate school as the primary authority ("other"). The trend was even more pronounced at the doctoral level: graduate school staff reported that responsibility was located 78% of the time with departments, 10% with the graduate school, 6% with an admissions committee not located in the graduate school, and 6% some other unit. These numbers seem to indicate a decentralized admissions structure at most institutions, with primary admissions authority housed with the academic program.

However, academic units[15] indicated they shared responsibility for graduate admissions. Thirty-eight percent of academic program staff indicated they shared admissions responsibility at the master's level, and 53% shared responsibility at the doctoral level.

It is likely that graduate schools and academic units are typically responsible for different types of responsibilities. One representative comment from the survey described what seems to be a common arrangement: "program admissions committee makes recommendation to the Graduate Dean who is the admitting authority." This "collaborative" admissions structure was better captured in the NAGAP 2009 Survey on Organizational Structures, with 26% of institutions reporting shared responsibility for graduate admissions across multiple levels (Sterba & Williams, 2010). The same survey found that 40% of institutions reported a centralized structure ("solely or primarily handled within a single unit") and 34% a decentralized structure of graduate admissions ("Coordinated and staffed by individual schools or programs").

Relative importance of application materials

Most graduate programs value quantifiable metrics (such as GPA and standardized test scores) in early stages of the admissions process, and then shift to considering more qualitative materials (such as letters of recommendation and personal or research statements) in later stages (Table 1).

To capture the working priorities of graduate admissions committees, the survey asked respondents to reflect on the relative importance of different types of application materials at different stages of the master's and doctoral admissions processes. These questions were also designed to capture potentially holistic practices such as considering a wider range of materials at different stages.

15 Here we report responses of respondents who indicated their primary responsibility was for an academic program or department. Of all respondents not located in the graduate school, 43% (master's) and 58% (doctoral) shared admissions decision-making. Twenty-nine percent responded that they were directly responsible for master's admissions decisions and 20% were directly responsible for doctoral-level admissions decisions. 23% reported their programs had no responsibility for master's admissions, and 22% had no responsibility at the doctoral level.

Respondents were asked to identify the most important materials at the initial screening, final admissions decision, and funding phases of admissions. There was some slight variation in emphasis on certain materials between the master's and doctoral levels, but in all cases the top four most important materials were the same four for each stage.

TABLE 1: Importance of application materials to screening, admissions, funding

	Master's	Doctoral
Initial Screening		
Academic Transcripts	77%	71%
GRE, GMAT, LSAT	56%	62%
Letters of Recommendation	53%	57%
CAE, TOEFL (language tests)	52%	47%
Final Admissions Decision		
Academic Transcripts	70%	55%
Letters of Recommendation	68%	67%
Personal/Research Statement	63%	64%
Interviews	52%	48%
Funding Decision		
Academic Transcripts	37%	39%
Letters of Recommendation	32%	40%
Personal/Research Statement	29%	39%
GRE, GMAT, LSAT	25%	30%

Source: 2015 CGS Graduate Student Life Cycle Survey

Initial screening

These survey results conform with earlier studies that found most institutions heavily rely on quantifiable indicators when performing an initial evaluation of candidates. At the initial screening stage, academic transcripts (77% master's, 71% doctoral), GRE and other standardized tests (56% master's, 62% doctoral), letters of recommendation (53% master's, 58% doctoral), and standardized language tests (52% master's, 47% doctoral) were identified as the top four most important materials. The fact that three out of the four top choice materials can be demonstrated in a single number is significant, and may reflect the well-documented trend of requiring applicants to meet a certain initial "cutoff." Master's admissions placed greater emphasis on academic transcripts and the language test and doctoral admissions on the GRE and letters of recommendation, but these quantitative indicators remained important for both levels of admissions. This corroborates with Posselt's (2013b) research, which also found quantitative measures weighed heavily in the initial screenings for highly competitive PhD programs.

Final admissions decision

At the final admissions decision, the top four most important materials shift to favor more qualitative sources of information: academic transcripts still tops the list for master's admissions (70%), but is complemented by letters of recommendation (68%), personal/research statement (63%), and interviews (52%). Doctoral admissions favored letters of recommendation (67%) and personal/research statements (64%) above academic transcripts (55%) and interviews (48%). The inclusion of richer materials at this stage may reflect an admissions committee's ability to spend more time reviewing applications once the entire pool has been reduced.

