

Benefits and Challenges of Diversity*

By Jo Handelsman and Eve Fine

The diversity of a university's faculty, staff, and students influences its strength, productivity, and intellectual personality. Diversity of experience, age, physical ability, religion, race, ethnicity, gender, and many other attributes contributes to the richness of the environment for teaching and research. We also need diversity in discipline, intellectual outlook, cognitive style, and personality to offer students the breadth of ideas that constitute a dynamic intellectual community.

A vast and growing body of research provides evidence that a diverse student body, faculty, and staff benefits our joint missions of teaching and research by increasing creativity, innovation, and problem solving. Yet diversity of faculty, staff, and students also brings challenges. Increasing diversity can lead to less cohesiveness, less effective communication, increased anxiety, and greater discomfort for many members of a community.¹ Learning to respect and appreciate each other's cultural and stylistic differences and becoming aware of unconscious assumptions and behaviors that may influence our interactions will enable us to minimize the challenges and derive maximum benefits from diversity.

This article summarizes research on the benefits and challenges of diversity and provides suggestions for realizing the benefits. Its goal is to help create a climate in which all individuals feel *personally safe, listened to, valued, and treated fairly and with respect.*²

It is time to renew the promise of American higher education in advancing social progress, end America's discomfort with race and social difference, and deal directly with many of the issues of inequality present in everyday life.

Sylvia Hurtado

Benefits for Teaching and Research

Research shows that diverse working groups are more productive, creative, and innovative than homogeneous groups, and suggests that developing a diverse faculty will enhance teaching and research.³ Here are some of the findings.

- A controlled experimental study of performance during a brainstorming session compared ideas generated by ethnically diverse groups composed of Asians, blacks, whites, and Latinos to those generated by ethnically homogenous groups composed of whites only. Evaluators who were unaware of the source of the ideas found no significant difference in the number of ideas generated by the two types of groups. However, when applying measures of feasibility and effectiveness, they rated the ideas generated by diverse groups as being of higher quality.⁴

*From Handelsman, J., C. Pfund, S. Miller Lauffer, and C. M. Pribbenow (2005), *Entering Mentoring: A Seminar to Train a New Generation of Scientists*, Madison, WI: University of Wisconsin Press)

- The level of critical analysis of decisions and alternatives was higher in groups exposed to minority viewpoints than in groups that were not. Minority viewpoints stimulated discussion of multiple perspectives and previously unconsidered alternatives, whether or not the minority opinion was correct or ultimately prevailed.⁵
- A study of corporate innovation found that the most innovative companies deliberately established diverse work teams.⁶
- Data from the 1995 Faculty Survey conducted by UCLA's Higher Education Research Institute (HERI) demonstrated that scholars from minority groups have expanded and enriched scholarship and teaching in many academic disciplines by offering new perspectives and by raising new questions, challenges, and concerns.⁷
- Several investigators found that women and faculty of color more frequently employed active learning in the classroom, encouraged student input, and included perspectives of women and minorities in their coursework.⁸

Benefits for Students

Numerous research studies have examined the impact of diversity on students and educational outcomes. Cumulatively, these studies provide extensive evidence that diversity has a positive impact on all students, minority and majority.⁹ Here are some examples.

- A national longitudinal study of 25,000 undergraduates at 217 four-year colleges and universities showed that institutional policies fostering diversity of the campus community had positive effects on students' cognitive development, satisfaction with the college experience, and leadership abilities. These policies encouraged faculty to include themes relating to diversity in their research and teaching, and provided students with opportunities to confront racial and multicultural issues in the classroom and in extracurricular settings.¹⁰
- Two longitudinal studies, one conducted by HERI in 1985 and 1989 with over 11,000 students from 184 institutions and another in 1990 and 1994 with approximately 1,500 students at the University of Michigan, showed that students who interacted with racially and ethnically diverse peers both informally and within the classroom showed the greatest "engagement in active thinking, growth in intellectual engagement and motivation, and growth in intellectual and academic skills."¹¹ A more recent study of 9,000 students at 10 selective colleges reported that meaningful engagement rather than casual and superficial interactions led to greater benefit from interaction with racially diverse peers.¹²
- Data from the National Study of Student Learning indicated that both in-class and out-of-class interactions and involvement with diverse peers fostered critical thinking. This study also found a strong correlation between "the extent to which an institution's environment is perceived as racially nondiscriminatory" and students' willingness to accept both diversity and intellectual challenge.¹³
- A survey of 1,215 faculty members in departments granting doctoral degrees in computer science, chemistry, electrical engineering, microbiology, and physics showed that women faculty played important roles in fostering the education and success of women graduate students.¹⁴

Challenges of Diversity

Despite the benefits that a diverse faculty, staff, and student body provide to a campus, diversity also presents considerable challenges that must be addressed and overcome. Here are some examples.

