

**EXPOSING HOSTILE ENVIRONMENTS FOR FEMALE  
GRADUATE STUDENTS IN ACADEMIC  
SCIENCE LABORATORIES:  
The McDonnell Douglas Burden-Shifting Framework  
as a Paradigm for Analyzing the  
“Women in Science” Problem**

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## I. INTRODUCTION

Much ado has been made about women in science since former Harvard University president Lawrence Summers inadvertently pushed the topic into the media spotlight at a National Bureau of Economic Research ("NBER") conference on diversity in science and engineering in 2005.<sup>1</sup> Yet, six years prior to Summers's infamous speech musing that "different availability of aptitude at the high end" could go a long way in explaining the low percentages of women in science, evidence of a persistent problem in the sciences, in particular systemic discrimination against tenured women faculty, had already been brought to light by a group of Massachusetts Institute of Technology ("MIT") faculty members, led by Professor of Biological Sciences Nancy Hopkins, and had been publicly acknowledged by then-president of MIT, Charles Vest.<sup>2</sup> However, that news had been all but pushed into the crevices of ancient memory in the uproar that followed President Summers's pontification on the subject of women in science.

The 1999 MIT Report on the Status of Women Faculty in Science documented disparate treatment of female professors (who, in 1994, constituted

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<sup>1</sup> For a transcript of then-President Summers's remarks, see Lawrence H. Summers, Remarks at NBER Conference on Diversifying the Science & Engineering Workforce, (Jan. 14, 2005), available at <http://www.president.harvard.edu/speeches/2005/nber.html>.

<sup>2</sup> See A STUDY ON THE STATUS OF WOMEN FACULTY IN SCIENCE AT MIT (1999), available at <http://web.mit.edu/fnl/women/women.html#The%20Study> [hereinafter 1999 MIT REPORT]; see also COMMS. ON THE STATUS OF WOMEN FACULTY, REPORT OF THE SCHOOL OF SCIENCE (2002 update), available at <http://web.mit.edu/faculty/reports/sos.pdf> [hereinafter 2002 MIT UPDATE].

8% of the School of Science faculty) based on a variety of quantifiers, ranging from unequal allotments of laboratory space to lower salaries to fewer funding opportunities.<sup>3</sup> Studies on the status of women faculty at other prominent institutions followed in the wake of these initial findings.<sup>4</sup> Further, the heads of nine universities convened at a meeting in 2001 to discuss methods to address persisting barriers faced by women faculty in science and engineering.<sup>5</sup> These institutional studies did not merely “collect[ ] dust” in file cabinets;<sup>6</sup> gratifyingly, they had concrete and positive ramifications for many female faculty members, both at MIT and elsewhere. For example, Hopkins reported that “she and other senior female scientists [at MIT now] have laboratories and salaries equivalent to those of their male colleagues.”<sup>7</sup>

This paper addresses the underrepresentation of women in the sciences and challenges some commonly held beliefs about the reasons for their low numbers. Despite the MIT Report, there continues to be a perception, even among those who do not subscribe to an innate-aptitude explanation for the low percentages of women in science,<sup>8</sup> that the bulk of the disparity is due to

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<sup>3</sup> See 1999 MIT REPORT, *supra* note 2.

<sup>4</sup> See, e.g., COMM’N ON THE STATUS OF WOMEN, ADVANCEMENT OF WOMEN THROUGH THE ACADEMIC RANKS OF THE COLUMBIA UNIVERSITY GRADUATE SCHOOL OF ARTS AND SCIENCES: WHERE ARE THE LEAKS IN THE PIPELINE? (2001), available at [http://www.columbia.edu/cu/senate/annual\\_reports/01-02/Pipeline2a\\_as\\_dist.doc.pdf](http://www.columbia.edu/cu/senate/annual_reports/01-02/Pipeline2a_as_dist.doc.pdf) [hereinafter COLUMBIA REPORT]; COMM. ON THE STATUS OF WOMEN FACULTY AT CALTECH, FINAL REPORT (Dec. 3, 2001), available at <http://diversity.caltech.edu/documents/CSFWFINALREPORT1.pdf> [hereinafter CALTECH REPORT]; STANFORD UNIV., REPORT OF THE PROVOST’S ADVISORY COMMITTEE ON THE STATUS OF WOMEN FACULTY (May 27, 2004), available at <http://www.stanford.edu/dept/provost/womenfacultyreport/PACSWF.pdf> [hereinafter STANFORD REPORT]; STEERING COMM. FOR THE WOMEN’S INITIATIVE, REPORT OF THE STEERING COMMITTEE FOR THE WOMEN’S INITIATIVE AT DUKE UNIVERSITY (2003), available at [http://www.duke.edu/womens\\_initiative/docs/Womens\\_Initiative\\_Report.pdf](http://www.duke.edu/womens_initiative/docs/Womens_Initiative_Report.pdf) [hereinafter DUKE REPORT]; VIRGINIA ZAKIAN ET AL., REPORT OF THE TASK FORCE ON THE STATUS OF WOMEN FACULTY IN THE NATURAL SCIENCES AND ENGINEERING AT PRINCETON (2003), available at <http://www.princeton.edu/pr/reports/sciencetf/sciencetf-9-19-03.pdf> [hereinafter PRINCETON REPORT]. Harvard University’s study was commissioned in 2005, in the months after President Summers’s NBER remarks. See TASK FORCE ON WOMEN FACULTY, HARV. UNIV., REPORT OF THE TASK FORCE ON WOMEN FACULTY (2005), available at <http://www.news.harvard.edu/gazette/daily/2005/05/women-faculty.pdf> [hereinafter 2005 HARVARD FACULTY REPORT]; TASK FORCE ON WOMEN IN SCI. & ENG’G, REPORT FROM THE TASK FORCE ON WOMEN IN SCIENCE AND ENGINEERING (2005), available at <http://www.news.harvard.edu/gazette/daily/2005/05/wise.pdf> [hereinafter 2005 HARVARD SCIENCE REPORT]. See also Committee on Women in Science and Engineering, The National Academies, Gender Differences in Careers of Science, Engineering, and Mathematics Faculty, [http://www7.nationalacademies.org/cwse/gender\\_faculty\\_links.html](http://www7.nationalacademies.org/cwse/gender_faculty_links.html) (last visited Apr. 1, 2007) (providing links to reports by universities on gender equity and climate).