Funding decision

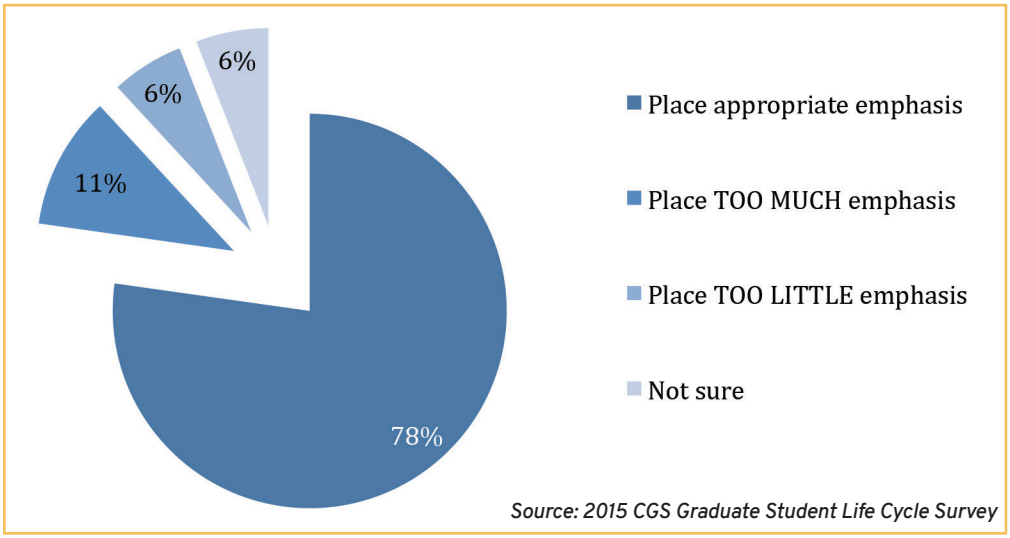
The most important materials considered during the funding decision phase of the admissions process were some of the same materials deemed important at earlier stages. Once again, academic transcripts held the top spot for master's admissions (37%), followed by letters of recommendation (32%), personal/research statement (29%), and standardized tests such as the GRE (25%). Doctoral admissions continued to place more value on letters of recommendation (40%), followed by academic transcripts (39%), personal/research statements (39%), and GRE/GMAT/LSAT scores (30%).

Use of standardized test scores

The majority of respondents believe their institutions place the "appropriate" emphasis on standardized test (e.g., GRE) scores—neither too much nor too little (Fig. 1).

Considering their prominent place in debates about admissions in general and holistic admission in particular, this study aimed to delve deeper into institutions' uses of standardized test scores, particularly the GRE. When asked to describe their institution or program's use of GRE scores, the majority of respondents (70% of graduate staff, 82% all other respondents) said their institutions and programs place "appropriate" emphasis on standardized test scores. Graduate school staff was far more likely to report that their institution places too much emphasis on test scores (17%) than respondents located outside the graduate school (7%), but also slightly more likely to indicate their institution places too little emphasis (7%) than the other respondents (5%). The remainder of respondents indicated they were not sure.

FIGURE 1: Use of standardized test scores in graduate admissions



Source: 2015 CGS Graduate Student Life Cycle Survey

Applicant qualities deserving greater attention

Institutions continue to place the most value on academic qualities in admissions decisions, and believe these deserve even greater attention than they currently receive (Table 2).

The qualities programs desire in their graduate students complement the application materials programs find valuable. For example, a program that valued the quality of creativity might depend on personal and research statements, whereas a program that valued leadership potential might evaluate that quality through an interview or via an academic transcript.

In an attempt to indirectly capture institutions' openness to assessing noncognitive variables in more holistic application review, the survey asked respondents to choose up to four applicant qualities they felt were currently undervalued in their admissions processes from a list of 14 options. The list included both traditional, academic metrics (such as past academic performance) and less tangible qualities (such as leadership potential). Across both respondent categories, the top answers at both the master's and doctoral level included mostly academic metrics such as past academic performance, critical thinking ability, fit with program, and writing ability.