- Numerous studies have reported that women and minority faculty members are considerably less satisfied with many aspects of their jobs than are majority male faculty members. These aspects include teaching and committee assignments, involvement in decision making, professional relations with colleagues, promotion and tenure, salary inequities, and overall job satisfaction.¹⁵
- A study of minority faculty at universities and colleges in eight midwestern states showed that faculty of color experience exclusion, isolation, alienation, and racism in predominantly white universities.¹⁶
- Multiple studies demonstrate that minority students often feel isolated and unwelcome in predominantly white institutions and that many experience discrimination and differential treatment. Minority status can result from race, ethnicity, national origin, sexual orientation, disability, and other factors.¹⁷
- Women students, particularly when they are minorities in their classes, may experience unwelcoming climates that can include sexist use of language, presentation of stereotypic or disparaging views of women, differential treatment from professors, and/or sexual harassment.¹⁸
- When a negative stereotype relevant to their identity exists in a field of interest, women and members of minority groups often experience “stereotype threat”—the fear that they will confirm or be judged in accordance with the stereotype. Such stereotype threat exists both for entry into a new field and for individuals already excelling in a specific arena. Situations or behaviors that heighten awareness of one’s minority status can activate stereotype threat.¹⁹ Research demonstrates that once activated, stereotype threat leads to stress and anxiety, which decreases memory capacity, impairs performance, and reduces aspirations and motivation.²⁰ Human brain imaging, which shows that activating stereotype threat causes blood to move from the cognitive to the affective centers of the brain, indicates how situational cues reduce cognitive abilities.²¹
- Research has demonstrated that a lack of previous positive experiences with “outgroup members” (minorities) causes “ingroup members” (majority members) to feel anxious about interactions with minorities. This anxiety can cause majority members to respond with hostility or to avoid interactions with minorities.²²

Influence of Unconscious Assumptions and Biases

Research studies show that people who have strong egalitarian values and believe that they are not biased may unconsciously behave in discriminatory ways.²³ A first step toward improving climate is to recognize that unconscious biases, attitudes, and other influences unrelated to the qualifications, contributions, behaviors, and personalities of our colleagues can influence our interactions, *even if we are committed to egalitarian views*. Although we all like to think that we are objective scholars who judge people on merit, the quality of their work, and the nature of their achievements, copious research shows that a lifetime of experience and cultural history shapes every one of us and our judgments of others.

*People confident in their own objectivity may
overestimate their invulnerability to bias.*

Eric Uhlmann and Geoffrey Cohen

The results from controlled research studies demonstrate that people often hold unconscious, implicit assumptions that influence their judgments and interactions with others. Examples range from expectations or assumptions about physical or social characteristics associated with race, gender, age, and ethnicity to those associated with certain job descriptions, academic institutions, and fields of study. Let's start with some examples of common social assumptions or expectations.

- When shown photographs of people of the same height, evaluators overestimated the heights of male subjects and underestimated the heights of female subjects, even though a reference point, such as a doorway, was provided.²⁴
- When shown photographs of men of similar height and build, evaluators rated the athletic ability of black men higher than that of white men.²⁵
- When asked to choose counselors from a group of equally competent applicants who were neither exceptionally qualified nor unqualified for the position, college students chose white candidates more often than African American candidates, exhibiting a tendency to give members of the majority group the benefit of the doubt.²⁶

These studies show that we often apply generalizations about groups that may or may not be valid to the evaluation of individuals.²⁷ In the study on height, evaluators applied the statistically accurate generalization that men are usually taller than women to estimate the height of individuals who did not necessarily conform to the generalization. If we can inaccurately apply generalizations to objective characteristics as easily measured as height, what happens when the qualities we are evaluating are not as objective or as easily measured? What happens when, as in the studies of athletic ability and choice of counselor, the generalizations are not valid? What happens when such generalizations unconsciously influence the ways we interact with other people? Here are some examples of assumptions or biases that can influence interactions.

