

THE COOPER UNION



SUMMARY OF FINDINGS AND RECOMMENDATIONS

RESPECTFULLY SUBMITTED
BY THE
DIVERSITY AND INCLUSION
TASK FORCE

DECEMBER 2018

Summary of Findings and Recommendations

Respectfully Submitted by The Diversity and Inclusion Task Force

Executive Summary

Building on preliminary findings in the Faculty-Student Senate report, *Some Aspects of Diversity at The Cooper Union*, advanced to President Sparks on April 4, 2017, this report provides the recommendations of the Diversity and Inclusion Task Force, which was convened as a result of the Faculty-Student Senate findings. The Faculty-Student Senate report provided an initial assessment revealing an adverse climate for women studying at the Cooper Union and suggested a warrant for fundamental cultural change to proactively support women in all three schools. Recommendations were made to address findings regarding the ability to recruit diverse female students including:

- need for commitment to this recruitment at all levels from the top down,
- an emphasis on the types of work done at Cooper Union to focus on the social benefits of engineering to increase applications from female students, and
- integration of K-12 outreach and professional networks to increase diversity (applicants) at the Cooper Union.

While these recommendations rightly focus on women, the Diversity and Inclusion Task Force (henceforth DITF) has agreed to broaden the scope, recognizing true diversity goes beyond the school's compositional metrics to include shaping educational practices, culture, and a community that embraces the viewpoints, experiences, and perspectives of all of Cooper Union's constituents.

The DITF report is organized in two sections: the executive summary and Diversity and Inclusion Task Force working group summaries. The executive summary includes an overview of the work of the DITF and synthesis of observations, findings, and recommendations. The DITF working group summaries include the focus, observations, and recommendations of each DITF working group respectively. Each discussion in the summaries includes citations of relevant research and literature pertaining to the focus of the working group.

Overview of Work

The DITF was charged to develop recommendations using the research literature regarding access, equity, and inclusion as a departure point, to explore what it will take to promote greater diversity and inclusion at Cooper Union. The DITF aimed firstly to clarify the status of diversity at Cooper Union by evaluating data, trends in enrollment, and findings from a climate survey and secondly to advance recommendations rooted in research on access, equity, and diversity as they pertain to educational

excellence. Most importantly, the DITF aspired to illuminate the fundamental prerequisite and profound need to build institution-wide:

- understanding and appreciation for the history and dynamics that contribute to under representation,
- value of difference, which opens the door to more expansive and nuanced discourse and student learning, and
- requisite for inclusive pedagogies that integrate the approaches, perspectives, and experiences of students who come from non-traditional backgrounds and that are fluid enough to address the needs and interests of all students.

Research literature helped to establish the importance of diversity and inclusive practices to the quality of the educational experience, particularly discourse and engagement in and outside of the classroom. Moreover, the research offered insight into the components of effective instructional models focusing on tolerance for diversity and pluralistic^{1,2} orientation, all of which was linked to outcomes such as creating a sense of belonging at the institution hence leading to the subsequent motivation for students to then engage with the institution.

The DITF implemented a collective action model identifying five working groups to investigate practices that strengthen and highlight diversity and inclusion. Notably, in the first DITF meeting, participants stipulated that the task force must promote practices that support **Brave Spaces**³, emphasize **Belonging**, and build **Community**. These themes will resonate throughout the working group summaries, discussions, and recommendations in this report. The five working groups are: Culture and Climate; Compositional Diversity; Inclusive Pedagogy and Practice; First Year Experience; and Diversity of Faculty and Staff. Membership and participants in each working group are identified in Appendix 4.

The DITF working groups included in their focus the concerns regarding underrepresented groups because of their relatively low enrollment numbers, particularly in the School of Engineering. The diversity groups were identified by the DITF to be: African American, Hispanic, American Indian, low socio-economic status (hereafter SES), Deferred Action for Childhood Arrivals (hereafter,

¹ Pluralism is a relatively new measure of a student's ability to see the world from another's perspective; tolerance for difference; openness to having one's views challenged; ability to work cooperatively with diverse others; and ability to address controversial issues. (M. Engberg, E. Meader, S. Hurtado, 2003)

² See Appendix 1 which provides an AACU Rubric of Learning Outcomes associated with Global Learning

³ **Brave Spaces** (as opposed to *Safe Spaces*) were proposed as spaces in which students would have the confidence to express their viewpoints and engage in difference and discourse without fear of reprisal.

DACA) and undocumented status, and gender. The DITF work will posit diversity as essential to realize the educational mission of Cooper Union such that it is “sustained as a free center of learning and civic discourse that inspires inventive, creative, and influential voices in architecture, art, and engineering to address the critical challenges and opportunities of our time⁴.” In this report, the DITF promotes diversity as an organizing paradigm for educational excellence, and the DITF concentrates, albeit through the working groups, on where inclusive practices, better understanding of diversity issues, and training are needed within the context of the Cooper Union as defined by its educational mission. The value and need for diversity as well as our criteria for excellence have for some time been largely unexamined precepts. The DITF recognized this charge as an opportunity to advance and implement practices that have been shown by research to grow and support diversity and in the process benefit the entire community.

The DITF observations, findings, and recommendations are collegially tendered to begin fostering a more cohesive, structural approach to diversity with equity mindedness and egalitarian values that permeate the services, supports, and learning experiences for all students

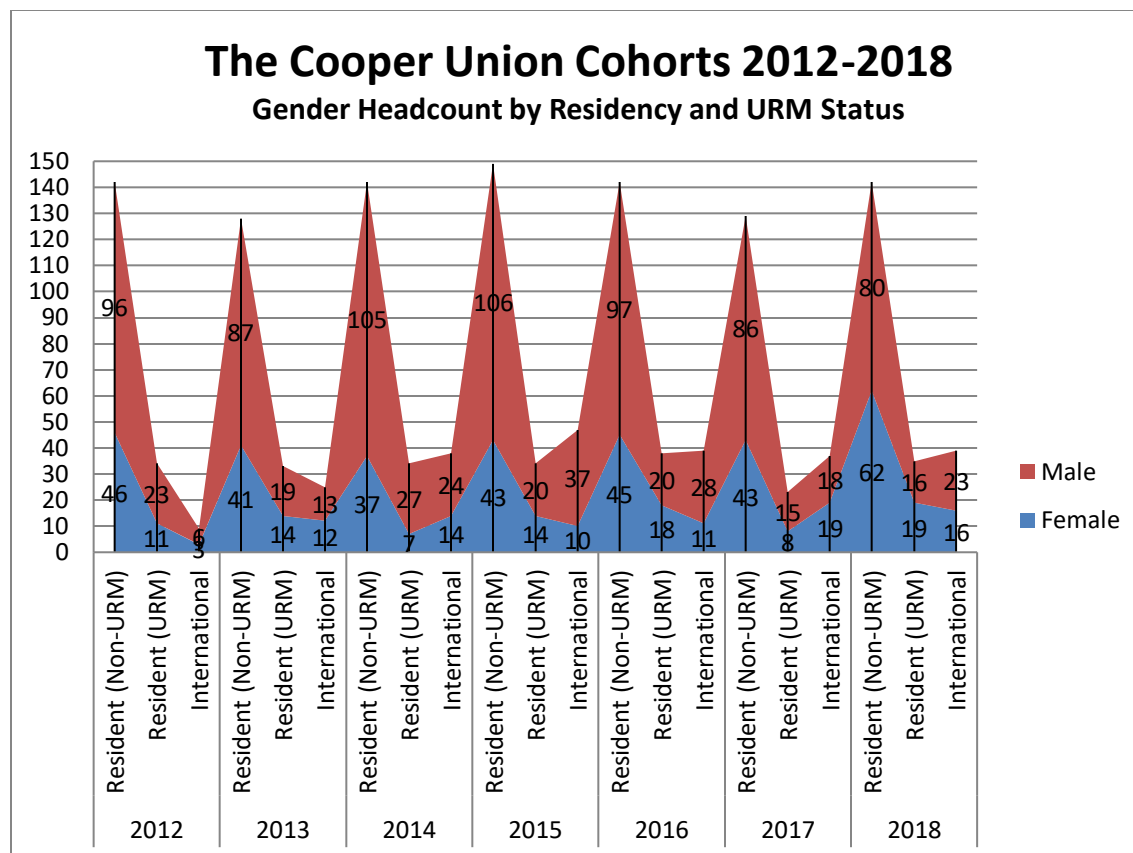
Synthesis of Observations and Findings

Diversity is very much a part of Cooper Union’s history and ethos; nevertheless, findings are that we have been, at best, only marginally effective in integrating diversity as an institutional strength and value. Opportunity exists at every level to bolster current efforts in recruitment and admission, student development and engagement, educational services and supports, instructional inclusiveness, transparency and accountability, faculty development, and diverse faculty and staff hiring approaches.

In recruitment and admission, high school GPA, SAT or ACT scores, and completion of rigorous curriculum - usually Advanced Placement (AP) or International Baccalaureate (IB) courses - have historically weighed heavily in selection criteria for college admission at Cooper Union. This can disadvantage low income and racially and ethnically diverse students who have attended low-resourced schools and have not had equal access to college preparatory activities and classes, such as SAT prep or AP courses. Thus, historically under-represented students have been at a disadvantage in the college admissions process. The over-reliance on standardized tests and high school GPA has affected the compositional diversity of the Cooper Union student body (see Graph 1).

⁴ Excerpted from Cooper Union Mission Statement.

Graph 1: Seven Years of Freshman Cohort Enrollment for The Cooper Union by Gender, Residency and Underrepresented Status*



(*This data is provided in table format in Appendix 5.)