The least popular responses at the master's level included contribution to campus/program prestige (4%), creativity (13%), standardized test performance (15%), resilience or grit (18%), and contribution to campus/program diversity (18%). At the doctoral level, respondents were least likely to choose contribution to campus/program prestige (5%), standardized test performance (10%), proficiency in language in which subject matter is taught (13%), and leadership potential (17%). The low numbers of respondents choosing standardized test performance echoes the sentiment that most programs feel they place the appropriate emphasis on standardized test scores in the graduate admissions process.

TABLE 2: Applicant qualities deserving greater attention		
	Graduate School Staff	Faculty and Staff outside the Graduate School
Master's admissions		
Past academic performance	58%	48%
Critical thinking ability	49%	56%
Fit with program	48%	55%
Writing ability	43%	43%
Doctoral admissions		
Critical thinking ability	59%	59%
Past research/work experience	51%	40%
Fit with program	46%	50%
Writing ability	43%	50%
Source: 2015 CGS Graduate Student Life Cycle Survey		

Availability and use of rubrics

Institutions are about as likely to make formal guidelines available to admissions committees than not, but programs are less likely to use them.

Beyond the individual materials and qualities considered in graduate admissions, the survey also asked about institutional policies and the availability of tools to facilitate more holistic admissions processes. Rubrics and other formal guidelines for the review of applications are useful tools in the holistic review of admissions applications because they can help make explicit subjective impressions derived from interviews, letters of recommendation, and other materials, and therefore prevent unconscious bias from undermining larger admissions goals. According to the graduate school staff respondents, 45% of institutions make formal admissions guidelines available (7% require these tools, 38% encourage the use of them), and 43% do not. In contrast, 37% of respondents located in a program indicated their program uses formal guidelines (16% required, 21% encouraged), and 51% indicated their program does not use formal guidelines for this purpose.

Barriers and needed information

Limited resources such as time and funds limit institutions' capacity to evaluate graduate admissions applications more holistically. Data demonstrating the link between admissions criteria and student success would be the most important tool in encouraging institutions to engage in more holistic admissions processes.

When asked what barriers their institution or program encounters to evaluating applicant qualities other than past academic performance, results were mixed, and varied by respondent group. The top three responses for all respondents were: Limited staff and faculty time (58%), lack of data correlating admissions criteria and student success (39%), and limited resources (24%).

Interestingly, neither concern about rankings (10%) nor legal concerns (3%) seem to be significant barriers to more holistic admissions processes.

One area where the two respondent groups significantly differed was in their perception of **technology** as a barrier. Eighteen percent of graduate school staff but only 8% of non-graduate-school faculty and staff cited limitations in technology as a barrier to more holistic application review. When the question was phrased not in terms of barriers, but rather what resources might help support more holistic processes, responses became slightly more aligned, although graduate school staff continued to place more emphasis on this option. When framed in this way, improved technologies registered as one of the top responses (44% graduate school staff; 32% other respondents).

A higher proportion of graduate school staff recognized the value of additional information or tools to promoting a holistic admissions process than respondents located outside the graduate school. Importantly, all respondents registered a strong call for data demonstrating the link between admissions criteria and student success (81% graduate school staff; 56% all other respondents). Model rubrics (50% graduate school staff; 25% other respondents) and training for staff (49% graduate school staff; 21% other respondents) were also identified as potentially helpful for assisting admissions committees evaluate criteria other than past academic performance.