- When rating the quality of verbal skills as indicated by vocabulary definitions, evaluators rated the skills lower if told that an African American provided the definitions than if told that a white person provided them.²⁸
- When asked to assess the contribution of skill versus luck to successful performance of a task, evaluators more frequently attributed success to skill for males and to luck for females, even though males and females performed the task identically.²⁹
- Evaluators who were busy, distracted by other tasks, and under time pressure gave women lower ratings than men for the same written evaluation of job performance. Sex bias decreased when they took their time and focused attention on their judgments, which rarely occurs in actual work settings.³⁰

- Research has shown that incongruities between perceptions of female gender roles and leadership roles can cause evaluators to assume that women will be less competent leaders. When women leaders provided clear evidence of their competence, thus violating traditional gender norms, evaluators perceived them to be less likable and were less likely to recommend them for hiring or promotion.³¹
- A study of nonverbal communication found that white interviewers maintained higher levels of visual contact, reflecting greater attraction, intimacy, and respect, when talking with white interviewees and higher rates of blinking, indicating greater negative arousal and tension, when talking with black interviewees.³²

Several research studies conclude that implicit biases and assumptions can affect evaluation and hiring of candidates for academic positions. These studies show that the gender of the person being evaluated significantly influences the assessment of résumés and postdoctoral applications, evaluation of journal articles, and the language and structure of letters of recommendation. As we attempt to enhance campus and department climate, the influence of such biases and assumptions may also affect selection of invited speakers and conference presenters, committee membership, interaction and collaboration with colleagues, and promotion to tenure and full professorships. Here are some examples of assumptions or biases in academic contexts.

- A study of over 300 recommendation letters for medical faculty hired by a large American medical school found that letters for female applicants differed systematically from those for males. Letters written for women were shorter, provided “minimal assurance” rather than solid recommendations, raised more doubts, and included fewer superlative adjectives.³³
- In a national study, 238 academic psychologists (118 male, 120 female) evaluated a junior-level or a senior-level curriculum vitae randomly assigned a male or a female name. These were actual vitae from an academic psychologist who successfully competed for an assistant professorship and then received tenure early. For the junior-level applicant, both male and female evaluators gave the male applicant better ratings for teaching, research, and service and were more likely to hire the male than the female applicant. Gender did not influence evaluators’ decisions to tenure the senior-level applicant, but evaluators did voice more doubts about the female applicant’s qualifications.³⁴
- A study of postdoctoral fellowships awarded by the Medical Research Council of Sweden found that women candidates needed substantially more publications to achieve the same rating as men, unless they personally knew someone on the selection panel.³⁵
- A 2008 study showed that when the journal *Behavioral Ecology* introduced a double-blind review process that concealed the identities of reviewers and authors, there was a significant increase in the publication of articles with a woman as the first author.³⁶

Reaping the Benefits and Minimizing the Challenges of Diversity

To reap the benefits and minimize the challenges of diversity, we need to overcome the powerful human tendency to feel more comfortable when surrounded by people we resemble. We need to learn how to understand, value, and appreciate difference. Here is some advice for doing so.

Become aware of unconscious biases that may undermine your conscious commitment to egalitarian principles.

One way of doing this is to take the Implicit Association Test (IAT) offered by Project Implicit, a research collaborative at the University of Virginia, Harvard University, and the University of Washington (<https://implicit.harvard.edu/implicit/demo>).

Consciously strive to minimize the influence of unintentional bias.

Question your judgments and decisions and consider whether unintentional bias may have played a role. One way to do so is to perform a thought experiment: ask yourself if your opinions or conclusions would change if the person was of a different race, sex, religion, and so forth. Some questions to consider include the following:

- Are women or minority colleagues/students subject to higher expectations in areas such as number and quality of publications, name recognition, or personal acquaintance with influential colleagues?
- Are colleagues or students who received degrees from institutions other than major research universities undervalued? Are we missing opportunities to benefit from the innovative, diverse, and valuable perspectives and expertise of colleagues or students from other institutions such as historically black universities, four-year colleges, community colleges, government, or industry?
- Are ideas and opinions voiced by women or minorities ignored? Are their achievements and contributions undervalued or unfairly attributed to collaborators, despite evidence to the contrary in their publications or letters of reference?
- Is the ability of women or minorities to lead groups, raise funds, and/or supervise students and staff underestimated? Are such assumptions influencing committee and/or course assignments?
- Are assumptions about whether women or minorities will “fit in” to an existing environment influencing decisions?
- Are assumptions about family obligations inappropriately influencing appointments and other decisions?