Fundamentally, monitoring data on enrollment can motivate attentiveness to diversity composition of enrolled cohorts and potential pedagogic challenges and opportunities. Graph 1 provides an overview of the last seven years of the freshman cohort enrollment and demonstrates the failure to enroll a diverse class. The graph is segmented along the horizontal axis by cohort year. For each cohort, the students are grouped as Resident⁵ Non-Underrepresented Minority [Non-URM]⁶, Resident Underrepresented Minority [URM]⁷, and International. The headcount for each category by cohort are provided. Males are represented by the color red, which is the predominant color in the graph throughout the seven years, indicating a lack of gender parity within cohort populations. Also note that while International student populations have grown, the Resident (URM) population has

⁵ Resident refers to United States residency.

⁶ Non-URM includes Asian, White, and Unknown races.

⁷ URM includes Black or African American race or Hispanic ethnicity. Students with two or more races/ethnicity with one race/ethnicity as URM are counted as URM in this chart. Also, included under URM are American Indian or Alaskan Native and Native Hawaiian or Other Pacific Islander races, but no student with these races are enrolled at Cooper Union.

decreased or remained stagnant. The graph clearly shows the low numbers of Resident (URM) enrolled at Cooper Union and the increased enrollment of International students, each of which points to potential pedagogic needs in the classroom to address experiential, cultural, and class differences that could play out in student exchanges and engagements

The compositional diversity⁸ of Cooper Union is determined by the recruitment, admission, and enrollment practices of each of the three schools (Architecture, Art, and Engineering); therefore, each school differs in approaches and success in achieving diversity. While compositional diversity is a significant achievement and important goal for a college located in a large urban area like New York City, the process of following up on the recommendations to achieve greater diversity will be strengthened by a deeper understanding of the talents and ideas that a diverse student and faculty population bring to the community and how these support our ability to achieve the outcomes of the Cooper Union mission. The Working Group on Compositional Diversity recognized the overarching commitment across the admission committees of the schools to identify students who possess the attributes, experiences and talents that suggest a good match with the educational model at Cooper Union, and suggest that there is an opportunity for the schools to share how they identify and use these other factors to differentiate candidates who present outstanding academic credentials. Collaborative exchange among the admission committees is recommended in order to identify those practices that support diversity and excellence.

The Working Group on Culture and Climate administered the Diverse Learning Environments climate survey (hereafter DLE), given to Cooper students, as part of their inquiry work. The findings from the DLE provided us critical and weighty awareness of the current “temperature” at Cooper Union with regard to diversity and inclusion. Listening sessions implemented in conjunction with Student Affairs enhanced our comprehension of the perceived adverse climate. Moreover, the recent protest and ensuing discussions with members of The Movement, a student-led initiative to decolonize the HSS curriculum, have deepened our understanding of students’ lived experiences and their consequent concerns about their learning environment. These interactions with the students – listening sessions and the protest/discussions – have put teeth to the DLE findings and yielded seminal recommendations and a warrant for deeper investigation. For instance, student responses in the DLE suggest that academic validation in the classroom is a concern; this is mirrored by focus group findings that implicit and explicit bias and micro-aggressions play out in some classroom and

⁸ Compositional diversity refers to the “numerical and proportional representation of various racial and ethnic groups on a campus” (Milem, Chang, & Lising-Antonio, 2005). *From a practical perspective, perhaps even a definition of “compositional diversity” should be altered for Cooper Union to include gender diversity.*

in club experiences. Promisingly, there is a strong desire to foster belonging and build community at Cooper Union and target structural opportunities that promote engagement across schools such as scheduling, more common times, and consideration of workload and students' need to commute and work.

Similarly, there is a desire from students for greater discourse with peers and faculty, collaboration, and challenging learning experiences. They express a desire to be active agents in their own learning and would prefer other modes of instruction besides lecture. Moreover, students seek the opportunity to develop pluralistic and teamwork skills with an interest in developing the practices for respectful and productive engagement with peers. In conjunction, faculty expressed the need for time and resources to develop high impact instructional practices that promote learning outcomes as well as provide the kinds of support scaffolds (such as space for teaching and learning and academic support) that encourage student success. They acknowledged that students are coming to Cooper Union with differing educational experiences and levels of preparation and suggested the need to foster faculty exchanges (communities of practice) to identify the extent and nature of the gaps (for instance mastery of pre-requisite, habits of mind, or collaboration skills) and share instructional practices in play among faculty peers.

Consistency and clarity in classroom expectations and established classroom practices are also desired from students. In focused discussions, they expressed that they often do not have perspective regarding their performance in courses; for example, in some cases, the syllabus and/or grading rubrics were not provided and/or graded homework and papers were not returned. Consequently, students were specific about the need for an early warning system as an alert regarding their performance, progress, and/or other concerns, in order to provide opportunity for proactive action and support to address these concerns. The need for an early warning system was echoed in recommendations from other working groups.

Overall, there was congruence in the need to develop positive interactions in classrooms, studios, and laboratories in order to engender a sense of belonging in and among students. Additionally, there was a desire among all constituents to build connections across schools and between schools and support services.

Synthesis of Recommendations

The DITF has explored and commented on what may be contributing to inequities at Cooper Union. Numerical data has called attention to the presence of equity gaps but has not revealed what is causing gaps or what Cooper Union can do to eliminate them. Through observations, interviews, document reviews, and other kinds of quasi-qualitative research, the DITF has begun to shape an understanding of the diversity challenges at play at Cooper Union. Students, faculty, and staff have provided crucial insight to this challenge with passion and view toward the future.

Diversity is a means by which problem solving, creative, civic, and social engagements yield transformative thinking; it is an essential value upon which the curriculum and degree quality build. That under-represented populations (low income, first generation, racial and ethnic minorities, and women) have an opportunity to avail themselves of the unique educational and post-graduation benefits provided by Cooper Union, a highly selective institution, is a crucial social and ethical priority. For Cooper Union, diverse students can contribute to the intellectual and experiential tensions that engender new and critical approaches that shape both the institution and its students alike.

The DITF and Work Groups have advanced recommendations in order to achieve the merits of diversity and to support the high caliber of the educational and social experience of our students. Recommendations fell into several key domains.

1. **Equity Mindedness** that builds on a shared understanding of the conditions that contribute to the under-representation of diverse students; their engagement in the classroom; their belonging, well-being and sense of community; and needed financial and academic approaches and resources that support all students. Crucial factors to address include the stresses associated with low socio-economic status (hereafter SES) and class differences in the classroom, the need to commute and work, and the need for financial literacy and planning. This means that all stakeholders play a role in shaping students' sense of membership in the Cooper Union community. To create a culture that values students and builds community will require that we are mindful of the experience we create for them and with them. This will require training and discourse among faculty and staff alike. The power for change rests with every faculty and staff member.

This understanding should inform the goals of K-12 pathways to Cooper Union, that is, to address inequities by creating pedagogical experiences that promote depth in the learning experience and foster habits of mind, critical content knowledge and skills, and a strong academic identity and community of peers. There is a recognition that in these programs, the relationships forged with faculty, staff, and peers provide motivation and confidence.

- 2. Compositional Diversity and Equitable Access** are broken out specifically. The cumulative adverse impact of social and economic inequalities on standardized measures, test scores, and GPA and access to AP and IB courses impact diversity goals. In order to diversify the applicant and accepted student populations and ensure equitable assessment in the **admissions process**, the priority for Cooper Union to examine current admissions guidelines and practices and address these inequalities was established. Recommendations were advanced for the schools to share 1) how they identify and use other factors to differentiate candidates who present outstanding academic credentials and 2) the approaches taken to assess non-traditional factors.

Institutional selectivity and diversity each have merit in shaping a vibrant college culture. They are foundational to Cooper Union's excellence. Each promises to enliven the engagements between faculty and students, and students and peers where disparate experiences and viewpoints foster the intellectual tension, dissonance, and heuristics from which deep learning and creativity emerge. However, the very fact of being underrepresented can impact the engagement of diverse students. They can feel isolated and peripheral to the discussions at hand for a variety of reasons when they don't see others like themselves or have peers in class who share their viewpoints, perspectives, and approaches (Tobias, 1990). It is not only that the student may be made to feel that their ideas are (or will be) disregarded; the vitality of the classroom suffers when diverse viewpoints, approaches, and experiences are absent. In the words of a Cooper student, the underrepresentation problem is *“regressive... as the problem exacerbates the problem and is crucially implicated in the concept of diversity action.”*

- 3. Vigilance** across the institution to identify and take positive actions that support student belonging, validation, and community that is, a supportive culture and climate for diversity to thrive. This includes addressing Micro-aggressions, Implicit Bias, Marginalization, and Harassment when they occur (see Appendix 3 for definitions). Proactive measures will include training, processes to advance concerns and complaints, accountability in those processes, and policies that support the value for diversity and students. There is also need for such vigilance in the work proposed to promote inclusive educational practices, models, and pedagogy among faculty. A focus on teaching and learning is warranted.
- 4. Inclusive Pedagogy and Curriculum** designed to foster engagement, collaboration, and challenge. Specifications for inclusive pedagogies include practices that typically demand that students devote considerable time and effort to purposeful tasks; most deepen students' investment in the activity as well as their commitment to their academic program and the school. This usually means that learning is active and invested in some application of the discipline. Inclusive pedagogies build on problem design that will elicit diverse perspectives, approaches, and inputs as part of the problem heuristic. When this happens, students have the opportunity to

become agents in their own learning and develop the ability to engage across difference. Inclusive pedagogy builds on respectful and mindful discourse and collaborations and promotes academic and social integration and academic validation.

To promote a culture that embraces and promulgates inclusive pedagogy and curriculum it is recommended that Cooper Union provide space and time to enable faculty to convene and create communities of practice and participate in development seminars including learning sessions on fundamental diversity and inclusion topics such as micro-aggressions, implicit bias, and the value of diversity. Promising pedagogical models at Cooper Union have been identified, and a First Year Experience (FYE) recommended.