Holistic review practices

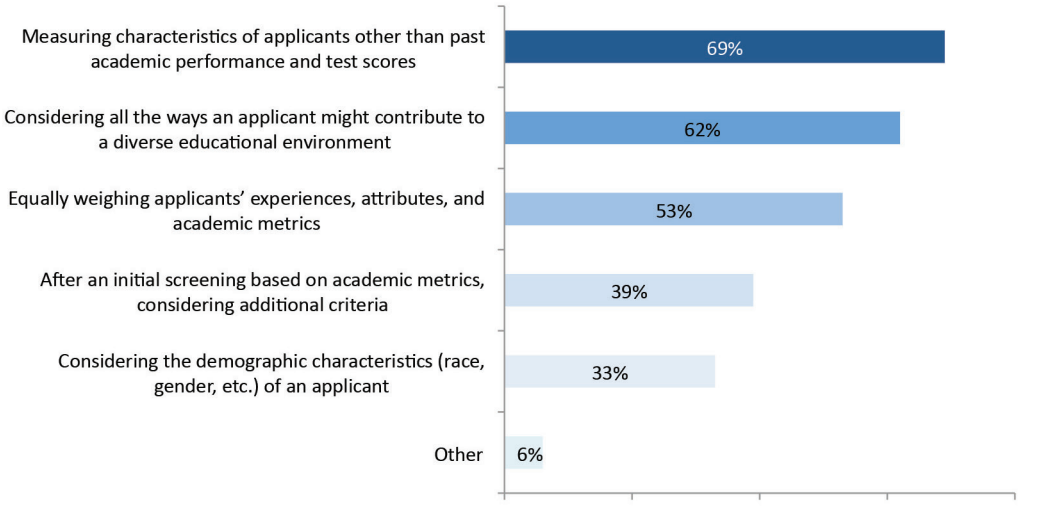
Respondents identified a wide range of definitions and practices associated with holistic review. (Fig. 2).

There was no strong consensus around the key features of holistic review. When asked to choose from a list of those practices they associate with holistic application review, 69% of respondents chose "Measuring characteristics of applicants other than past academic performance and test scores."[16] Sixty-two percent chose "considering all the ways an applicant might contribute to a diverse educational environment," which, significantly, echoes the language of *Grutter v. Bolinger*. Just over half (53%) of respondents chose "equally weighing applicants' experiences, attributes, and academic metrics." Smaller but significant proportions of respondents also chose "After an initial screening based on academic metrics, considering additional criteria" (39%) and "Considering the demographic characteristics (race, gender, etc.) of an applicant" (33%).

All respondents registered a strong call for data demonstrating the link between admissions criteria and student success (81% graduate school staff; 56% all other respondents).

16 Note: This survey item did not specifically inquire about "holistic review." Instead, the survey used the phrase "measuring qualities other than past academic performance." This practice may have had the unintended consequence of biasing responses to this particular question, since the top response reflected alternative language chosen for the survey.

FIGURE 2: Practices associated with the terms "holistic review" or "broad-based admissions"



Source: 2015 CGS Graduate Student Life Cycle Survey

Implications and opportunities for further study

Taken together, it seems that many institutions are content with their current admissions practices, but see some opportunities for improvement. From responses about tools that might be useful moving forward, it seems graduate schools are poised to take a leadership role in advocating for the use of rubrics, training, and new technologies on their campuses.

However, many questions remain about current graduate admissions practices. Where are the various aspects of graduate admissions decision-making located? Where are the leverage points for facilitating desired change of university-wide policies or tools? What is the role (or range of roles) of the graduate school in graduate admissions? How many institutions or programs believe they practice holistic application review? How many actually practice holistic review? How might technology or other tools enable institutions to practice holistic review more efficiently? These questions present rich opportunities for further study.

Perhaps the most important question identified by survey respondents was: what is the link between admissions criteria and student success? This critical issue will need to be at least preliminarily addressed in order to determine the true value of holistic admissions processes, but the debate about the validity of the GRE gives a good indication of how difficult this connection is to determine, particularly if admissions processes themselves are not well-documented. Some institutions are already taking the lead to develop retroactive analyses to attempt to correlate admissions criteria with student outcomes, including Purdue University (Gabauer, et al., 2014; Gabauer, et al., 2015), University of Maryland, Baltimore County (Maton, et al., 2012), and Wayne State University (Mathur & Feig, 2015). Purdue University (Gabauer, et al., 2014; Gabauer, et al., 2015) and Virginia Polytechnic Institute and State University (DePauw, 2015) also recently launched studies to better understand which of their campus graduate programs practice holistic admissions processes, and what that entails. Institutions should be careful to remember that the admissions process is only one aspect of

a graduate program, and that learning environments matter. Student success depends on much more than applicant qualities.