<sup>5</sup> MIT News Office, *Leaders of 9 Universities and 25 Women Faculty Meet at MIT, Agree to Equity Reviews*, Jan. 30, 2001, <http://web.mit.edu/newsoffice/2001/gender.html>.

<sup>6</sup> See *id.* (“There have been hundreds of reports just like MIT’s, collecting dust. When the president says ‘it’s true,’ then it’s true.” (quoting Prof. Nancy Hopkins)).

<sup>7</sup> Sara Rimer, *For Women in the Sciences, the Pace of Progress at Top Universities Is Slow*, N.Y. TIMES, Apr. 15, 2005, at A15.

<sup>8</sup> One scholar who supports the idea that innate biological sex differences are key to understanding the low percentages of female scientists is Harvard psychology professor

work-family (im)balance issues that fall disproportionately on women.<sup>9</sup> Yet this assessment inopportunistically overlooks a remarkable fact that came out of the MIT Report, namely that the main instigator of the MIT study, Nancy Hopkins, encountered sex discrimination, notwithstanding the fact that she did not have children. She had initially believed sex discrimination in the academy only happened to women with childrearing responsibilities: “She had faith that science would be the great equalizer. . . . ‘I just thought, “Who cares? As long as I can do a great experiment, who cares?’” Divorced and with no children, she burrowed into her science.”<sup>10</sup> However, after she and her colleagues “chronicled what top administrators called a convincing pattern” of sex discrimination at MIT, Hopkins was dismayed to realize that “this was *despite* sacrifices the women had made for science: Fewer women than men were married and the women had fewer children than the national average, while for men it was the same.”<sup>11</sup>

Further, among gender equity advocates, it is often thought that any gender discrimination in the sciences is of the “second-order” variety—unconscious, subtle biases on the part of both men and women that are not immediately obvious to either victim or perpetrator—rather than overt and intentionally hostile discrimination.<sup>12</sup> However, as will be discussed below, overt and intentionally hostile environments have not wholly given way to more subtly insidious behavior and indeed have not gone out of fashion in many scientific laboratories.

Although a critical analysis of the repercussions of continuing gender inequities in domestic responsibilities is certainly vital, a presumption that women’s traditional caretaking duties and so-called ‘second-order discrimination’<sup>13</sup> are the primary causes of the dearth of women in science is mis-

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Steven Pinker. See, e.g., *Psychoanalysis Q-and-A: Steven Pinker*, HARV. CRIMSON, Jan. 19, 2005, available at [http://pinker.wjh.harvard.edu/articles/media/2005\\_01\\_19\\_crimson.html](http://pinker.wjh.harvard.edu/articles/media/2005_01_19_crimson.html). For a critical discussion of the idea that innate biological differences are a factor leading to these disparities, see, for example, Edge, *The Third Culture, The Science of Gender and Science: Pinker vs. Spelke*, May 16, 2005, [http://www.edge.org/3rd\\_culture/debate05/debate05\\_index.html](http://www.edge.org/3rd_culture/debate05/debate05_index.html) (transcript, audio, and video of a debate between Professors Elizabeth Spelke and Steven Pinker).

The purpose of this article is not, however, to linger over or debunk the innate-biological-differences view, but rather to probe, regardless of the truth of the biological differences claim, whether discrimination may be one of several key factors causing the disparities. If discrimination is indeed an important factor, then any additional causal factors, biological or otherwise, do not absolve us from ferreting out those that are within our control. See *infra* text accompanying note 26-34 (discussing how multiple causes figure into the so-called mixed motive jurisprudence in employment discrimination litigation).

<sup>9</sup> See *infra* note 46.

<sup>10</sup> Kate Zernike, *The Reluctant Feminist*, N.Y. TIMES, Apr. 8, 2001, § 4A, at 34 (delineating some of Professor Hopkins’s experiences as a female faculty member, albeit one without children).

<sup>11</sup> *Id.* (emphasis added).

<sup>12</sup> See *infra* note 49.

<sup>13</sup> For a discussion of second-order discrimination, see, Susan Sturm, *Second Generation Employment Discrimination: A Structural Approach*, 101 COLUM. L. REV. 458 (2001).

leading. This presumption overlooks a crucial aspect of many women's experiences in science laboratories, namely, overt hostility to women *qua* women, rather than as mothers or caretakers. It may be true that long lab hours required of academic researchers present a disparate impact problem for women, who as a group continue to bear the brunt of caretaking responsibilities. Yet this vision of *the* possible cause of the "women in science problem" is myopic, as it appears to be based on an uninformed or incomplete understanding of the dynamics and operations of experimental science laboratories as well as of the potentially salient differences among various scientific fields. The singular focus on work-family balance as "the problem" is to the detriment of uncovering and honing in on stark disparate treatment issues that may well induce many women to leave hostile laboratory environments regardless of motherhood status or aspirations.