5. **Changing the Face of Teaching and Learning.** Diverse faculty role models play an important role in shaping student identity and belonging, provide access to social networks, and themselves challenge the status quo providing important insight and intellectual tension for the school. Effective instructional models promote students as agents of their own learning, fostering new roles for faculty as facilitators as opposed to the *sage on stage*. Therefore, there is need to achieve greater diversity in the faculty and staff. To promote diverse faculty requires new recruitment targets and retention practices that are currently being developed in workgroup. Inclusion of diversity activity was recommended as a consideration in the Tenure Review process. **Report of this working group is in progress and expected to be completed May 2019.**
6. **Structural, institutional support of diversity and excellence.** The work of diversity and inclusion will require ongoing, coordinated efforts. There is need for a structure to maintain focus on the work: for oversight of training in diversity practices; exploration of pedagogical practices and models; convening communities of practice; and engaging the community with speakers, discussions, and seminars about diversity and learning excellence. Accountability to standards that support academic and interpersonal validation and belonging need to be fostered through policies and sharing of best practices. Development and management of a complaint process that establishes clear entry points, roles and accountabilities, and provides protections from retaliation and bias will support efforts to develop practices that foster productive engagements.
7. **Build practices that foster effectiveness.** The recommendations outlined in this report identify how we can work toward a diverse, high quality, and engaging campus culture. There is need to chart our progress on key indicators and metrics. As we pursue recommendations, it is crucial to identify the means by which we will chart progress.

The Diverse Learning Environments survey (DLE) identifies priority outcomes by which we can measure progress. Survey domains and items are provided in Appendix 2. In this survey, Cooper Union respondents report strong academic self-concept, ability to assimilate and integrate knowledge, and habits of mind. Students express that they are confident in their ability to learn. There is need to better engage with students in classroom and club experiences in such a way as to foster belonging and community. The factors underlying students' perceptions of how they are valued and validated inside and outside of the classroom and of their progress in developing the skills and abilities needed to engage with difference will be among the crucial measures to chart the effectiveness of the strategies and initiatives we undertake to respond to some of the findings of this report. There is also a need to formalize learning outcomes associated with a more pluralistic and global orientation.

An **Equity Dashboard** should be considered to organize numerical data on key indicators such as the applications, admission, and enrollment of diverse students and their progress and performance in key courses. Plans should be developed to mark progress on key items identified in the Diverse Learning Environment (DLE) survey including students' sense of community and belonging.

The Diversity and Inclusion Task Force recognizes that promoting greater diversity and inclusion will require difficult conversations and decisions about questions to do with admissions criteria and recruiting strategies, curricular and instructional practices, and faculty and staff recruitment and development. We urge the community to take up these discussions and the recommendations herein.

Work Group Summaries and Recommendations are provided on pages 11 through 33.

Work Group: Compositional Diversity

High school GPA, SAT or ACT scores, and completion of rigorous curriculum usually including Advanced Placement (AP) and International Baccalaureate (IB) courses have historically weighed heavily in selection criteria for college admission at Cooper Union. A recent analysis of GPA and SAT profiles of the 2018 cohort substantiate this finding at Cooper Union. This disadvantages diverse students who have traditionally attended low-resourced schools and have not had equal access to college preparatory activities and classes, such as SAT prep or AP courses. Thus, historically under-represented students have been at a disadvantage in the college admissions process.

There is need for a systematic procedure focusing on the admissions characteristics that research demonstrates may be useful in evaluating candidates for admission. These criteria provide important information in the review of all candidates.

- Major related work to be considered as we explore how we might increase the enrollment of under-represented groups: (1) impact of the use of traditional criteria, such as SAT scores, on Historically Underrepresented (HU, this includes women in engineering and URM) students' college admission and the changing admission processes; (2) non-cognitive attributes that contribute to student success, particularly for HU students.

Observations

The National Association of College Admission Counseling (2016) reports that over half of the institutions that use SAT scores and HSGPA in the admission processes do not test the predictive validity of these variables on student retention and success, leading to a lack of understanding on how gaps in SAT performance may be impacting historically under-represented students in the admission process (Santelices & Wilson, 2010). In addition, even though college ranking and admission metrics such as SAT and HSGPA have their place in differentiating university and candidate pools, over-reliance on SAT in college admission and rankings have undermined the STEM participation and degree attainment of HU students and shaped their college access narrative and under-representation (Reeves & Halikias, 2017).

The Compositional Diversity Group recognize that under-representation is itself a regressive challenge in that underrepresentation exacerbates underrepresentation and will therefore be crucially implicated in the concept of Diversity Action.

- In their Team Report, the Middle States Commission on Higher Education (hereafter MSCHE) assessors identified an over-reliance on GPA and SAT particularly in the School of Engineering Admission protocols, stating that, “*Although the School of Engineering recognizes the cumulative adverse impact of social and economic inequalities on standardized measures, test scores and GPA, at this time these data*

tend to play a large role in applicant decisions that may be constraining diversity goals. An on-site review of the supplemental questionnaire showed that neither race nor gender are collected on this instrument, and that seven of the first 10 items collected pertain to high school GPA, courses, and test scores.”

- The findings regarding overreliance on standardized measures and GPA are corroborated in a recent analysis of admission data demonstrating tight clustering around very high GPA and Total SAT scores (TSAT) in the School of Engineering’s 2018 admitted class. Greater spread in the GPA and TSAT scores the Schools of Art and Architecture 2018 admitted classes are observed.
- Other competitive schools have chosen to either be test optional or do away with SAT, ACT, and SAT Subject Test. Research, such as an [April 2018 study](#), has supported that test-optional admissions may help with diversity at schools as SAT may fail to identify students who could be successful.
- SAT Subject Tests are often cost-prohibitive and/or not available for low-income and minority students.
- The two SAT Subject Tests currently required by Cooper Union’s School of Engineering automatically limit applicant numbers. For example, less than 107,000 students nationwide took SAT II Physics in 2018; from that group, only 25,266 students who identified as female, 3,084 who identified as Hispanic, 1,376 who identified as Black or African American, 777 who identified as Hispanic female students, and 435 who identified as Black or African American female students met Cooper’s score requirement (numbers from College Board Enrollment Planning Service).
- Access and opportunity for students with demonstrated merit is uneven because of overreliance on SAT scores, particularly in the School of Engineering. SAT, considered a measure of merit, is linked to socio-economic status and educational resources (Crouse and Trusheim, 1988). In their assessment findings, MSCHE advises that there is need for “*a consensus-driven, institutionally shared, definition of quality that recognizes the compounding effects of social and economic inequality on standardized admissions measures*” suggesting HSS participation in this effort.
- MSCHE assessors promoted the merit of the alternative assessment practices in the Art School’s home test and portfolio review processes advising that “*The role of the home test has proven to yield more consistently diverse students in the School of Art, such that the School of Architecture is examining the role that a similar home test might play in its admission process.*” A beta test of performance-based assessment in the Mechanical Engineering department yielded increases in the enrollment of diverse students, a promising practice.
- Colleges and admissions offices are beginning to use non-cognitive attributes, as Sedlacek (2003) recommends, and additional or other measures of success and potential to evaluate student admissibility including participation in academic enrichment programs (Syverson, Franks, & Hiss, 2018).
- The Carnegie Council of Policy Studies in Higher Education stated: "Grades and tests looked at together are more predictive of subsequent academic performance than grades alone or tests alone.

More generally, Torsten Husen (1976) has noted that: “Extensive empirical research tells us that at most half of individual differences in educational attainments are attributable to purely intellectual factors. The rest may be attributed to motivation, interest, perseverance, health, and, of course, home background”.

The enrollment of historically under-represented students in the Schools of Architecture and Engineering has been in decline.

- In 2018, gains are observed in the enrollment of women in both schools, reflecting enhanced recruitment and yield efforts.
- The under-representation of African American, Hispanic, and American Indian students persists. Questions regarding the role of recruitment versus admissions strategies emerged in the DITF.

Each school at The Cooper Union: Architecture, Art, and Engineering, differs in their compositional diversity.

Each school uses different methods for recruitment and admissions. While direct comparisons may not be practical, the overarching similarities in the “Cooper student type” suggests that the schools should share recruitment and retention strategies and even collaborate on best practices.

While the schools with the least racially and ethnically diverse student populations, Architecture and Engineering, are the focus of the suggested activities, the recommendations should help strengthen Cooper Union as a whole.

Students experience financial stress and uncertainty, particularly first generation, low SES, and racially diverse students. Financial aid is crucial to their ability to attend and complete college. However it is often the case that the low SES households lack background knowledge to accurately estimate the true cost of college attendance. Findings by Horn, Chen, and Chapmen, (2003) suggest that in general, parents’ ability to estimate college costs accurately is positively correlated with income.

Research suggests that low SES and diverse students need coaching and navigational support to access and complete financial aid processes (including the verification process), and make sense of their budget and financial aid awards including the financial tools available to address unmet need⁹. While low-income students are more likely to rely on counselors to discuss financial aid (72 percent) than their higher-income peers (34 percent) (Terenzini, Cabrera, and Bernal 2001), more than one-third of high school counselors surveyed in the National Association for College Admission Counseling and

⁹ Knowledge of financial aid and financial aid processes varies by race and ethnicity, with two-thirds of African-American parents and 62 percent of Latino parents saying they need more information about how to pay for college, compared to only 44 percent of White parents (Sallie Mae Fund and Harris Interactive 2003).

the Project on Student Debt (2007) expressed a belief that low-income students should avoid student loans because of the risks of default. Thus, diverse students in college can be faced with unmet expenses for which they have no concrete financial plan other than containing costs, often by commuting and working while in school. This not only exacerbates the stress associated with the demands of rigorous course and program plans but can also affect the ability of these students to engage with faculty and peers.

While Compositional Diversity is a significant achievement and an important goal for a college located in a large urban area like New York City, the process of following up on the recommendations will be strengthened by a deeper understanding of the talents and ideas that a diverse student and faculty population bring to the community and how these strengthen the Cooper Union mission.