Nevertheless, admissions processes remain essential expressions of institutional values. The questions of what criteria to consider and how they should be approached strategically and intentionally by those making the decisions and guiding university policy. CGS is committed to learning more about these questions and issues through continued conversations with its members to determine possible next steps.

V. Conclusion

The reflections, principles, practices and resources compiled in this report are intended to offer graduate institutions the basic scaffolding needed to assess graduate admissions processes on their campuses. Building upon this scaffolding will require coordinated effort by leaders at multiple levels of the university structure. So where do we go from here?

It is clear that identifying the optimal tools and processes to support holistic review in graduate programs of different types will require more work on the part of faculty, graduate schools, graduate admissions professionals, and associations of higher education. The "Promising Practices" outlined on page v offer some ideas about where this work might begin, and provide graduate schools with a sense of how they might effectively assert influence in this area. It is helpful to remember one of the important insights that emerged from our October 2015 workshop: graduate institutions and programs are likely to have access to at least some of the data needed to close the missing link between graduate admissions processes and student outcomes. It is CGS's hope that universities will be particularly inspired by this report to tackle the second priority on our list of promising practices: *Gather and analyze department-specific data on graduate admissions.* The analysis and sharing of such data can help pave the way for institutions to mobilize campus conversations about long-held "traditions" that undergird graduate admissions processes.

Finally, we must work as a graduate community, and as scholars in individual disciplines, to more strongly articulate the power of diversity in various graduate-level learning environments. A master's student in education needs to be able to teach students of diverse backgrounds in a country with rapidly-transforming demographics; thus diversity should be part of his preparation. A PhD student in physics will need to learn to work collaboratively and effectively in diverse lab-settings throughout a career that may evolve in ways that she cannot currently foresee. And students of all fields and disciplines are likely to benefit from problem-solving in teams composed of individuals with different backgrounds from their own. For us to more strongly tie diversity with excellence, we will need to describe the power of diversity in ways that resonate for our respective fields and for our institutions.

If the graduate education community can begin to gather better data linking admissions criteria and student success, we will also be better prepared to develop what might truly be called "best practices" for holistic review of graduate applications. Our challenge is to learn what practices and resources may be appropriate for all programs, and which need to be tailored to the specific goals of master's, doctoral and professional programs in various fields.

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Appendix A: Workshop Agenda

CGS Workshop on Holistic Review in Graduate Admissions

Balcony Room, The Fairfax at Embassy Row
Washington, DC
October 26-27, 2015

Monday, October 26

3:00 – 3:15 p.m.	**Welcome and Introduction** Suzanne Ortega, President, Council of Graduate Schools **Sponsor's Welcome** Steve Smith, President, Advising and Admissions Solutions, Hobsons
3:15 – 4:45 p.m.	**Keynote Addresses: Expanding Our Notions of Merit** Marc Nivet, Chief Diversity Officer, Association of American Medical Colleges Lorelle Espinosa, Assistant Vice President, Center for Policy Research and Strategy, American Council on Education Moderator: Barbara Wilcots, Associate Provost for Graduate Studies, University of Denver; Chair, CGS Diversity and Inclusiveness Advisory Committee
4:45 – 5:00 p.m.	**Break**
5:00 – 6:30 p.m.	**The Diverse Practices of Holistic Review** Julia Michaels, Learning Collaborative Coordinator, Urban Universities for HEALTH, USU/APLU Office of Urban Initiatives, Association of Public and Land-grant Universities Monica Plisch, Associate Director of Education and Diversity, American Physical Society Julia Kent, Assistant Vice President, Communications, Advancement and Best Practices, Council of Graduate Schools Maureen McCarthy, Assistant Director of Advancement and Best Practices, Council of Graduate Schools Moderator: Dele Davies, Vice Chancellor for Academic Affairs and Dean for Graduate Studies, University of Nebraska Medical Center
6:30 – 8:30 p.m.	**Dinner**