One of the reasons that it is crucial to address this myopia and explore more complete explanations for these disparities is because the choice of legal tools depends on an accurate identification of the problems at issue. Just as an accurate diagnosis of a disease is a prerequisite for adequate medical treatment, accurately pairing a legal issue with the legal tools employed to address it is indispensable for effective change. For example, to the extent that low numbers of women in science are attributable to women's choices rather than intentional and invidious discrimination, recourse to conventional civil rights laws may provide little redress.<sup>14</sup> In addition, many have argued that to the extent that unconscious, subtle bias and institutional or structural hurdles are the culprit, conventional litigation strategies are similarly ineffectual. For example, Susan Sturm has posited, "[t]here is also a substantial question as to whether the subtle and structural dynamics producing women's under-participation satisfy current judicial and administrative definitions of discrimination."<sup>15</sup> However, Sturm has also acknowledged that

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<sup>14</sup> See, e.g., Yudhijit Bhattacharjee, *Gender Equity: U.S. Agencies Quiz Universities on the Status of Women in Science*, 315 *SCIENCE* 1776, 1776 (2007) (noting that "some argue that such imbalances merely reflect personal preferences"). See also *EEOC v. Sears, Roebuck & Co.*, in which the defendants asserted – and the court accepted – a "lack of interest" defense to explain a statistically significant disparity between the percentage of women and percentage of men in higher paying commission-sales positions in a department store. 628 F. Supp. 1264, 1314-15 (N.D. Ill. 1986), *aff'd*, 839 F.2d 302 (7th Cir. 1988). The story told by this lack of interest defense is that women just are not as interested in those positions as are men. Professor Vicki Schultz has challenged this explanation—that, for pre-labor market reasons, women are inherently not interested in certain types of jobs—as ignoring the sorts of employer influences, affirmative steps, and background circumstances that may discourage women from going into these occupations. See Vicki Schultz, *Telling Stories About Women and Work: Judicial Interpretations of Sex Segregation in the Workplace in Title VII Cases Raising the Lack of Interest Argument*, 103 *HARV. L. REV.* 1749 (1990).

<sup>15</sup> Susan Sturm, *The Architecture of Inclusion: Advancing Workplace Equity in Higher Education*, 29 *HARV. J.L. & GENDER* 247, 262 (2006); see also Sturm, *Second Generation Employment Discrimination*, *supra* note 13, at 461 ("The complex and dynamic problems inherent in second generation discrimination cases pose a serious challenge for a first generation system that relies solely on courts . . . to articulate and enforce specific, across-the-board rules."); Susan D. Carle, *Progressive Lawyering in Politically*

“successful claims generally target well-documented and blatant discrimination.”<sup>16</sup> Would it help to know that invidious disparate treatment lurks prominently in the hallowed halls and laboratories of academic science—would the women in science problem perhaps appear more tractable under the current civil rights legal regime? I will argue that recognition of the fact that intentional discrimination still figures prominently is crucial to developing a strategy toward combating the observed disparities.

## II. STATISTICAL DISPARITIES IN THE COMPOSITION OF THE SCIENTIFIC WORKFORCE AS STATING A PRIMA FACIE CASE OF GENDER DISCRIMINATION

Steven Pinker, a professor of psychology at Harvard and a defender of then-President Summers’s NBER conference comments, has stated that “if it is one factor, we cannot reflexively assume that different statistical representation of men and women in science and engineering is itself proof of discrimination.”<sup>17</sup> However, in the litigation context, disparities among underrepresented groups in the workplace can indeed be viewed as evidence, albeit not *conclusive* evidence, of underlying discrimination, which is prohibited by Title VII of the Civil Rights Act of 1964 when based on protected characteristics such as race or sex.<sup>18</sup> Under the *McDonnell Douglas* burden-shifting framework,<sup>19</sup> plaintiffs may use such statistical evidence of dispari-

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*Depressing Times: Can New Models for Institutional Self-Reform Achieve More Effective Structural Change?*, 30 HARV. J.L. & GENDER 323 (2007); Kevin M. Clermont & Stewart J. Schwab, *How Employment Discrimination Plaintiffs Fare in Federal Court*, 1 J. EMPIRICAL LEGAL STUD. 429 (2004) (research showing low success rate of winning employment discrimination cases); David B. Oppenheimer, *Verdicts Matter: An Empirical Study of California Employment Discrimination and Wrongful Discharge Jury Verdicts Reveals Low Success Rates for Women and Minorities*, 37 U.C. DAVIS L. REV. 511, 514 (2003) (finding that “women and minorities are substantially disadvantaged in bringing certain kinds of employment discrimination claims, as compared with the success rates of all plaintiffs in all employment law jury trials”). Cf. Christine Jolls, *Antidiscrimination Law’s Effects on Implicit Bias*, in BEHAVIORAL ANALYSES OF WORKPLACE DISCRIMINATION (Mitu Gulati & Michael Yelnosky eds., forthcoming 2007) (arguing that conventional antidiscrimination law may also impact implicit biases in addition to intentional discrimination); Christine Jolls & Cass R. Sunstein, *The Law of Implicit Bias*, 94 CAL. L. REV. 969 (2006).

<sup>16</sup> Sturm, *Architecture of Inclusion*, *supra* note 15, at 264 (citing *Donnelly v. R.I. Bd. of Governors for Higher Educ.*, 110 F.3d 2 (1st Cir. 1997); *Lipsett v. Univ. of Puerto Rico*, 759 F. Supp. 40 (D.P.R. 1991); *Jew v. Univ. of Iowa*, 749 F. Supp. 946 (S.D. Iowa 1990); *Rosenberg v. Univ. of Cincinnati*, 118 F.R.D. 591 (S.D. Ohio 1987)).

<sup>17</sup> *Psychoanalysis Q-and-A*, *supra* note 8.

<sup>18</sup> 42 U.S.C. § 2000e-1 (2000).