Gathering both quantitative and qualitative data and evidence will be critical for integrating the findings of this work into practices that support Cooper students, faculty, staff, and alumni.

Any recommendations for helping to improve Compositional Diversity at Cooper Union must accompany work that provides support for the student experience. To grow and maintain a diverse campus community that values the voices of its different community members, Cooper Union must ensure that students, faculty, and staff have the resources and systems in place that will help them to grow and learn.

Recommendations

This workgroup was charged with looking at compositional diversity specifically; however, we acknowledge that having a more racially, ethnically, and gender diverse student body (and potentially community) does not mean that the Cooper community will be more inclusive. Representation is an important part of a broader picture that must also include serious investigation of ways to create a more inclusive and supportive community through the lenses of campus climate, curriculum, pedagogy, and more.

Compositional diversity refers to the “numerical and proportional representation of various racial and ethnic groups on a campus” (Milem, Chang, & Antonio, 2006). From a practical perspective, perhaps even a definition of “compositional diversity” should be altered for Cooper Union to include gender diversity.

We recommend that both internal and external evaluators contribute to the changes needed in the process to understand diversity and implement changes recommended by the community.

In order to diversify the applicants and accepted student populations and ensure equitable assessment in the **admissions process**, we recommend that Cooper Union examine current admissions

guidelines and practices and develop new metrics or pathways for assessing the potential of an applicant to successfully complete their degree at Cooper Union. In particular, the following practices are identified for action to address this recommendation:

- It has been **recommended and approved** to remove the two SAT Subject Tests as admissions requirements for Engineering admissions.
- Identify the strengths and talents that diverse students bring to the Cooper community.
- Determine what student characteristics need to be assessed to predict success at Cooper overall and within each college. (Short-term). This could include conducting focus groups with faculty to generate ideas and compare data on students (current CU and general population).
- Evaluate the mechanical engineering pilot program impact and outcomes to determine potential strategies. (Immediate and short-term)
- Determine whether the requirement for engineering students to choose major at time of application has impact on their application and enrollment decisions. (Long-term)
- Determine whether the language and framing around the Bachelor of Science in Engineering (BSE) invites or dissuades applications from underrepresented students. (Short-term)

To increase the compositional diversity of the applicants and accepted student populations, we recommend that each school review and evaluate their current **recruitment strategies and practices** and develop new methods to engage with underrepresented populations.

- Develop pathways to Cooper Union. Increase outcomes of Cooper Union’s STEM programs. Partner with community-based organizations and college prep programs, including those with post-high school support systems (e.g., Prep for Prep). (Initiate: short-term, develop best-practices: long-term)
- Evaluate current recruitment strategies to identify best practices that result in the yield and enrollment of diverse students. Share best practices across schools. (Short-term, new VP of enrollment)
- Establish an engineering enrollment task force to initiate deep-dive study into current practices and best practices elsewhere to improve recruitment and yield of diverse students. (Immediate to short term)
- Examine the language and communication around recruitment and explore whether the language currently used is inclusive (e.g., remove “elitist” language that may be off-putting to certain students). (Immediate)
- Examine more closely the application fee and fee waiver process. (Short-term)
- Develop a common language around what differentiate a “Cooper Student” or “Cooper Education” from similar programs. (Short-term)

In order to increase the yield of Cooper Union's admitted students, we recommend that the **processes for scholarship and financial aid awards** be reviewed for transparency and ability to meet the needs of students and families and that scholarship money be increased for students from groups underrepresented in academic disciplines promoted by each school.

We suggest the following activities to address this recommendation:

Short Term

- Follow-up on 2018 pilot of awarding admissions merit scholarships (Innovator Scholarships) to underrepresented students to determine retention/persistence.
- Promote and assess applicant awareness of scholarship opportunities, affordability, value, etc.
- Develop a process for scholarship and financial aid appeal.
- Examine and revise/reframe how Cooper Union communicates to prospective and current students about financial aid and scholarships.
- Develop process and timeline for scholarship awards that coincides with admissions decision timeline.

Long term

- More scholarship money for students underrepresented at Cooper Union - prospective (yield), enrolled (support for persistence/retention).

The success of the recruitment and admission process rests in part on the experience that a student anticipates in applying to Cooper Union. This often includes strong engagement with faculty, interdisciplinary experiences across the three schools, and a culture that supports students.

Workgroup: Culture and Climate

Notably, in the first DTF meeting, participants stipulated that we must promote **Brave Spaces**, **Belonging**, and **Community**. Student well-being is central to well-designed instructional practices and curriculum. The peer environment inside and outside of class are crucial to fostering a sense of place among students, where learning behaviors and norms are developed, modeled, and shared and where students are, themselves, socializing agents to the culture of the classroom and institution (Terenzini and Reason, 2005). Through their engagement with peers, students connect the intellectual and social spheres of their college experience, a process coined by Tinto (1993) as academic and social integration.

- Developing a community in which students are affirmed creates a sense of belonging and academic identity. Interpersonal validation and sense of belonging are established psychological processes that occur within the institutional context (Hurtado, et al, 1998).
- Diverse populations, either because of small numbers and/or non-traditional experiences and perspectives can be made to feel as “outsiders” in their schools, classes, clubs, and/or potentially the community. The experience of being “othered” in this way can erode confidence and disengage diverse students from fully participating with peers. This can erode their sense of belonging to the community, be it the academic or social community.

Observations

The **Diverse Learning Environments (DLE) Survey was conducted in Spring, 2018**. Results provide important information regarding campus climate, institutional practices, and student learning outcomes and establish an urgent need to promote student belonging and academic validation in the classroom.

The DLE probes 1) Campus Climate including items regarding Sense of Belonging, Academic Validation, General Interpersonal Validation, Institutional Commitment to Diversity, Discrimination and Bias, Harassment and Conversations Across Difference; 2) Institutional Practices including items regarding Curriculum of Inclusion, Co-Curricular Diversity Activities and Navigational Action; and 3) Student Learning Outcomes including items regarding Habits of Mind, Integration of Learning, Academic Self Concept, Pluralistic Orientation and Civic Engagement.

One hundred ninety-six students (21%) participated in the survey. The DLE survey will be administered again in Spring, 2019. It should be noted that response rates of students of East Asian, European, and Other White race/ethnicity predominate findings and that findings are disaggregated

by gender. On all measures, with the exception of **Conversations Across Difference**, Cooper Union rates lower on “climate and culture” measures than our national comparison group.

DLE items regarding Campus Climate are elucidated as they provide outcome measures for assessment of progress on this domain going forward.

- **Sense of Belonging** measures the extent to which students feel a sense of academic and social integration on campus. In general, 50% of Cooper Union respondents indicate a sense of belonging, with women reporting slightly less so than their male counterparts at Cooper Union (49.8% v. 50.6% respectively). Items include “I feel a sense of belonging to this campus”, “I feel I am a member of this college”, “If asked, I would recommend this college to others”. Cooper Union’s female respondents report a sense of belonging lower than their female counterparts in a national comparison group (49.8% v 50.5% respectively) whereas Cooper Union’s male respondents report a sense of belonging on par with their male counterparts in the national comparison group (50.6%).
- **Academic Validation** measures students’ views of the extent to which faculty actions in class reflect concerns for their academic success. Cooper Union’s female respondents report less validation than their male counterparts at Cooper Union (47.4% v. 50.9% respectively) “my contributions were valued”; “faculty provide me with feedback that helped me assess my progress”, “faculty encouraged me to ask questions and participate in class discussion” “faculty were able to determine my level of understanding of course material”. Cooper Union’s female respondents report a sense of academic validation lower than their female counterparts in a national comparison group (47.4% v 53.3% respectively). Cooper Union’s male respondents report a sense of academic validation that is lower than their male counterparts in the national comparison group (50.9% v. 53.4% respectively).
- **General Interpersonal Validation** provides a measure of students’ view of faculty and staff’s attention to their development. Cooper Union’s female respondents report slightly less interpersonal validation than their male counterparts at Cooper Union (49.8% v. 51.3% respectively) on items in which “at least one faculty member has taken an interest in my development”, “faculty believe in my potential to succeed academically”, at least one staff member has taken an interpersonal interest in my development”, “faculty empower me to learn here”, and “staff encourage me to get involved in campus activities”. Cooper Union’s female respondents report a level of interpersonal validation lower than their female counterparts in a national comparison group (49.8% v. 50.9% respectively) whereas Cooper Union’s male respondents report a level of interpersonal validation higher than their male counterparts in the national comparison group (51.3% v. 50.6% respectively).