Seek out opportunities for greater interaction with women and minority colleagues.

Get to know women and minority colleagues in your department, your campus, and your professional associations. Pursue meaningful discussions with them about research, teaching methodologies, and ideas about the direction of your department, college, and profession. Listen actively to any concerns they express and try to understand and learn from their perspectives and experiences.

Focus on the individual and on their personality, qualifications, merit, and interests.

Consciously avoid the tendency to make assumptions about an individual based on the characteristics (accurate or not) of their group membership. Likewise, avoid the tendency to make assumptions about groups based on the behavior, personality, or qualifications of an individual group member. Instead, concentrate on the individual and their qualities.

Treat all individuals—regardless of race, sex, or status—with respect, consideration, and politeness.

- Greet faculty, staff, and students pleasantly in hallways or in other chance encounters.
- Make requests to faculty, staff, and students politely—even when the work you are asking for is part of their obligations.
- Acknowledge and appreciate the work, assistance, and contributions of faculty colleagues, staff, and students. Do so in public forums as well as privately.
- Address individuals by their appropriate titles or by their preferred forms of address.

Actively promote inclusive communities.

- In classroom, committee, laboratory, and departmental settings, work to ensure that everyone has a chance to voice opinions, concerns, or questions. Acknowledge and attribute ideas, suggestions, and comments accurately. Women and minorities often report that their remarks or contributions are ignored or unheard.
- Support efforts to ensure that leadership and membership of departmental and professional committees are diverse with respect to age, gender, nationality, race, ethnicity, and so on.
- Support efforts to ensure that departmental events such as seminar series and sponsored conferences include presenters of various ages, genders, nationalities, races, and ethnicities.
- Promote inclusive language by example. Avoid using only male pronouns when referring to groups of both sexes. Avoid language that makes assumptions about marital status and or/sexual orientation; for example, consider using “partner” rather than “spouse.”
- Welcome new departmental members by initiating conversations or meetings with them. Attend social events hosted by your department and make efforts to interact with new members and others who are not part of your usual social circle.

Avoid activating stereotype threat.

In addition to the preceding advice for actively promoting inclusive communities, the following suggestions can prevent the activation of stereotype threat or counteract its effects:

- Teach students and colleagues about stereotype threat.³⁷
- Counter common stereotypes by increasing the visibility of successful women and minority members of your discipline. Ensure that the posters and/or photographs of members of your department or discipline displayed in hallways, conference rooms, and classrooms reflect the diversity you wish to achieve. Choose textbooks that include the contributions and images of diverse members of your discipline.³⁸
- Support and encourage your students by providing positive feedback as well as constructive criticism to ensure that they know their strengths and develop confidence in their abilities. Save your harshest criticism for private settings so that you do not humiliate or embarrass students in front of either their peers or more senior colleagues. Such respectful practices are important for all students, but are likely to be more important for women and members of minority groups, who may have received less encouragement and may be at greater risk of being discouraged due to the influence of stereotype threat. Demonstrate similar respect and encouragement for your colleagues.

- For more suggestions, see <http://reducingstereotypethreat.org/reduce.html>.

Conclusion

Diversity is not an end in itself. Diversity is a means of achieving our educational and institutional goals. As such, merely adding diverse people to a homogeneous environment does not automatically create a more welcoming and intellectually stimulating campus.

Long-term efforts, engagement, and substantial attention are essential for realizing the benefits that diversity has to offer and for ensuring that all members of the academic community are respected, listened to, and valued.