<sup>19</sup> *McDonnell Douglas Corp. v. Green*, 411 U.S. 792, 802-04 (1973). Courts have applied the *McDonnell Douglas* burden-shifting framework to other statutory civil rights claims, including the Age Discrimination in Employment Act (“ADEA”). See, e.g., *Reeves v. Sanderson Plumbing Prods., Inc.*, 530 U.S. 133, 142 (2000) (“This Court has not squarely addressed whether the *McDonnell Douglas* framework, developed to assess claims brought under § 703(a)(1) of Title VII of the Civil Rights Act of 1964, also applies to ADEA actions. Because the parties do not dispute the issue, we shall assume,

ties to support a prima facie case of unlawful discrimination under Title VII.<sup>20</sup> Hence an argument strikingly similar to the one put forth by Pinker was in fact expressly rejected by the Supreme Court in *Teamsters v. United States* in the context of a race discrimination suit:

The company's principal response to this evidence is that statistics can never in and of themselves prove the existence of a pattern or practice of discrimination, or even establish a prima facie case shifting to the employer the burden of rebutting the inference raised by the figures. . . . [However,] our cases make it unmistakably clear that "(s)tatistical analyses have served and will continue to serve an important role" in cases in which the existence of discrimination is a disputed issue.<sup>21</sup>

The Court went on to explain precisely why evidence of a statistical disparity in racial composition of certain jobs is so significant. Such figures are

probative in a case such as this one only because [*an imbalance is often a telltale sign of purposeful discrimination*]; absent explanation, it is ordinarily to be expected that nondiscriminatory hiring practices will in time result in a work force more or less representative of the racial and ethnic composition of the population in the community from which employees are hired.<sup>22</sup>

Significantly, a plaintiff class's presentation of statistical evidence does not definitively establish that adverse employment actions have taken place on the basis of protected traits. Rather, a prima facie introduction of statistical evidence in conjunction with a claim of intentional discrimination simply shifts the burden of production to the defendant at the summary judgment stage. At that point, the employer is invited to articulate a legitimate, non-discriminatory reason for the statistical disparity or other prima facie evidence.<sup>23</sup> As the *Teamsters* Court cautioned, "statistics are not irrefutable; they come in infinite variety and, like any other kind of evidence, they may

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*arguendo*, that the *McDonnell Douglas* framework is fully applicable here.") (citations omitted).

<sup>20</sup> See *Int'l Bhd. of Teamsters v. United States*, 431 U.S. 325, 337 (1977) (affirming that the government's presentation of evidence "showing pervasive statistical disparities in line-driver positions between employment of the minority members and whites," in addition to corroborating testimony, sufficiently sustained the government's burden of proof). Per *McDonnell Douglas*, a complainant may also establish a prima facie case by showing "(i) that he belongs to a racial minority; (ii) that he applied and was qualified for a job for which the employer was seeking applicants; (iii) that, despite his qualifications, he was rejected; and (iv) that, after his rejection, the position remained open and the employer continued to seek applicants from persons of complainant's qualifications." *McDonnell Douglas*, 411 U.S. at 802.

<sup>21</sup> *Teamsters*, 431 U.S. at 339 (quoting *Mayor of Philadelphia v. Educ. Equal. League*, 415 U.S. 605, 620 (1974)).

<sup>22</sup> *Id.* at 340 (emphasis added).

<sup>23</sup> Note, however, that the use of statistical evidence to support a case of *intentional* discrimination, as in *Teamsters*, serves a purpose separate from its use in showing a dis-

be rebutted. In short, their usefulness depends on all of the surrounding facts and circumstances.”<sup>24</sup>

Once the defendant has presented a plausible nondiscriminatory explanation, the burden of production reverts to the plaintiff, who may then rebut the defendant’s proffered explanation on grounds that it is pretextual. If the plaintiff can show that the defendant’s stated reason was a pretext for discrimination, then the plaintiff’s discrimination claim may survive the defendant’s summary judgment motion and proceed to trial.<sup>25</sup> If, however, the plaintiff is unable to establish a genuine issue of material fact that the defendant’s explanation was pretextual, defendant’s motion for summary judgment will be granted.

The Court’s development of Title VII jurisprudence has been mindful of the fact that complex motivations often underlie human behavior and that sometimes adverse employment actions may be taken for a medley of reasons. For instance, one of the issues in *Price Waterhouse v. Hopkins*<sup>26</sup> pertained to a situation in which multiple factors, rather than a single smoking gun, allegedly contributed to the decision of an accounting firm not to promote a female accountant to the partnership. The Court stated, “Where a decision was the product of a mixture of legitimate and illegitimate motives, however, it simply makes no sense to ask whether the legitimate reason was the ‘true reason’ for the decision.”<sup>27</sup> Instead, “the plaintiff who shows that an impermissible motive played a motivating part in an adverse employment decision has thereby placed upon the defendant the burden to show that it would have made the same decision in the absence of the unlawful mo-

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parate impact of a facially neutral policy or practice. *See infra* text accompanying notes 101 and 109.

<sup>24</sup> *Teamsters*, 431 U.S. at 340.