- **Institutional Commitment to Diversity** provides a measure of a student’s perception of the campus’ commitment to diversity. Cooper Union female respondents report a lower perception of commitment to diversity than their male counterparts at Cooper Union (43.6% v. 46.1% respectively). Items include “promote appreciation of cultural differences”, “has long standing commitment to diversity”, “accurately reflects diversity in publications” and “has campus administrators who regularly speak about the value of diversity”. Cooper Union’s female respondents report a perception of institutional commitment to diversity lower than their female counterparts in a national comparison group (43.6% v. 47.8% respectively) with Cooper Union’s male respondents also reporting a perception of institutional commitment to diversity that is lower than that of their male counterparts in the national comparison group (46.1% v. 47.8% respectively).
- **Conversations Across Difference** provides a measure of the extent to which students engage with diverse peers including “from a socio-economic class different than your own”, “from a religion different from your own”, “of a sexual orientation different from your own”, “from a country other than your own”, “with a disability” and “discuss issues related to sexism, gender differences or gender equity”. This domain is linked to outcomes where students who engage with diverse peers are more likely to achieve change across a wide range of student learning outcomes. Female and Male respondents at Cooper Union report equal experience in engaging across difference (53.5%); higher than national comparison sample for women and men (50.3% and 48.8% respectively).
- **Discrimination and Bias** measures the frequency of students’ experiences with more subtle forms of discrimination. Women respondents at Cooper Union report higher experience with discrimination and bias than their male counterparts (53.6% v. 49.3%) and in fact, higher than findings for women from the national comparison set (50.8%). Items in this domain include “verbal comments”, “witnessed discrimination”, “written comments (e.g., emails, texts, writing on walls)”, “heard insensitive or disparaging remarks about race/ethnicity from faculty”, “exclusion (e.g., from gatherings, events)”, “heard insensitive or disparaging remarks about race/ethnicity from staff”, “offensive visual images or items”. Cooper Union’s female respondents report experiences of discrimination and bias at levels higher than their female counterparts in a national comparison group (53.6% v. 50.8% respectively) with Cooper Union’s male respondents reporting experiences of discrimination and bias at levels commensurate with their male counterparts in the national comparison group (49.3%).
- **Harassment** measures the frequency that students experience threats or harassment. Cooper Union’s female respondents report higher experience with harassment than male respondents at Cooper Union (52.3% v. 48.9% respectively) and in fact, higher than findings for women from

the national comparison set (50%). Items in this domain include “physical assault or injuries”, “threats of physical violence”, “anonymous phone calls”, “damage to personal property”, “reported an incident of sexual harassment to a campus authority”, “reported an incident of discrimination to a campus authority”, “experienced sexual harassment”. Cooper Union’s male respondents report experiences of harassment at levels lower than their male counterparts in the national comparison group (48.9% v. 49.7% respectively).

The student protest and Movement have made us aware of painful truths regarding the culture and climate at Cooper Union and are corroborated by the Climate survey findings. Assertions of micro-aggressions and implicit bias by faculty and peers playing out in our classrooms and in our clubs have been made in the course of discussions by and with students in the Movement.

- Students have expressed that they question whether they belong at Cooper Union. A number of high caliber female students in the school of engineering have questioned if they were “smart enough” (imposter syndrome) or belong at Cooper Union.
- There is a need to address affirmation, implicit bias, and micro-aggressions as they play out in the classroom and in student clubs, organizations, and teams.
- There is a need to build understanding of discrimination and bias as opposed to harassment including institutional and compliance approaches and limits.
- Students express concern regarding retaliation. They acknowledge that the schools are relatively small and that faculty members talk amongst themselves. There is need to provide a process for students to report concerns and grievances in a way that they feel protected, and they desire confidence in these processes. **Accountability and transparency are crucial principles as we progress.**

Students established that there are faculty who are strong individual champions. Their relationships with faculty provided support and validation. However, there was a sense that the ability of these faculty to advocate was impeded. This suggests the important role that faculty play in providing place and belonging. The converse is also true that micro aggressions, bias, and poor treatment can color the student experience.

A strong desire has been expressed in the DITF and student focus discussions to build community at Cooper. Scheduling that promotes engagement across the schools, more common times, and consideration of workload and students’ need to commute and work were cited as structural concerns. Communal meals were recommended.

Recommendations

Given the findings of the DLE, and the preceding focus-group conversations with students regarding climate and culture, the Climate and Culture subgroup makes the following recommendations:

Training, Education, and Development

- Knowledge-building initiatives and opportunities need to be made available to all members of the Cooper Union community, especially for new faculty, staff, and students.
- Discrimination and Bias issues need to be addressed in terms of identifying and responding to discriminatory or harassing behavior, clarifying and creating reporting mechanisms, providing education on engaging in conversations around difference with civility, engaging in bystander interventions, and addressing issues and concerns relating to retaliation or fear of retaliation for reporting.
- Provide training on implicit and explicit bias for admissions, faculty search committee members, and recruitment and hiring managers.
- Create a program to train volunteer Allies and Advocates among the members of the campus community.

Programming and Initiatives

- Develop and implement campus-wide discussions, speakers, and series to promote sustained engagement and dialogue around issues of diversity and inclusion and civic engagement.
- Create a first-year experience program to better align the lived experiences of students with the stated goals and desired outcomes of their Cooper Union education.

Artifacts of the Campus Culture

- Clear and public definition of diversity and statement of commitment and allocation of resources are necessary.
- Ensure information relating to diversity, equity, and inclusion is included in publications and website through standards and guidelines, inclusivity in imagery and language, and accessibility of content.
- Examination of the curriculum, pedagogy, and instruction, as it relates to inclusion, in each of the three schools and HSS to achieve an overall understanding of the classroom experiences of the students.

Institutional and Structural Supports and Services

- Promote better utilization of Financial Aid advising and services, including offering financial literacy programming, encouraging wider use of financial aid opportunities (e.g., filing the FAFSA), and assessment of supports available to and needs of low-income students, especially related to food/housing insecurity and the impacts of commuting and holding off-campus employment.
- Promote, develop, and strengthen Academic Advising. Advisors can potentially provide crucial navigational and interpersonal support as well as academic guidance regarding course and program planning.
- Develop and implement accessible Campus Safety Services.
- Exploration of course evaluation practices and mechanisms for providing feedback about instruction and pedagogy.
- Provide better, more consistent student services in locations that are easily accessible to students.
- Creation of time blocks where institutional events and dialogues can occur.

Further Considerations

- Revisit the snapshot data provided by the DLE to further investigate differences in experiences that may exist within the schools and within groups of students (e.g., the experiences within female students as they differ by racial identity).
- There is a need for mental health awareness, promotion, and training, including assisting students in need, recognizing concerning behaviors in peers, and awareness of resources and referral options, as well as an examination of the climate norms relating to mental health and studio/lab culture.
- Further exploration into areas of dis/ability (mental health, physical, learning), Socio-Economic status, and spirituality/religion, which were largely not included in the data from the DLE.

Work Group: Inclusive Pedagogy and Practice ¹⁰

Cooper Union’s mission suggests an educational model that is rooted in pedagogies that foster engagement, collaboration, and challenge. The instructional model in which knowledge is “transmitted” (by the “sage on stage”) with students independently receiving and assimilating this knowledge (Bouton and Garth, 1983) is not adequate to support achievement of the kinds of competencies assumed in the Cooper Union mission, particularly those associated with the ability to assimilate and apply knowledge to novel challenges, to think creatively, and to inspire each other through provocation and challenge. These are instructional practices that are widely adopted in higher education, serving as the basis of projects-based, capstone, or studio critique pedagogies.

In his report on High Impact Educational Practices (2008), George Kuh established that “student development is a cumulative process, shaped by many events and experiences inside and outside the classroom” and identifies instructional practices which he describes as high impact¹¹. These learning experiences are structured in such a way as to foster student involvement and effort. High levels of engagement between students and faculty are promoted by intensive and collaborative assignments and projects (Kuh, 2004).

- Classroom engagement is particularly crucial at Cooper Union because of the large number of commuter and off campus students who reside outside of the immediate area. Given the structure of students’ program plans, with limited available free time, the classroom is a nexus for students’ relationships with instructors and peers.
- Models could include different kinds of arrangements for teaching such as provisions for team teaching, seminar style classrooms (member comment).

Specifications for inclusive pedagogies include “practices that typically demand that students devote considerable time and effort to purposeful tasks; most deepen students’ investment in the activity as well as their commitment to their academic program and the college. This usually means that learning is active, invested in some application of the discipline.

- The nature of high-impact activities puts students in circumstances that essentially demand they interact with faculty and peers about substantive matters/applications, typically over extended periods of time.

¹⁰ This research summary is provided by the authors of this report to provide context for the observations and recommendations.

¹¹ These include first year experiences, collaborative assignments and projects, capstones, diversity and undergraduate research.

- Participating in one or more of these activities increases the likelihood that students will experience diversity through contact with people who are different from themselves (Kuh, 2008) and be prepared for engagements within the city, nationally, and globally.

Diverse students bring perspectives, approaches and experiences that can challenge embedded worldviews or methods (Gurin, Dey, et al., 2002; Hurtado, Dey, Gurin, & Gurin, 2003). The theory of how diversity works in education suggests that most of us are inclined to rely on familiar ways of thinking that include the habits, routines, and even stereotypes that dominate our world view (Bargh, 1997; Gurin, Lehman, et al., 2002; Langer, 1978). In the absence of different viewpoints and experiences, and the questions and challenges that disrupt the status quo, the learning environment may be dominated by familiar approaches and interpretations. Cognitive tension and dissonance, when appropriately facilitated, provide opportunity for critical thinking and deep learning.

- An interesting finding in the campus climate survey is that while Cooper Union measures highly on the domain **Conversations Across Difference**, measures of the disposition to live and work in a diverse society (**Pluralistic Orientation**) are lower for both women and men (48% and 48.9% respectively) when compared to the national comparison group (49.6% and 50.8% respectively).

This suggests that while Cooper Union offers opportunity for diverse engagement, it can do better to yield the skills and learning outcomes associated with diversity. Items in this measure include “tolerance of others with different beliefs”, “openness to having my views challenged”, “ability to work cooperatively with diverse people”, “to discuss and negotiate controversial issues” and “to see the world from someone else’s perspective”. Findings and recommendations regarding instructional and pedagogic practices will be informative.

Observations

Students have expressed:

- A desire for greater discourse with peers and faculty, collaboration and challenging learning experiences. They report their classes are often lecture format, with instructors disseminating knowledge as opposed to facilitating learning. Students express a desire to be active agents in their own learning.
- An interest in developing the practices for respectful and productive engagement with peers in group and team formats. Students seek the opportunity to develop pluralistic and teamwork skills.

- They often do not have perspective regarding their performance in courses. Several needs were identified: in some cases, the syllabus was not provided, grading rubrics were not provided, and/or graded papers and homework were not returned.
- Students were specific in the desire for an early warning system as an alert regarding performance to provide opportunity for proactive action to address performance concerns.
- Academic Integrity is an issue. Cheating was cited as a concern with a proviso that “they (students) are serious about challenging themselves”.

Models of inclusive pedagogy at Cooper Union were cited. These courses were often projects-based or team taught cross-disciplinary courses. Of note is that these courses promote interdisciplinary perspectives and dialogue.