References

- Manzoni, J.-F., P. Strebelle, and J.-L. Barsoux. "Why diversity can backfire on company boards." *MIT Sloan Management Review—Business Insight*, January 22, 2010.
Herring, C. "Does diversity pay? Race, gender, and the business case for diversity." *American Sociological Review* 74 (2009): 208–224.
Page, S. E. (2007). *The Difference: How the Power of Diversity Creates Better Groups, Firms, Schools, and Societies*. Princeton, NJ: Princeton University Press.
Putnam, R. D. "E Pluribus Unum: Diversity and community in the twenty-first century—The 2006 Johan Skytte Prize Lecture." *Scandinavian Political Studies* 30 (2007): 137–174.
van Knippenberg, D., and M. C. Schippers. "Work group diversity." *Annual Review of Psychology* 58 (2007): 515–541.
Mannix, E., and M. A. Neale. "What differences make a difference? The promise and reality of diverse teams in organizations." *Psychological Science in the Public Interest* 6 (2005): 31–55.
Cox, T., Jr. (1993). *Cultural Diversity in Organizations: Theory, Research & Practice*. San Francisco: Berrett-Koehler Publishers.
- University of Wisconsin–Madison, Office of the Provost (2004). "Definition of Campus Climate." (http://wiseli.engr.wisc.edu/climate/Provost_ClimateDefn.pdf)
- Herring, C. "Does diversity pay? Race, gender, and the business case for diversity." *American Sociological Review* 74 (2009): 208–224.
Chang, M. J., D. Witt, et al. (2003). *Compelling Interest: Examining the Evidence on Racial Dynamics in Colleges and Universities*. Stanford, CA: Stanford University Press.
American Council on Education (ACE) and American Association of University Professors (AAUP) (2000). *Does Diversity Make a Difference? Three Research Studies on Diversity in College Classrooms*. Washington, DC: ACE and AAUP.
- McLeod, P. L., S. A. Lobel, and T. H. Cox, Jr. "Ethnic diversity and creativity in small groups." *Small Group Research* 27 (1996): 248–265.
- Nemeth, C. J. "Dissent as driving cognition, attitudes, and judgments." *Social Cognition* 13 (1995): 273–291.
Nemeth, C. J. "Differential contributions of majority and minority influence." *Psychological Review* 93 (1986): 23–32.
Nemeth, C. J. "Dissent, group process, and creativity: The contribution of minority influence." *Advances in Group Process* 2 (1985): 57–74.
Schulz-Hardt, S. et al. "Group decision making in hidden profile situations: Dissent as a facilitator for decision quality." *Journal of Personality and Social Psychology* 91 (2006): 1080–1093.
Sommers, S. R. "On racial diversity and group decision making: Identifying multiple effects of racial composition on jury deliberations." *Journal of Personality and Social Psychology* 90 (2006): 597–612.
Antonio, A. L., et al. "Effects of racial diversity on complex thinking in college students." *Psychological Science* 15 (2004): 507–510.
- Kanter, R. M. (1983). *The Change Masters: Innovations for Productivity in the American Corporation*. New York: Simon and Schuster.
- Antonio, A. L. "Faculty of color reconsidered: Reassessing contributions to scholarship." *Journal of Higher Education* 73 (2002): 582–602.
Turner, C. S. V. "New faces, new knowledge." *Academe* 86 (2000): 34–37.
Nelson, S., and G. Pellet (1997). *Shattering the Silences* [videorecording]. San Francisco: Gail Pellet Productions.
- Milem, J. F. (2003). "The educational benefits of diversity: Evidence from multiple sectors."