<sup>25</sup> *McDonnell Douglas*’s burden-shifting analysis does not relieve the plaintiff of her overall burden of persuasion. The burden-shifting simply pertains to the burden of production for getting past the summary judgment stage; that is, for establishing a genuine issue of material fact as to the employer’s discriminatory animus. *See, e.g.*, *St. Mary’s Honor Ctr. v. Hicks*, 509 U.S. 502, 508 (1993) (“It is important to note, however, that although the *McDonnell Douglas* presumption shifts the burden of *production* to the defendant, ‘[t]he ultimate burden of persuading the trier of fact that the defendant intentionally discriminated against the plaintiff remains at all times with the plaintiff.’” (quoting *Tex. Dep’t of Cmty. Affairs v. Burdine*, 450 U.S. 248, 253 (1981))); *Costa v. Desert Palace, Inc.*, 299 F.3d 838, 855 (9th Cir. 2002) (en banc):

The plaintiff may make out a prima facie case—which may, admittedly, be a weak showing—that entitles her to a commensurately small benefit, a transitory presumption of discrimination: the burden of *production* only shifts briefly to the employer to explain why it took the challenged action, if not based on the protected characteristic. In practice, employers quickly rebut the presumption and it ‘drops from the case.’ The burden of production then shifts back to the plaintiff to introduce evidence from which the factfinder could conclude that the employer’s proffered reason was pretextual. The burden of *persuasion* always remains with the employee to prove the ultimate Title VII violation—unlawful discrimination.

(citations omitted), *aff’d*, 539 U.S. 90 (2003).

<sup>26</sup> 490 U.S. 228 (1989).

<sup>27</sup> *Id.* at 247 (citations and quotations omitted).

tive.”<sup>28</sup> In the case of Hopkins, it turned out she had not been promoted both for an illegitimate reason—because she was not stereotypically feminine enough—as well as because she had had some abrasive interactions with staff members, a legitimate rationale.

In passing the Civil Rights Act of 1991, Congress amended Title VII to codify the principle that the presence of a mixed motive does not allow a defendant employer to escape liability for discriminatory treatment, and to clarify burden of proof issues that had arisen out of the *Price Waterhouse* case.<sup>29</sup> Section 107 both establishes a standard for proving that an “unlawful employment practice” has occurred in the presence of mixed motives and delineates the remedies available to a plaintiff who wins on a mixed-motive instruction.<sup>30</sup> As codified in section 2000e-2(m), “an unlawful employment practice is established when the complaining party demonstrates that race, color, religion, sex, or national origin was a motivating factor for any employment practice, even though other factors also motivated the practice.”<sup>31</sup> However, after a plaintiff has proven a violation under section 2000e-2(m), the employer has the opportunity for a limited affirmative defense, namely that “[it] would have taken the same action in the absence of the impermissible motivating factor.”<sup>32</sup> If this is shown to be true, then a plaintiff is restricted in the remedies available to her, namely, only declaratory relief, certain types of injunctive relief, and attorney’s fees and costs.<sup>33</sup> In other words, the court “shall not award damages or issue an order requiring any admission, reinstatement, hiring, promotion, or payment.”<sup>34</sup>

Egregious disparities in workforce compositions based on protected traits may thus serve as a prompt for a reasonable narrative to explain those disparities, be that story one of discrimination, one of more benign action, or a combination of the two. The establishment of a *prima facie* case<sup>35</sup> and subsequent burden-shifting involved in a Title VII summary judgment proceeding, may serve as a useful tool even when taken out of the litigation context and applied more generally to address the problem of low percentages of women in the sciences and engineering by assisting gender equity advocates to hone in on the issues in a more profound manner. Indeed, the *McDonnell Douglas* burden-shifting paradigm, in which an initial explanation for disparate treatment is subject to further scrutiny rather than taken at face value, may reveal much about our assumptions and understandings

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<sup>28</sup> *Id.* at 250.

<sup>29</sup> Civil Rights Act of 1991, Pub. L. No. 102-166, § 107(a), 105 Stat. 107 (codified as amended at 42 U.S.C. § 2000e-2(m) (2000)).

<sup>30</sup> *See id.*

<sup>31</sup> 42 U.S.C. § 2000e-2(m) (2000).

<sup>32</sup> 42 U.S.C. § 2000e-5(g)(2)(B) (2000).

<sup>33</sup> 42 U.S.C. § 2000e-5(g)(2)(B)(i) (2000).

<sup>34</sup> 42 U.S.C. § 2000e-5(g)(2)(B)(ii) (2000).

<sup>35</sup> Gross statistical disparities (i.e., statistically significant disparities in the composition of laboratories and faculties based on sex) are hereinafter referred to as a “*prima facie* case” of discrimination in violation of federal civil rights laws.

about this topic. It may allow advocates to expose hitherto unexplored facets of a complex problem. It may also guard us from being satisfied with simple answers unchallenged by a deeper analysis and understanding of what is actually occurring on the ground. And, finally, it could perhaps enable an attack of the problem with more focus and in a way that comports with the philosophy behind current federal civil rights jurisprudence.

The analogy of the mixed motive jurisprudence to the potential existence of multiple causal factors for the disparities in the gender composition of the scientific workforce can be spelled out as follows: unless one can show that, *even in the absence of discrimination*, the low percentages of women in science would remain unaltered, one cannot simply hang one's hat on the innate biological differences theory and call it a day. Thus, the assertion "that gender disparities can arise in the absence of discrimination as long as men and women differ, on average, in their mixture of talents, temperaments, and interests—whether this difference is the result of biology, socialization, or an interaction of the two,"<sup>36</sup> is irrelevant at best, for it lacks a vital condition precedent, namely a clear showing of the absence of discrimination. Even assuming *arguendo* that biological differences do contribute to the disparities, as long as these differences are one of multiple causes, one of which is discriminatory treatment, antidiscrimination law has a role to play and we a concomitant duty to address it. To argue otherwise represents nothing less than an abdication of responsibility to address factors within our control. However, my purpose here is not to go head-to-head with the champions of innate sex differences in intellectual capacity, for that has already been done,<sup>37</sup> but rather to deliver a similar critique to gender equity advocates who subscribe to work-family or subtle bias theories that overlook the potential for intentional invidious discrimination in scientific laboratories.