Faculty members expressed the need for time and resources to develop high impact instructional practices and problems that promote learning outcomes. They acknowledged that students are coming to Cooper Union with a different level of preparation than in years past suggesting need for faculty exchanges and communities of practice. There is need to create the space and platform through which a culture and atmosphere where faculty from all schools can connect, exchange ideas, and discuss on regular basis. For instance, a curricular structure that allows joint brainstorming could make such collaboration possible.

There is interest in institutional efforts to promote teaching and learning, as well as provide the kinds of learning scaffolds students need to be successful. These scaffolds include tutoring, peer tutoring, and need for space.

There is need for academic support and tutoring. MSCHE cited the success of the Writing Center as a support model.

There are two DLE survey components that provide perspective regarding students learning experience, **Student Learning Outcomes and Institutional Practices**

DLE Student Learning Outcomes

Items on the DLE relating to **Student Learning Outcomes** explore development across outcomes relating to complex thinking, ethical decision-making, and capacity for citizenship. Unlike other sections of the DLE, in many areas assessing Student Learning Outcomes, Cooper Union students reported behaviors in support of these areas at higher rates than the national comparison group, indicating their propensity for academic capabilities and achievement.

- **Habits of Mind** measures the associated behaviors and traits of academic success, which are foundational to lifelong learning. Both female and male Cooper Union students report higher than their comparison groups (53.6% v 51.0% and 53.7% v 52.3%, respectively). Items assessing Habits of Mind include “evaluate the quality or reliability of information you received”, “ask questions in class”, “explore topics on your own”, and “accept mistakes as part of the learning process”.
- **Integration of Learning** measures students’ assessment of the frequency with which, either frequently or occasionally, they engage in certain behaviors. Cooper Union students reported that they “apply concepts from courses to real life situations” at a slightly lower rate than the national comparison (92.8% v 96.1%). On the other measures, “use different points of view to make an argument” and “analyze multiple sources of information before coming to a conclusion”, Cooper Union students reported slightly higher behaviors (97.2% v 96.5% and 98.8% v 97.7%, respectively), but the “frequently” frequency within those measures were higher at Cooper Union in both areas (64.6% v 56.0% and 69.3% v 58.8%, respectively).
- **Academic Self-Concept** measures students’ beliefs about their abilities and confidence in academic environments. Both female and male Cooper Union students had higher scores of academic self-concept than students in the national comparison group. Male students at Cooper Union and nationally (52.7% and 52.4%, respectively) reported higher academic self-concept than female students (50.2% at Cooper Union v 49.9%). Academic self-confidence was measured in terms of self-rated “academic ability”, “intellectual self-confidence”, “drive to achieve”, and “mathematical ability”.
- **Pluralistic Orientation** measures the skills and dispositions appropriate for living and working in a diverse society. In this area, both male and female Cooper Union students scored lower than the national comparison group (48.9% v 50.8% and 48.0% v 49.6%, respectively). Items in this area include “tolerance of others with different beliefs”, “openness to having my views challenged”, ability to work cooperatively with diverse people”, ability to discuss and negotiate controversial issues”, and “ability to see the world from someone else’ perspective”.
- **Civic Engagement** measures the degree of students’ motivation and involvement in civic, electoral, and political activities. Female Cooper Union students reported slightly higher rates of civic engagement (51.5%), compared to male Cooper Union students (48.8%), and to the national comparison groups (50.8% for females, 49.2% for males). Male Cooper Union students reported lower civic engagement than their male comparison group and both female groups. Civic engagement was assessed in terms of having “demonstrated for a cause”, “publicly communicated your opinion about cause”, “discussed politics”, and “performed community service”.

DLE Institutional Practices

DLE items relating to **Institutional Practices** explore guided and intentional practices creating opportunities for interaction and provide assistance for students to become active agents in their own learning. These items are elucidated because they provide outcome measures of effectiveness as we chart our path forward.

- **Curriculum of Inclusion** measures the number of courses a student has taken that include materials and pedagogy addressing diversity, across a variety of social identities, and the degree to which opportunities for students with different backgrounds and beliefs to engage in intensive dialogue are provided. Women reported a slightly higher degree of inclusion compared to men (47.6% v 47.2%) but both groups were lower than the national comparison (51.8% and 49.2%, respectively).
- **Co-Curricular Diversity Activities** assesses the degree of students' involvement with institutional programs focused on diversity issues. Here, Cooper Union students report slightly greater involvement with co-curricular activities than the national comparison, with females reporting 52.5% (52.2% nationally) and males reporting 49.3% (49.1% nationally). Items assessed include participating in or attending "ongoing organized campus discussions on racial/ethnic issues", "events focused on diversity", and "Campus Center activities" relating to difference.
- **Navigational Action** provides a measure of how often students participated in institutional programs or engaged in activities that would help them successfully traverse the institution. While some services were utilized at a much higher rate than the national comparison, others showed a much lower level of student engagement. Cooper Union students reported Writing Center usage at a rate of 61.6% (25.9% frequently, 35.7% occasionally) compared to the national group at 33%. Career Counseling and Attending Professors' Office Hours also showed a higher utilization at Cooper Union (65.8% v 50.9% and 87.4 v 78.8%, respectively). Resources less used by Cooper Union students are Campus Safety Services (3.2% v 32.1%), Academic Advising (63.8% v 82.1), and Financial Aid Advising (38.4% v 47.1%).

Recommendations

Herein, is a list of recommendations that the **Inclusive Pedagogy Group (IPG)** put forward for consideration as part of the efforts to develop strategies to foster an inclusive learning environment and culture at the Cooper Union.

Mechanism to Raise Diversity Related Issues

Establish a mechanism to enable students and faculty to raise diversity related issues or questions on how to deal with a particular situation. This could be accomplished through establishing a diversity

committee composed of faculty and students that are properly equipped through periodic training and/or have access to professionals to deal with such issues.

Additionally, students have reported that they feel there is little point in raising concerns about the faculty, as they do not feel their concerns will be addressed. There must be some mechanisms for accountability such that students can raise issues and be assured that they will be addressed, without fear of retaliation. A clearly defined procedure, well-advertised across the school, with one or more point-persons should be established.

Inclusive Pedagogy Speaker Series, Workshops and Training

Despite being a school primarily focused on teaching, The Cooper Union provides very little in the form of seminars, workshops or training on pedagogy. The school should invite professionals and guest speakers and incentivize the participation of faculty. Workshops should give faculty tools to teach a diverse set of backgrounds, as well as general pedagogy workshops.

Additional training should be made available for all faculty on how to handle situations involving sexual harassment.

Institutional Expansion of Faculty Support

Faculty should be encouraged to redesign courses to make them more inclusive by being provided the time and resources. This could be accomplished through course release or a summer stipend. This requires a commitment to diversity and transparency in hiring and retention practices.

Tenure and Promotion

Faculty should be encouraged to include a section in their tenure and promotion portfolios on their efforts to promote diversity (such as recruitment, outreach, mentorship); and/or educational models or projects that support inclusive approaches.

Summer Program

Introduce a summer program for incoming freshmen to close the knowledge gap in some subjects such as math and writing. This program should be available to all students who are interested in participating, and free of charge.

New Faculty Orientation and Mentorship

This orientation will familiarize new faculty with available resources as well as training on how to handle sexual harassment and other related issues. It has also been suggested that senior faculty mentorship of incoming faculty be explored. This is being advanced to the Faculty and Staff working group.

Expanding HSS

This expansion will allow Cooper to offer a wide range of HSS courses that address many diversity related issues. As models are explored, there might be interest to look at the Leadership Lab as an example – <https://socialsciences.uchicago.edu/announcement/leadership-lab-research-action>

Tutoring Lab

Introduce a space where students can study and at the same time have access to tutors of various subjects any time during its operation.

Workgroup: First Year Experience

A First Year Experience (FYE) working group focused specifically on the first year as an opportunity to cultivate the skills and engagement behaviors that promote belonging and community. The FYE model is one that supports active engagement, community building, working across difference, and student belonging. The model builds on the following research:

Strayhorn's (2012) **Sense of Belonging** describes a student's sense of belonging as a fundamental need. Students need to feel valued and included within their community, and satisfying the need to belong is essential to a student's ability to thrive in college

Tinto's (1993) **Institutional Departure Model/Student Integration Model** describes Colleges as having social and academic systems; emphasizes that the social and academic areas must integrate; and highlights institutional goals and commitments. Tinto's Model describes the process of separation to transition to incorporation for students at college and highlights the first year as a pivotal experience.

Hurtado (2012) describes **Diverse Learning Environments** in terms of understanding multiple factors, including having a focus on life-long learning, providing competencies for a multicultural world, linking campus climate and retention; compositional diversity as essential, and the needs of student identities to be central to experiences and policies.

Dweck's (2007) theory of a Growth Mindset highlights several key concepts: that most basic abilities can be developed through dedication and hard work; that education, background, training, and talent are just the starting point; and that this creates a love of learning and a resilience that is essential for great accomplishment.

Schlossberg's (1989) **Model of Marginality and Mattering** describes additional concepts key to the recommendations. Marginality is described as both permanent and temporary; it has a focus on the impact on Centrality versus Marginality; and it discusses the effect of Rituals and Ceremony. Mattering functions as a motivator and has five key dimensions: attention, importance, ego-extension, dependence, and appreciation.

Observations

- There is need for sense of belonging and stronger bonds of community. Students' educational experience must integrate their social and school-based experiences and function. Academic and administrative support needs to be integrated.
- The interactions that occur within our classrooms, studios, and laboratories form the basis for our students' sense of belonging to the institution.