- In *Compelling Interest: Examining the Evidence on Racial Dynamics in Colleges and Universities*, edited by M. J. Chang, D. Witt, J. Jones, and K. Hakuta, 126–169. Stanford, CA: Stanford University Press.
9. Smith, D. G., et al. (1997). *Diversity Works: The Emerging Picture of How Students Benefit*. Washington, DC: Association of American Colleges and Universities.
 10. Astin, A. W. "Diversity and multiculturalism on the campus: How are students affected?" *Change* 25(2) (1993): 44–49.
Astin, A. W. (1993). *What Matters in College? Four Critical Years Revisited*. San Francisco: Jossey-Bass.
 11. Gurin, P., E. L. Dey, et al. "Diversity and higher education: Theory and impact on educational outcomes." *Harvard Educational Review* 72 (2002): 330–366.
Gurin, P. "Selections from *The Compelling Need for Diversity in Higher Education*, expert reports in defense of the University of Michigan." *Equity & Excellence in Education* 32 (1999): 36–62.
 12. Espenshade, T. J., and A. W. Radford (2009). *No Longer Separate, Not Yet Equal: Race and Class in Elite College Admission and Campus Life*. Princeton, NJ: Princeton University Press.
 13. Pascarella, E. T., et al. "Influences on students' openness to diversity and challenge in the first year of college." *Journal of Higher Education* 67 (1996): 174–195.
 14. Fox, M. F. (2003). "Gender, faculty, and doctoral education in science and engineering." In *Equal Rites, Unequal Outcomes: Women in American Research Universities*, edited by L. S. Hornig, 91–109. New York: Kluwer Academic/Plenum Publishers.
Carbonell, J. L., and Y. Castro. "The impact of a leader model on high dominant women's self-selection for leadership." *Sex Roles* 58 (2008): 776–783.
Kutob, R. M., J. H. Senf, and D. Campos-Outcalt. "The diverse functions of role models across primary care specialties." *Family Medicine* 38 (2006): 244–251.
Bakken, L. L. "Who are physician-scientists' role models? Gender makes a difference." *Academic Medicine* 80 (2005): 502–506.
 15. Sheridan, J., and J. Winchell (2006). *Results from the 2006 Study of Faculty Worklife at UW–Madison*. Madison, WI: WISELI.
Sheridan, J., and J. Winchell (2003). *Results from the 2003 Study of Faculty Worklife at UW–Madison*, Madison, WI: WISELI.
Harvard University Task Force on Women Faculty (2005). *Report of the Task Force on Women Faculty*. Cambridge, MA: Harvard University.
Astin, H. S., and C. M. Cress (2003). "A national profile of academic women in research universities." In *Equal Rites, Unequal Outcome: Women in American Research Universities*, edited by L. S. Hornig, 53–88. New York: Kluwer Academic/Plenum Publishers.
Zakian, V., et al. (2003). *Report of the Task Force on the Status of Women Faculty in the Natural Sciences and Engineering at Princeton*. Princeton, NJ: Princeton University Press.
Allen, W. R., et al. (2002). "Outsiders within: Race, gender, and faculty status in US higher education." In *The Racial Crisis in American Higher Education: Continuing Challenges for the Twenty-First Century*, edited by W. A. Smith, P. G. Altbach, and K. Lomotey, 189–220. Albany, NY: State University of New York Press.
Trower, C. A., and R. P. Chait. "Faculty diversity: Too little for too long." *Harvard Magazine* 104 (2002): 33–37, 98.
Turner, C. S. V. "Women of color in academe: Living with multiple marginality." *Journal of Higher Education* 73 (2002): 74–93.
Aguirre, A., Jr. "Women and minority faculty in the academic workplace: Recruitment, retention, and academic culture." *ASHE-ERIC Higher Education Reports* 27 (2000).