Tuesday, October 27

8:00 – 8:30 a.m.	**Continental Breakfast**
8:30 – 9:45 a.m.	**Research on Campus Perspectives on Holistic Review** Kimberly Griffin, Associate Professor, Higher Education, Student Affairs, and International Education Policy, University of Maryland, College Park Julie Posselt, Assistant Professor of Education, University of Michigan Moderator: Nasser Zawia, Dean, Graduate School, University of Rhode Island
9:45 – 10:00 a.m.	**Morning Break**
10:00 – 11:30 a.m.	**Measuring the Impact of Holistic Review** Ambika Mathur, Associate Provost and Dean of the Graduate School, Wayne State University Janet Rutledge, Vice Provost and Dean of the Graduate School, University of Maryland, Baltimore County Moderator: JoAnn Canales, Dean, College of Graduate Studies, Texas A&M University - Corpus Christi
11:30 – 12:30 p.m.	**Lunch**
12:30 – 1:30 p.m.	**Assessing Noncognitive Attributes** David Payne, Vice President and COO, Global Education, Educational Testing Service Linda Sealy, Director, Vanderbilt Initiative for Maximizing Student Diversity Moderator: Barbara Knuth, Vice Provost & Dean, Graduate School, Cornell University
1:30 – 2:30 p.m.	**The Way Forward: Practical Challenges and Solutions** Maureen Grasso, Dean of the Graduate School, North Carolina State University Kristin Williams, Associate Provost, Graduate Enrollment Management, George Washington University Moderator: Steve Matson, Dean, The Graduate School, The University of North Carolina at Chapel Hill
2:30 – 3:00 p.m.	**Identifying Next Steps** Suzanne Ortega, President, Council of Graduate Schools
3:00 p.m.	**Meeting Closes**

Appendix B: Project Workshop Summary

The CGS Workshop on Holistic Review in Graduate Admissions (October 26-27, 2015) brought together approximately 35 graduate deans, graduate admissions professionals, higher education associations, researchers and representatives of companies and organizations with an investment in the graduate admissions process. The goal of the workshop was to help CGS and its member institutions identify new opportunities to understand and advance holistic review in graduate education. An agenda of the meeting is included as Appendix A.

A draft of this report, which was circulated in advance, framed the meeting. CGS staff recorded observations and recommendations offered by speakers and other participants at the workshop, and participant feedback was integrated into the report. Several major themes that emerged from the conversation and presentations at the meeting also are summarized below.

Excellence through diversity

The workshop's keynote speakers set the tone of the workshop by opening with strong calls to view the opportunity of holistic admissions as one to begin constructing excellence through diversity. Marc Nivet (Chief Diversity Officer for the Association of American Medical Colleges) extrapolated on a concept he calls "Diversity 3.0," the idea that institutions should move from a conception of diversity as parallel to excellence towards recognizing diversity as central to excellence. Lorelle Espinosa (Assistant Vice President, Center for Policy Research and Strategy at the American Council on Education) also embraced this view, while recognizing that it is not the reality on campus yet. The idea that diversity is central to excellence functioned as a key assumption of the workshop throughout, with participants acknowledging the challenges inherent in moving an institution toward this goal.

The admissions ecosystem

Any attempt to achieve excellence through diversity cannot succeed through changes in the admissions process alone. Admissions processes must be considered as part of a larger strategy that includes the strong support of campus leaders, integrated cooperation between recruiting and admissions, and support systems for matriculated students.

The workshop's keynote speakers once again led the way in laying out the importance of considering admissions within the larger context of university structures and student learning environments. Marc Nivet noted "the idea of holistic admissions is not an end; it is nothing but a tool." This theme was echoed by Lorelle Espinosa, who encouraged workshop participants to "look beyond the admissions moment" to a larger strategy for increasing diversity.

Three speakers, Ambika Mathur (Associate Provost and Dean of the Graduate School, Wayne State University), Janet Rutledge (Vice Provost and Dean of the Graduate School, University of Maryland, Baltimore County), and Linda Sealy (Director, Vanderbilt Initiative for Maximizing Student Diversity) presented strong evidence that supportive learning environments generate more consistently positive student outcomes than admissions requirements (Mathur & Feig, 2015; Maton et al., 2012).

Although their data in each case applied to a specialized program focused on increasing URM STEM PhDs, they raised the compelling question of whether learning environments can foster success to the same degree in "traditional" programs.