#### A. *The Prima Facie Case: the Disparities*

The most recent and comprehensive data on the numbers of female faculty and doctoral students in a variety of scientific fields were compiled by Dr. Donna Nelson, a chemistry professor at the University of Oklahoma who set out to document the disparities at the graduate and faculty levels in a variety of scientific fields.<sup>38</sup> She surveyed "the top 50 departments in each of fourteen science and engineering disciplines, as ranked by the National

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<sup>36</sup> Steven Pinker, *Sex Ed: The Science of Difference*, NEW REPUBLIC, Feb. 14, 2005, [http://pinker.wjh.harvard.edu/articles/media/2005\\_02\\_14\\_newrepublic.html](http://pinker.wjh.harvard.edu/articles/media/2005_02_14_newrepublic.html).

<sup>37</sup> See, e.g., The Science of Gender and Science, *supra* note 8; COMM. ON MAXIMIZING THE POTENTIAL OF WOMEN IN ACAD. SCI. & ENG'G & NAT'L ACAD. OF MED., BEYOND BIAS AND BARRIERS: FULFILLING THE POTENTIAL OF WOMEN IN ACADEMIC SCIENCE AND ENGINEERING 23-44 (2007), available at [http://www.nap.edu/catalog.php?record\\_id=11741](http://www.nap.edu/catalog.php?record_id=11741) [hereinafter BEYOND BIAS AND BARRIERS].

<sup>38</sup> DONNA J. NELSON, A NATIONAL ANALYSIS OF DIVERSITY IN SCIENCE AND ENGINEERING FACULTIES AT RESEARCH UNIVERSITIES (2007), available at <http://>

Science Foundation (“NSF”) according to research funds expended. Each department chair was asked to provide the gender, race/ethnicity, and rank of each tenured or tenure track faculty member.”<sup>39</sup> Some of the results are tabulated below for ease of comparison of faculty data with Ph.D. recipient data.

**Table 1. Percentage of female graduate students and professors in various scientific fields.**<sup>40</sup>

Discipline	% Female Ph.D.s (1983-1992)	% Female Ph.D.s (1993-2002)	% Female Faculty (FY2002) <sup>41</sup>
Chemistry <sup>42</sup>	22.8	31.3	12.1
Math	20.5	27.2	8.3
Computer Science	17.9	20.5	10.6
Astronomy	12.7	20.6	12.6
Physics	9.0	13.3	6.6
Chemical Engineering	14.4	22.3	10.5
Civil Engineering	10.2	18.7	9.8
Electrical Engineering	6.4	11.5	6.5
Mechanical Engineering	6.0	10.4	6.7
Biological Sciences	36.5	44.7	20.2

There are several points to note here pertaining to which percentages are being compared in analyzing the disparities in gender composition. First, one can simply focus separately on the low percentage of women in each field and at each stage, i.e., graduate student and faculty. Second, one can hone in on declining percentages when moving from the doctoral degree recipient to the faculty member category. Both types of disparities are rele-

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[cheminfo.chem.ou.edu/~djn/diversity/briefings/Diversity%20Report%20Final.pdf](http://cheminfo.chem.ou.edu/~djn/diversity/briefings/Diversity%20Report%20Final.pdf) [hereinafter NELSON REPORT].

<sup>39</sup> See *id.* at 1, 9.

<sup>40</sup> Figures taken from *id.* at 4, 5.

<sup>41</sup> Except for chemistry, which derives from fiscal year 2003, and astronomy, fiscal year 2004. *Id.*

<sup>42</sup> The percentages of women in chemistry drop when biochemistry and biological chemistry are removed from the census. See Donna J. Nelson, Diversity in Science Association, Norman, Okla., Nelson Diversity Surveys (2004), <http://cheminfo.chem.ou.edu/faculty/djn/diversity/top50.html> (“[F]emales are represented in greater proportion in biological sciences than in chemistry. Therefore, including biochemistry and chemical biology inflates the representation of females in chemistry.”).

vant, but it should be observed that different “deltas” ( $\Delta_1$ ,  $\Delta_2$ ,  $\Delta_3$ ) might be described by distinct phenomena:<sup>43</sup>

$$\begin{aligned}\Delta_1 &= \% \text{ male Ph.D.s} - \% \text{ female Ph.D.s} \\ \Delta_2 &= \% \text{ male faculty} - \% \text{ female faculty} \\ \Delta_3 &= \% \text{ female Ph.D.s} - \% \text{ female faculty}\end{aligned}$$

Much discussion surrounding women in science has focused on  $\Delta_3$ , namely the attrition observed when comparing the percentage of female doctoral recipients with that of female faculty members in the natural sciences, and thus this paper will also focus mainly on  $\Delta_3$ .

*B. Common Responses to the Disparities: Analogy to the Second Step in the McDonnell Douglas Burden-Shifting Analysis*

Some of the purportedly “benign” explanations commonly posited for the gender disparities in the sciences may, for purposes of analysis, be analogized to the reasons often offered by a defendant employer in the second step of the *McDonnell Douglas* burden-shifting framework. These proffered explanations represent potentially illegitimate, pretextual, or incomplete (mixed motive) grounds. In line with the burden-shifting model, these preliminary explanations ought not to be the last word on the matter; instead, they should be subject to more searching scrutiny and opportunity for rebuttal. However, rather than proceeding to the *McDonnell Douglas* third step—an opportunity to rebut the proffered explanations—the conversation about women in science often appears to get cut off at this point, without ample analysis delving into whether such preliminary explanations fully illuminate the whole story or simply miss the mark.