- Foster, S. W., et al. "Results of a gender-climate and work-environment survey at a midwestern academic health center." *Academic Medicine* 75 (2000): 653–660.
- Turner, C. S. V., and S. L. Myers Jr. (2000). *Faculty of Color in Academe: Bittersweet Success*. Boston, MA: Allyn & Bacon.
- MIT Committee on Women Faculty (1999). *A Study on the Status of Women Faculty in Science at MIT*. Boston, MA: Massachusetts Institute of Technology.
- Blackburn, R. P., and C. Hollenshead (1999). *University of Michigan Faculty Work-Life Study Report*. Ann Arbor, MI: University of Michigan.
- Riger, S., J. Stokes, et al. "Measuring perceptions of the work environment for female faculty." *Review of Higher Education* 21 (1997): 63–78.
16. Turner, C. S. V., and S. L. Myers Jr. (2000). *Faculty of Color in Academe: Bittersweet Success*. Boston, MA: Allyn & Bacon.
- Turner, C. S. V. "Women of color in academe: Living with multiple marginality." *Journal of Higher Education* 73 (2002): 74–93.
17. Rankin, S. R. (2003). *Campus Climate for Gay, Lesbian, Bisexual, and Transgender People: A National Perspective*. New York: National Gay and Lesbian Task Force Policy Institute.
- Suarez-Balcazar, Y., et al. "Experiences of differential treatment among college students of color." *Journal of Higher Education* 74 (2003): 428–444.
- Hurtado, S., D. F. Carter, and D. Kardia. "The climate for diversity: Key issues for institutional self-study." *New Directions for Institutional Research* 98 (1998): 53–63.
- Cress, C. M., and L. J. Sax. "Campus Climate Issues to Consider for the Next Decade." *New Directions for Institutional Research* 98 (1998): 65–80.
- Nora, A., and A. F. Cabrera. "The role of perceptions of prejudice and discrimination on the adjustment of minority students to college." *Journal of Higher Education* 67 (1996): 119–148.
- Smedley, B. D., H. F. Myers, and S. P. Harrell. "Minority-status stresses and the college adjustment of ethnic minority freshmen." *Journal of Higher Education* 64 (1993): 434–452.
- Hurtado, S. "The campus racial climate: Contexts of conflict." *Journal of Higher Education* 63 (1992): 539–569.
18. Salter, D. W., and A. Persaud. "Women's views of the factors that encourage and discourage classroom participation." *Journal of College Student Development* 44 (2003): 831–844.
- Crombie, G., et al. "Students' perceptions of their classroom participation and instructor as a function of gender and context." *Journal of Higher Education* 74 (2003): 51–76.
- Swim, J. K., L. L. Hyers, et al. "Everyday sexism: Evidence for its incidence, nature, and psychological impact from three daily diary studies." *Journal of Social Issues* 57 (2001): 31–53.
- Whitt, E. J., et al. "Women's perceptions of a "chilly climate" and cognitive outcomes in college: Additional evidence." *Journal of College Student Development* 40 (1999): 163–177.
- Sands, R. G. "Gender and the perception of diversity and intimidation among university students." *Sex Roles* 39 (1998): 801–815.
- Foster, T. J., et al. "An empirical test of Hall and Sandler's 1982 report: Who finds the classroom climate chilly?" Paper presented at the annual meeting of the Central States Communication Association, Oklahoma City, OK, April 1994.
- Hall, R. M., and B. R. Sandler (1982). *The Classroom Climate: A Chilly One for Women?* Washington, DC: Project on the Status and Education of Women, Association of American Colleges.
19. Spencer, S. J., C. M. Steele, and D. M. Quinn. "Stereotype threat and women's

- math performance." *Journal of Experimental Social Psychology* 35 (1999): 4–28.
- Steele, C. M. "A threat in the air: How stereotypes shape intellectual identity and performance." *American Psychologist* 52 (1997): 613–629.
- Steele, C. M., and J. Aronson. "Stereotype threat and the intellectual test performance of African Americans." *Journal of Personality and Social Psychology* 69 (1995): 797–811.
20. Burgess, D. J., A. Joseph, et al. "Does stereotype threat affect women in academic medicine?" *Academic Medicine* 87 (4) (2012): 506–512.
- Brodish, A. B., and P. G. Devine. "The role of performance-avoidance goals and worry in mediating the relationship between stereotype threat and performance." *Journal of Experimental Social Psychology* 45 (2009): 180–185.
- Davies, P. G., S. J. Spencer, and C. M. Steele. "Clearing the air: Identity safety moderates the effects of stereotype threat on women's leadership aspirations." *Journal of Personality and Social Psychology* 88 (2005): 276–287.
- Croizet, J.-C., G. Després, et al. "Stereotype threat undermines intellectual performance by triggering a disruptive mental load." *Personality and Social Psychology Bulletin* 30 (2004): 721–731.
- Keller, J., and D. Dauenheimer. "Stereotype threat in the classroom: Dejection mediates the disrupting threat effect on women's math performance." *Personality and Social Psychology Bulletin* 29 (2003): 371–381.
- Schmader, T., and M. Johns. "Converging evidence that stereotype threat reduces working memory capacity." *Journal of Personality and Social Psychology* 85(3) (2003): 440–452.
- Steele, C. M. "A threat in the air: How stereotypes shape intellectual identity and performance." *American Psychologist* 52 (1997): 613–629.
21. Krendl, A. C., J. A. Richeson, et al. "The negative consequences of threat: A functional magnetic resonance imaging investigation of the neural mechanisms underlying women's underperformance in math." *Psychological Science* 19 (2008): 168–175.
22. Plant, E. A., and P. G. Devine. "The antecedents and implications of interracial anxiety." *Personality and Social Psychology Bulletin* 29 (2003): 790–801.
23. Dovidio, J. F. "On the nature of contemporary prejudice: The third wave." *Journal of Social Issues* 57 (2001): 829–849.
24. Biernat, M., M. Manis, and T. E. Nelson. "Stereotypes and standards of judgment." *Journal of Personality and Social Psychology* 60 (1991): 485–499.
25. Biernat, M., and M. Manis. "Shifting standards and stereotype-based judgments." *Journal of Personality and Social Psychology* 66 (1994): 5–20.
26. Dovidio, J. F., and S. L. Gaertner. "Aversive racism and selection decisions: 1989 and 1999." *Psychological Science* 11 (2000): 315–319.
27. Bielby, W.T., and J. N. Baron. "Men and women at work: Sex segregation and statistical discrimination." *American Journal of Sociology* 91 (1986): 759–799.
28. Biernat, M., and M. Manis. "Shifting standards and stereotype-based judgments." *Journal of Personality and Social Psychology* 66 (1994): 5–20.
29. Deaux, K., and T. Emswiller. "Explanations of successful performance on sex-linked tasks: What is skill for the male is luck for the female." *Journal of Personality and Social Psychology* 29 (1974): 80–85.
30. Martell, R. F. "Sex bias at work: The effects of attentional and memory demands on performance ratings of men and women." *Journal of Applied Social Psychology* 21 (1991): 1939–1960.
31. Eagly, A. H., and S. Sczesny (2009). "Stereotypes about women, men, and leaders: Have