- Students are longing for academic and professional experiences that bring them together.
- Better systems are needed to identify students in need of academic and related support. Early warning systems need to be integrated and systemic.
- Better systems of communication across all faculties and schools are needed.
- There is a disconnect between what students believed Cooper was going to be and what the reality was, especially around issues of being able to live academically between the intersections of art, architecture, and engineering.
- Students come to Cooper with strong sense of purpose related to their academic discipline and Cooper's connection to social advancement and civic engagement.

Recommendations

- In the summer prior matriculating, new students should be provided with relevant information about their academic programs and courses. This should include the ability to assess their knowledge base for key first year competencies and results in steps that the student can take over the summer to better prepare for the start of classes.
- Any placement tests or academic assessments should be completed over the summer so that students arrive on campus with full knowledge of their schedule and the results of any assessment tools.
- Incoming students should be assigned an upper-class student mentor. Mentors provide both support and academic and social capital. Advising can be enhanced and supported by upper division students who can provide first-hand knowledge regarding the student transition, academic and campus resources. Mentor training will be a need.
- Incoming students should be assigned a faculty advisor. Faculty advisor assignments should be such that the faculty member and the assigned students have opportunity to form a meaningful relationship and develop open lines of communication.
- Academic Advising needs to be rethought and redesigned across the institution. Standards for the advising relationship need to be developed, building on advisor roles and student responsibilities. An simple example is provided at <http://uaap.mit.edu/node/1906>
- Cooper Union's schools and faculty are encouraged to engage in a discussion regarding the first year and the First Year Experience (FYE, John Gardner) approaches to enhance the academic and social success of first year students. The FYE should be implemented as a means to integrate academic and co-curricular experiences and foster academic, learning, and social integration skills. The model at Carnegie Mellon is of interest.
<https://engineering.cmu.edu/education/undergraduate-programs/student-life/first-year-experience.html>

- The FYE should engage first year students from across the disciplines in high impact activities such as research/design-based academic work to promote support meaningful engagement for a full semester or academic year.
- The FYE should build on a first-year seminar that is a required course for all new students. This class may house the group design project noted above, and it should also provide students with access to all of the information that they may need to be successful at The Cooper Union. This seminar should focus on all essential academic competencies and support structures as well as the essential aspects of student development and community engagement that are core to a student's success.
- Diverse first year students should be assigned an advisor or support person to 1) facilitate community building and belonging among URM students across the schools through activities that integrate academic and social networks and 2) provide academic and navigational support to all diverse students. It is envisioned that this person would support coordination and collaboration among affinity groups such as NSBE, BSU, SHPE, and SWE; foster engagement activities; connect students to internal and professional networks; and provide interpersonal guidance.
- Provide institutional support for programs that promote cross-disciplinary and community engagement and opportunities for engagement.
- Encourage students from all schools to actively participate in extracurricular and co-curricular activities to help foster a healthy and diverse community throughout The Cooper Union.
- Curriculum review, across the schools and the faculty of HSS, is recommended to assess teaching practices and classroom/studio experiences and ensure that they are student-centered and reflect the identities and lived experiences of our students.
- Academic engagements should promote growth mindset.
- Rethink the structures that impede students from pursuing their passions, especially scheduling impediments.
- Evaluate academic scheduling across the institution with the goal of making it easier for students to engage in classes across disciplines with their peers from other schools.
- Assess how students are evaluated during their first year. Consider the possibility of making the first semester or first year a pass/fail type of grading paradigm. This can be accomplished while still providing students with ongoing feedback and assessment of their progress.
- Provide institutional support for faculty collaboration across and between disciplines.
- Provide education and opportunities for faculty geared towards teaching and learning of first year-college students.
- All academic and administrative units should evaluate services and resources to determine if any resources or services have barriers to access.
 - Any identified barriers should be evaluated and, wherever possible, removed.

- Examples of barriers or restrictions are those that may be present due to citizenship status, national origin, disability, and gender identity. (These are examples, not an exhaustive list.)
- For any services that have restrictions or limitations on accessibility that cannot be mitigated or eliminated, we recommend that a system be created to easily identify these restrictions and limitations so students can easily identify resources and services that they can access and those that may be unavailable to them

Appendices

1. AAC&U Global Learning VALUE Rubric
2. DLE Survey Items and Domains
3. Definitions
4. Working Group Members
5. Gender Headcount by Residency and URM Status
6. Bibliography

GLOBAL LEARNING VALUE RUBRIC

for more information, please contact valuel@aacu.org



Definition

Global learning is a critical analysis of and an engagement with complex, interdependent global systems and legacies (such as natural, physical, social, cultural, economic, and political) and their implications for people's lives and the earth's sustainability. Through global learning, students should 1) become informed, open-minded, and responsible people who are attentive to diversity across the spectrum of differences, 2) seek to understand how their actions affect both local and global communities, and 3) address the world's most pressing and enduring issues collaboratively and equitably.

Framing Language

Effective and transformative global learning offers students meaningful opportunities to analyze and explore complex global challenges, collaborate respectfully with diverse others, apply learning to take responsible action in contemporary global contexts, and evaluate the goals, methods, and consequences of that action. Global learning should enhance students' sense of identity, community, ethics, and perspective-taking. Global learning is based on the principle that the world is a collection of interdependent yet inequitable systems and that higher education has a vital role in expanding knowledge of human and natural systems, privilege and stratification, and sustainability and development to foster individuals' ability to advance equity and justice at home and abroad. Global learning cannot be achieved in a single course or a single experience but is acquired cumulatively across students' entire college career through an institution's curricular and co-curricular programming. As this rubric is designed to assess global learning on a programmatic level across time, the benchmarks (levels 1-4) may not be directly applicable to a singular experience, course, or assignment. Depending on the context, there may be development within one level rather than growth from level to level.

We encourage users of the Global Learning Rubric to also consult three other closely related VALUE Rubrics: Civic Engagement, Intercultural Knowledge and Competence, and Ethical Reasoning.

Glossary

The definitions that follow were developed to clarify terms and concepts used in this rubric only.

Global Self-Awareness: in the context of global learning, the continuum through which students develop a mature, integrated identity with a systemic understanding of the interrelationships among the self, local and global communities, and the natural and physical world.

Perspective Taking: the ability to engage and learn from perspectives and experiences different from one's own and to understand how one's place in the world both informs and limits one's knowledge. The goal is to develop the capacity to understand the interrelationships between multiple perspectives, such as personal, social, cultural, disciplinary, environmental, local, and global.

Cultural Diversity: the ability to recognize the origins and influences of one's own cultural heritage along with its limitations in providing all that one needs to know in the world. This includes the curiosity to learn respectfully about the cultural diversity of other people and on an individual level to traverse cultural boundaries to bridge differences and collaboratively reach common goals. On a systems level, the important skill of comparatively analyzing how cultures can be marked and assigned a place within power structures that determine hierarchies, inequalities, and opportunities and which can vary over time and place. This can include, but is not limited to, understanding race, ethnicity, gender, nationhood, religion, and class.

Personal and Social Responsibility: the ability to recognize one's responsibilities to society--locally, nationally, and globally--and to develop a perspective on ethical and power relations both across the globe and within individual societies. This requires developing competence in ethical and moral reasoning and action.

Global Systems: the complex and overlapping worldwide systems, including natural systems (those systems associated with the natural world including biological, chemical, and physical sciences) and human systems (those systems developed by humans such as cultural, economic, political, and built), which operate in observable patterns and often are affected by or are the result of human design or disruption. These systems influence how life is lived and what options are open to whom. Students need to understand how these systems 1) are influenced and/or constructed, 2) operate with differential consequences, 3) affect the human and natural world, and 4) can be altered.

Knowledge Application: in the context of global learning, the application of an integrated and systemic understanding of the interrelationships between contemporary and past challenges facing cultures, societies, and the natural world (i.e., contexts) on the local and global levels. An ability to apply knowledge and skills gained through higher learning to real-life problem-solving both alone and with others.

GLOBAL LEARNING VALUE RUBRIC
for more information, please contact valhe@atacu.org



Definition

Global learning is a critical analysis of and an engagement with complex, interdependent global systems and legacies (such as natural, physical, social, cultural, economic, and political) and their implications for people's lives and the earth's sustainability. Through global learning, students should 1) become informed, open-minded, and responsible people who are attentive to diversity across the spectrum of differences, 2) seek to understand how their actions affect both local and global communities, and 3) address the world's most pressing and enduring issues collaboratively and equitably.

Evaluators are encouraged to assign a zero to any work sample or collection of work that does not meet benchmark (cell one) level performance.

	Capstone 4	3	Milestones 2	Benchmark 1
Global Self-Awareness	Effectively addresses significant issues in the natural and human world based on articulating one's identity in a global context.	Evaluates the global impact of one's own and others' specific local actions on the natural and human world.	Analyzes ways that human actions influence the natural and human world.	Identifies some connections between an individual's personal decision-making and certain local and global issues.
Perspective Taking	Evaluates and applies diverse perspectives to complex subjects within natural and human systems in the face of multiple and even conflicting positions (i.e. cultural, disciplinary, and ethical).	Synthesizes other perspectives (such as cultural, disciplinary, and ethical) when investigating subjects within natural and human systems.	Identifies and explains multiple perspectives (such as cultural, disciplinary, and ethical) when exploring subjects within natural and human systems.	Identifies multiple perspectives while maintaining a value preference for own positioning (such as cultural, disciplinary, and ethical).
Cultural Diversity	Adapt and applies a deep understanding of multiple worldviews, experiences, and power structures while initiating meaningful interaction with other cultures to address significant global problems.	Analyzes substantial connections between the worldviews, power structures, and experiences of multiple cultures historically or in contemporary contexts, incorporating respectful interactions with other cultures.	Explains and connects two or more cultures historically or in contemporary contexts with some acknowledgment of power structures, demonstrating respectful interaction with varied cultures and worldviews.	Describes the experiences of others historically or in contemporary contexts primarily through one cultural perspective, demonstrating some openness to varied cultures and worldviews.
Personal and Social Responsibility	Takes informed and responsible action to address ethical, social, and environmental challenges in global systems and evaluates the local and broader consequences of individual and collective interventions.	Analyzes the ethical, social, and environmental consequences of global systems and identifies a range of actions informed by one's sense of personal and civic responsibility.	Explains the ethical, social, and environmental consequences of local and national decisions on global systems.	Identifies basic ethical dimensions of some local or national decisions that have global impact.
Understanding Global Systems	Uses deep knowledge of the historic and contemporary role and differential effects of human organizations and actions on global systems to develop and advocate for informed, appropriate action to solve complex problems in the human and natural worlds.	Analyzes major elements of global systems, including their historic and contemporary interconnections and the differential effects of human organizations and actions to pose elementary solutions to complex problems in the human and natural worlds.	Examines the historical and contemporary roles, interconnections, and differential effects of human organizations and actions on global systems within the human and the natural worlds.	Identifies the basic role of some global and local institutions, ideas, and processes in the human and natural worlds.
Applying Knowledge to Contemporary Global Contexts	Applies knowledge and skills to implement sophisticated, appropriate, and workable solutions to address complex global problems using interdisciplinary perspectives independently or with others.	Plans and evaluates more complex solutions to global challenges that are appropriate to their contexts using multiple disciplinary perspectives (such as cultural, historical, and scientific).	Formulates practical yet elementary solutions to global challenges that use at least two disciplinary perspectives (such as cultural, historical, and scientific).	Defines global challenges in basic ways, including a limited number of perspectives and solutions.