*1. The pipeline-, the childrearing-, and the unconscious bias explanations*

A common response to these disparities is the “pipeline argument,” namely that it is simply a matter of time, that we must wait as women “come down the pipeline,” and eventually as more women receive Ph.D.s in the sciences, a higher number of women faculty members will follow suit.<sup>44</sup> As

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<sup>43</sup> For example, although some of the same factors causing the drop off from the Ph.D. pool might also contribute to a low percentage of women faculty, additional factors might be relevant for faculty gender disparities such as hiring and tenure decisions. Similarly, the low percentage of Ph.D.s might reflect a different set of proximate causes of the disparity represented by  $\Delta_3$  such as elementary, secondary school, and undergraduate experiences.

<sup>44</sup> See, e.g., Michael Heylin, *A Long-Term Revolution*, CHEM. & ENG'G NEWS, Feb. 12, 2007, at 67 (“By earning 57% of all bachelor’s degrees—the entry passes to the world of good jobs—women have a steamroller. It will help carry them eventually to reasonable equality or dominance in an increasing number of fields and professions. It will still take time. But it is inevitable.”).

will be discussed below, this supposed explanation has decisively been put to rest.<sup>45</sup>

Instead, gender equity advocates often assert that the predominant, if not the only, reason for the statistical disparity is women's roles in childbearing and, more to the point, childrearing, and women's choices to opt out of scientific careers simply because they would rather care for their families.<sup>46</sup> It is important to note, however, that lurking in the shadow of a stated desire to spend more time with one's family as a reason for leaving academic science may be a potentially germane factor that the lab was a hostile environment, and, given the choice between fulltime caretaking work and abuse in a hostile environment, it is easy for some women to make the "choice" to leave for the benefit of more family time. Professor Joan Williams and others have insightfully pointed out that the "pull" of home, hearth, and children—the supposed choice of women to opt out of high-powered careers

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<sup>45</sup> See *infra* note 61 and accompanying text.

<sup>46</sup> See, e.g., MARY ANN MASON ET AL., UNIV. OF CALIFORNIA, FACULTY FAMILY FRIENDLY EDGE, AN INITIATIVE FOR TENURE-TRACK FACULTY AT THE UNIVERSITY OF CALIFORNIA (Feb. 2005); Mary Ann Mason & Marc Goulden, *Do Babies Matter? The Effect of Family Formation on the Lifelong Careers of Academic Men and Women*, 88 ACADEME 21 (2000), available at <http://www.aaup.org/publications/Academe/2002/02nd/02ndmas.htm>; Rudy M. Baum, *Achieving Gender Equity in Chemistry: Symposium Explores Barriers Women Face in Attaining Success at the Top of Their Field*, CHEM. & ENG'G NEWS, Apr. 14, 2003, at 46-47 (quoting a symposium speaker as saying, "'The single greatest challenge facing young women in science today is that of meeting the multiple, often overlapping demands and responsibilities of professional and personal lives in a very competitive scientific environment.'"); Cathy Cockrell, *Campus Will Grant Paid Maternity Leave to Women Doctoral Students*, BERKELEYAN, Mar. 7, 2007, available at [http://www.berkeley.edu/news/berkeleyan/2007/03/07\\_maternity.shtml](http://www.berkeley.edu/news/berkeleyan/2007/03/07_maternity.shtml) ("The attrition of women from the academic pipeline [is] largely due to the competing demands of family and academic life."); Bethany Halford, *Stanford Pregnancy Policy: New Chemistry Department Program Offers Benefits to Graduate Students*, CHEM. & ENG'G NEWS, Nov. 7, 2005, at 8 ("Richard N. Zare, chair of Stanford's chemistry department, says his rationale in introducing the new policy is simple: 'To increase the number of women pursuing Ph.D. degrees and to retain them in the academic pipeline, it is important to acknowledge that a woman's prime childbearing years are the same years she is likely to be a graduate student, postdoc, or beginning faculty member.'"); Rimer, *supra* note 7 ("Experts say they believe one reason women may not be applying for junior faculty positions at elite research universities is that they believe—mistakenly, senior female scientists say—that these jobs are incompatible with having children. In a widely praised speech at Columbia three weeks ago, Princeton's president, Shirley M. Tilghman, a molecular biologist and mother of two, said that universities should do a great deal more to create an environment that 'legitimizes the choice' to be a scientist and have a family. The first step, she said, to paraphrase the political strategist James Carville, is to recognize, 'It's day care, stupid!'"); Richard N. Zare, *Sex, Lies, and Title IX*, CHEM. & ENG'G NEWS, May 15, 2006, at 46-49 ("What accounts for this lack of progress in achieving gender equity? I suggest that three factors are at work: subtle but real discrimination, the failure to take into account the asymmetric burdens of childbirth and child care as well as elder care, and the failure to structure faculty jobs to better reflect a balanced lifestyle."); Donna K. Ginther & Shulamit Kahn, *Does Science Promote Women? Evidence from Academia, 1973-2001*, (Nat'l Bureau of Econ. Res., Working Paper No. W12691, 2006) available at <http://ssrn.com/abstract=944179> (claiming that "gender differences in the likelihood of obtaining a tenure track job, promotion to tenure, and promotion to full professor . . . [are] entirely explained by fertility decisions").

because of a personal preference for domestic responsibilities—may in many if not the overwhelming number of instances be accompanied, or indeed be eclipsed, by a forceful “push” from a hostile, unaccommodating workplace, both in terms of lack of flexibility for childcare arrangements as well as hostility to women more generally, family responsibilities aside.<sup>47</sup> Thus, in the face of a hostile working environment, some women may be happy to “choose” to leave and focus primarily on raising their children, and thus it is disingenuous, to say the least, to claim that the opt-out phenomenon is a simple matter of women choosing family over career.<sup>48</sup>