times changed?" In *The Glass Ceiling in the 21st Century: Understanding Barriers to Gender Equality*, edited by M. Barreto, M. K. Ryan, and M. T. Schmitt, 21–47. Washington, DC: American Psychological Association.

- Eagly, A. H., and A. M. Koenig (2008). "Gender prejudice : On the risks of occupying incongruent roles." In *Beyond Common Sense : Psychological Science in the Courtroom*, edited by E. Borgida and S. T. Fiske, 63–81. Malden, MA: Blackwell Publishing.
- Heilman, M. E., A. S. Wallen, et al. "Penalties for success: Reactions to women who succeed at male gender-typed tasks." *Journal of Applied Psychology* 89 (2004): 416–427.
- Ridgeway, C. L. "Gender, status, and leadership." *Journal of Social Issues* 57 (2001): 637–655.
32. Dovidio, J. F., et al. "On the nature of prejudice: Automatic and controlled processes." *Journal of Experimental Social Psychology* 33 (1997): 510–540.
33. Trix, F., and C. Psenka. "Exploring the color of glass: Letters of recommendation for female and male medical faculty." *Discourse & Society* 14 (2003): 191–220.
34. Steinpreis, R. E., K. A. Anders, and D. Ritzke. "The impact of gender on the review of the curricula vitae of job applicants and tenure candidates: A national empirical study." *Sex Roles* 41 (1999): 509–528.
35. Wennerås, C., and A. Wold. "Nepotism and sexism in peer-review." *Nature* 387 (1997): 341–343.
36. Budden, A. E., et al. "Double-blind review favours increased representation of female authors." *Trends in Ecology & Evolution* 23 (2008): 4–6.
37. Johns, M., T. Schmader, and A. Martens. "Knowing is half the battle: Teaching stereotype threat as a means of improving women's math performance." *Psychological Science* 16 (2005): 175–179.
38. Good, J. J., J. A. Woodzicka, and L. C. Wingfield. "The effects of gender stereotypic and counter-stereotypic textbook images on science performance." *Journal of Social Psychology* 150 (2010): 132–147.

Quotes

Hurtado, Sylvia. "Linking diversity with the educational and civic missions of higher education." *Review of Higher Education* 30 (2007): 186.

Uhlmann, Eric Luis, and Geoffrey L. Cohen. "'I think it, therefore it's true': Effects of self-perceived objectivity on hiring discrimination." *Organizational Behavior and Human Decision Processes* 104 (2007): 208.

Prepared for WISELI by Eve Fine and Jo Handelsman

Thanks to Molly Carnes, Jennifer Sheridan, Amy Wendt, Linda Baier Manwell, Brad Kerr, and Christine Calderwood for their suggestions.