Appendix 2

Diverse Learning Environments Survey Components

The DLE factors measuring campus climate for diversity include:

- Conversations Across Difference (behavioral),
- Discrimination and Bias (behavioral)
- Harassment (behavioral)
- Institutional Commitment to Diversity (psychological/organizational)
- Negative Cross-Racial Interaction (behavioral)
- Positive Cross-Racial Interaction (behavioral)
- Satisfaction with the Campus Climate for Diversity (psychological).

Excerpts:

2018 Diverse Learning Environments Classroom Climate Module

1. Please indicate the extent to which you agree or disagree with each of the following statements: *Response Categories: Strongly Agree, Agree, Disagree, Strongly Disagree*

I feel comfortable sharing my own perspectives and experiences in class

I have been singled out in class because of my identity (such as race/ethnicity, gender, sexual orientation, disability status, religious affiliation, etc.)

I feel I have to work harder than other students to be perceived as a good student

In class, I have heard faculty express stereotypes based on social identity (such as race/ethnicity, gender, sexual orientation, disability status, religious affiliation, etc.)

I don't feel comfortable contributing to class discussions

2. Please indicate how many of your instructors at this institution: *Response Categories: Very Few, Less than Half, Most, but not All, All*

Value individual differences in the classroom

Are sensitive to the ability levels of all students

Help students learn how to bring about positive change in society

Encourage students from diverse backgrounds to work together

Turn controversial topics into meaningful discussions

Encourage students to contribute different perspectives in class

Share their own experiences and background in class

Have open discussions about privilege, power, and oppression

Motivate students to work harder than they thought they could

Teach students tolerance and respect for different beliefs

3. How many of your courses this year involve: *Response Categories: Very Few, Less than Half, Most, but not All, All*

Lectures (exclusively or almost exclusively)

Class discussions Student presentations

Multiple short papers

One or more research papers of 10+ pages

Multiple drafts of written work

Group projects Lab work

Reflective writing/journaling

Electronic quizzes with immediate feedback in class (e.g., clickers)

2018 Diverse Learning Environments Intergroup Relations Module

1. Please indicate the extent to which you agree or disagree with each of the following statements: *Response Categories: Strongly Agree, Agree, Disagree, Strongly Disagree*

It is hard to listen to points of view that challenge my values

I have a clear sense of my racial/ethnic background and what it means for me

I would rather hear a person's conflicting view than have them remain silent

I feel a strong attachment toward my own racial/ethnic group

I can help people from different groups use conflict constructively

2. While at this college: *Response Categories: Very Often, Often, Sometimes, Seldom, Never*

I have spent time trying to learn more about my racial/ethnic identity group

I have been in situations where I was the only person of my race/ethnic group

3. Please indicate the extent to which you agree or disagree with each of the following statements: *Response Categories: Strongly Agree, Agree, Disagree, Strongly Disagree*

Students here are willing to talk about equity, injustice, and group differences

When people feel proud of the accomplishments of someone of their racial/ethnic group, I feel some of their pride as well

Most people of color are no longer discriminated against in this country

There is at least one staff or faculty member here that I can talk to about difficult social justice issues

What one can achieve in life is still limited by one's race or ethnicity

Inequalities in the educational system limit the success of people of color

When I learn about the injustices that people of different races/ethnicities have experienced, I feel some of the anger that they feel

4. How often in the past year have you: *Response Categories: Very Often, Often, Sometimes, Seldom, Never*

Avoided using language that reinforces negative stereotypes

Challenged others on derogatory comments

Reinforced others for behaviors that support diversity

Made efforts to educate myself about other groups

Worked with others to challenge discrimination

5. To what extent have you experienced the following with students from a racial/ethnic group other than your own? *Response Categories: Very Often, Often, Sometimes, Seldom, Never*

Dined or shared a meal

Had meaningful and honest discussions about race/ethnic relations outside of class

Had guarded, cautious interactions

Shared personal feelings and problems

Had tense, somewhat hostile interactions

Had intellectual discussions outside of class

Studied or prepared for class

Socialized or partied

6. At this college, how often have you: *Response Categories: Very Often, Often, Sometimes, Seldom, Never*

Heard insensitive or disparaging remarks about race/ethnicity from:

Students

Faculty

Staff

Appendix 3

Definitions

Implicit bias refers to the “attitudes or stereotypes that affect our understanding, actions, and decisions in an unconscious manner. These biases, which encompass both favorable and unfavorable assessments, are activated involuntarily and without an individual’s awareness or intentional control. Residing deep in the subconscious, these biases are different from known biases that individuals may choose to conceal for the purposes of social and/or political correctness” (Kirwan Institute, 2015).

Marginalization is “the process of pushing a particular group or groups of people to the edge of society by not allowing them an active voice, identity, or place in it. Through both direct and indirect processes, marginalized groups may be relegated to a secondary position or made to feel as if they are less important than those who hold more power or privilege in society. Individuals from marginalized groups can be the target of negative beliefs, behaviors, or judgments from others. Individuals and groups can be marginalized on the basis of multiple aspects of their identity, including but not limited to: race, gender or gender identity, ability, sexual orientation, socioeconomic status, sexuality, age, and/or religion. Some individuals identify with multiple marginalized groups, and may experience further marginalization as a result of their intersecting identities” (Syracuse University Counseling Center, 2018).

Microaggressions are “the everyday verbal, nonverbal, and environmental slights, snubs, or insults, whether intentional or unintentional, which communicate hostile, derogatory, or negative messages to target persons based solely upon their marginalized group membership. In many cases, these hidden messages may invalidate the group identity or experiential reality of target persons, demean them on a personal or group level, communicate they are lesser human beings, suggest they do not belong with the majority group, threaten and intimidate, or relegate them to inferior status and treatment” (Sue, 2010).

Harassment is “behavior towards a person that causes mental or emotional suffering, which includes repeated unwanted contacts without a reasonable purpose, insults, threats, touching, or offensive language or behavior towards someone that is threatening or that annoys or upsets them” (Cambridge Dictionary, ret. 2018).

Appendix 4

Diversity and Inclusion Task Force Faculty and Staff Members		
Name	Department	Title
Nada Ayad	Faculty of HSS	Post-Doctoral Fellow
Natalie Brooks	Human Resources	Chief Talent Leader
Chris Chamberlain	Student Affairs	Dean of Students
Abby Davis	Admissions	Associate Director, Adm
Sara Foley	Instructional Technology	Associate Director of Operations
Adrienne Greth	Admissions	Assistant Dean, Adm
Atina Grossman	Faculty of HSS	Professor
Mauricio Higuera	School of Architecture	Admin Asst, Public Programs & New Projects
Steven Hillyer	School of Architecture	Director, Architecture Archive
Sam Keene	School of Engineering	Associate Professor, Electrical Engineering
Grace Kendall	Student Affairs	Title IX Coord. & Dir. of Diversity and Inclusion
Makeda King-Smith	Admission and Records	Director, International Stud Advisement
Ketsia Monterose	Human Resources	Human Resource Administrator
Kim Newman	Communications	Media Relations Manager
Naveen Shlayan	School of Engineering	Assistant Professor, Electrical Engineering
Maren Stange	Faculty of HSS	Professor (Proportional)
Antoinette Torres	Office of President	Director, Strategic Init and Instit Effectiveness
William Villalongo	School of Art	Assistant Professor
Jolie Woodson	Student Affairs	Director, Center for Career Development

We thank the many students who have provided considerable and timely input through their work on the DITF and in focus group and listening sessions. Their candor and thoughtful discussions have provided crucial insight into how we can support and achieve diversity and excellence. In every exchange we have been met with constructive and gracious input, and inspired commitment to the goals of the DITF.

Appendix 5

Table 1. Gender Headcount by Residency and URM Status

Year	Status	N Female	N Male
2012	Resident (Non-URM)	46	96
	Resident (URM)	11	23
	International	3	6
2013	Resident (Non-URM)	41	87
	Resident (URM)	14	19
	International	12	13
2014	Resident (Non-URM)	37	105
	Resident (URM)	7	27
	International	14	24
2015	Resident (Non-URM)	43	106
	Resident (URM)	14	20
	International	10	37
2016	Resident (Non-URM)	45	97
	Resident (URM)	18	20
	International	11	28
2017	Resident (Non-URM)	43	86
	Resident (URM)	8	15
	International	19	18
2018	Resident (Non-URM)	62	80
	Resident (URM)	19	16
	International	16	23

Appendix 6

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