Student funding structures

Another major consideration about the ecosystem of graduate admissions is that of funding structures. Especially at the doctoral level, many participants indicated that admissions processes are heavily influenced by how students are funded. For example, some participants referenced the fact that if a professor has grant funding to bring on a graduate student, she has almost complete control over which student she selects, without regard to any procedures that might be in place. Likewise, self-funded students were considered differently than others, and sometimes admitted without faculty champions willing to mentor them. On the other side of this equation, Julie Posselt (Assistant Professor of Education at the University of Michigan) found in her research on doctoral admissions processes that "risk requires patrons." This can work to a student's benefit if they are the one chosen by a professor to be mentored, especially if that mentorship comes with funding.

One particular area identified where graduate deans have influence is in so-called "diversity fellowships." Diversity fellowships at doctoral institutions are commonly competitive fellowships that provide funding for doctoral students who identify as an underrepresented minority. These may be restricted by race/ethnicity, gender, or some other category. In practice, it seems that sometimes diversity fellowships incentivize departments to evaluate URM students in competition with each other rather than the larger pool of applicants. One way to mitigate this risk was suggested by Barbara Knuth (Vice Provost & Dean of the Graduate School, Cornell University), who mentioned that she has renamed what used to be "Diversity Fellowships" as "Dean's Excellence Fellows." Although these fellowships continue to be reserved for underrepresented minorities and first generation students, the framing has changed how faculty approach them.

Constructing a cohort

Workshop participants expressed eagerness to explore how different funding models might allow for a different conception of doctoral admissions, namely, constructing a cohort rather than assembling a group of apprentices. Edelma Huntley (CGS Dean in Residence) pointed out that master's-focused institutions have been following this model for years. Undergraduate and professional admissions were also mentioned as offering lessons for those interested in pursuing a cohort model.

Kimberly Griffin (Associate Professor of Higher Education, Student Affairs, and International Education Policy, University of Maryland at College Park) identified some benefits with this model as including "creating a community" and "remembering that bringing in students with different perspectives make everyone better." This cohort model hinged on the concept of excellence through diversity—and will require the rethinking of structural issues embedded in many institutions to be successful.

Using data

Workshop participants indicated that, at both the master's and doctoral levels, graduate schools may already have the capacity to analyze existing data to determine predictors of success. This would involve looking at department-level administrative data from years past, including GRE scores, undergraduate GPA, or other factors considered in admissions, and determining whether they exhibit any correlation with graduation rates, time to degree, or other meaningful outcomes. Although these studies can contribute important information to a department, Julie Posselt counseled caution, saying,

There are some concerns about departments that go too far back with predictive analytic data, because they've gotten better at supporting underrepresented minority students over time. The predictive analytics presume that departments have been perfect in supporting students throughout their history.

Her remarks serve as another reminder of the importance of learning environments to student success, which should never be underestimated. Predictive analytics may, however, provide departments with valuable insight into whether the metrics currently valued in their admissions process are meaningful within their own departmental context. Additionally, if other factors exist as impressions that inform committee decision-making, it makes sense to document these so they can also be researched. In all cases, participants stressed that "it has to be program-level data" (Maureen Grasso, Dean of the Graduate School, North Carolina State University) in order to be compelling.

Rethinking criteria

The discussion about linking admissions criteria to outcomes led to some discussion about the information admissions committees require applicants to submit, and whether there might be creative solutions to identify criteria that more closely match the qualities linked to student success, such as "curiosity."

One possibility that emerged was to measure competencies (or domains of competency) as outcomes of graduate study or as criteria for admissions. David Payne (Vice President and COO, Global Education, ETS) suggested connecting competencies expected for admissions to graduate programs with competencies expected when graduating from undergraduate programs. CGS is committed to learning more about this area, and will author three papers on the topic in 2016, commissioned by the Lumina Foundation.

Another possibility involved the development of a common form for letters of recommendation to graduate admissions to make the recommendation more meaningful and easier for recommenders to complete. Some suggestions included requiring recommenders to give concrete examples of qualities they assert the student has and including certain noncognitive elements as "tags" or as items to consider on the form.

Priority actions

A number of principles and promising practices emerged from the workshop, which can be found reported on pages v-vi.

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