Additionally, many gender equity advocates point to subtle structural dynamics and unconscious bias, as will be discussed below.<sup>49</sup> Certainly, my aim is not to discount the very real effects of unconscious bias nor the premise that unconscious bias may be a factor leading to the disparities. Rather, my central purpose here is to counter the view that unconscious bias has largely replaced intentional and invidious discrimination, with which we need no longer contend.<sup>50</sup>

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<sup>47</sup> See generally JOAN C. WILLIAMS, JESSICA MANVELL & STEPHANIE BORNSTEIN, UNIV. OF CALIFORNIA HASTINGS COLLEGE OF THE LAW, “OPT OUT” OR PUSHED OUT?: HOW THE PRESS COVERS WORK/FAMILY CONFLICT (THE UNTOLD STORY OF WHY WOMEN LEAVE THE WORKFORCE) (2006), available at [http://www.uchastings.edu/site\\_files/WLL/OptOutPushedOut.pdf](http://www.uchastings.edu/site_files/WLL/OptOutPushedOut.pdf).

<sup>48</sup> See *id.* at 44, 47.

<sup>49</sup> See, e.g., BEYOND BIAS AND BARRIERS, *supra* note 37, at 215-16 (“Gender schemas systematically influence both women and men’s perceptions and evaluations of competence and performance, and they cause women to be consistently underrated and men consistently overrated. . . . Although most individual differences in treatment are typically quite subtle and seemingly small, these small but consistent advantages or disadvantages accumulate into significant discrepancies in salary, promotion, and prestige.”); 1999 MIT REPORT, *supra* note 2, at 11 (noting that “discrimination consists of a pattern of powerful, but unrecognized assumptions and attitudes that work systematically against women faculty even in the light of obvious goodwill”); VIRGINIA VALIAN, WHY SO SLOW? THE ADVANCEMENT OF WOMEN 103-07 (1998) (discussing how gender “schemas affect perceptions, interpretations, and expectations”); Sturm, *Architecture of Inclusion*, *supra* note 15, at 256 (noting that “differences in treatment often go unnoticed. They reflect unconscious biases reinforced by cultural patterns and shared by men and women alike.”).

<sup>50</sup> For a discussion and examples of the forms that implicit bias may take, see Brian A. Nosek, Mahzarin R. Banaji & Anthony G. Greenwald, *Harvesting Implicit Group Attitudes and Beliefs from a Demonstration Website*, 6 GROUP DYNAMICS 101 (2002); Christine Wennerås & Agnes Wold, *Nepotism and Sexism in Peer-Review*, 387 NATURE 341, 343 (1997) (conducting a study to determine whether the Swedish Medical Research Council evaluates men and women differently in making funding decisions, and determining that even those female postdoctoral applicants with the same amount of scientific productivity as their male counterparts—as measured by, e.g., total number of papers published, number of first-author papers, impact factor of the journal in which the paper was published, and the number of times the paper was cited—were assigned lower competence scores than equally productive men).

## 2. *Ferretting out illegitimate explanations*

As Title VII jurisprudence makes clear, in the context of employment discrimination litigation a *prima facie* case must be rebutted with a *legitimate*, nondiscriminatory reason for the disparity or adverse employment action. Further, in the case of sex discrimination litigation, a reason that simply relies on traditional stereotypical rationales describing the proper role of women is *not* a legitimate, nondiscriminatory reason.<sup>51</sup> Equal protection jurisprudence has also evolved over the last thirty or so years to bestow heightened scrutiny on sex-based classifications in order to ferret out ones that are rooted in “traditional, often inaccurate, assumptions about the proper role of men and women,”<sup>52</sup> thereby resulting in a presumption that classifications relying on “overbroad generalizations about the different talents, capacities, or preferences of males and females”<sup>53</sup> are invalid, even if such generalizations remain true for many, or even most, women.<sup>54</sup>

Given that the legal doctrine tells us that explanations relying on stereotypical assumptions about the domestic role or preferences of women are not appropriate or legitimate ways in which to satisfy a defendant employer’s burden of production, it is ironic that many gender equity advocates more generally appear to accept without much reservation such a response in the context of women’s under-representation in the sciences. That is, it is particularly striking that the rhetoric in response to the disparities often does pre-

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<sup>51</sup> See, e.g., *Price Waterhouse v. Hopkins*, 490 U.S. 228, 251 (1989) (“As for the legal relevance of sex stereotyping, we are beyond the day when an employer could evaluate employees by assuming or insisting that they matched the stereotype associated with their group.”); *City of Los Angeles Dep’t of Water & Power v. Manhart*, 435 U.S. 702, 707-08 (1978) (“It is now well recognized that employment decisions cannot be predicated on mere ‘stereotyped’ impressions about the characteristics of males or females. Myths and purely habitual assumptions about a woman’s inability to perform certain kinds of work are no longer acceptable reasons for refusing to employ qualified individuals, or for paying them less.”) (footnote omitted); *id.* at 708 n.13 (“In forbidding employers to discriminate against individuals because of their sex, Congress intended to strike at the entire spectrum of disparate treatment of men and women resulting from sex stereotypes.” (quoting *Sprogis v. United Air Lines, Inc.*, 444 F.2d 1194, 1198 (7th Cir. 1971))).

<sup>52</sup> *Miss. Univ. for Women v. Hogan*, 458 U.S. 718, 725-26 (1982); see also *Nevada Dep’t of Human Res. v. Hibbs*, 538 U.S. 721, 731 (2003) (noting that the “gender stereotype[ ] that women’s family duties trump those of the workplace . . . has historically produced discrimination in the hiring and promotion of women”); *United States v. Virginia*, 518 U.S. 515, 533 (1996) (stating that gender-based classifications “must not rely on overbroad generalizations about the different talents, capacities, or preferences of males and females”); Deborah A. Widiss, Elizabeth L. Rosenblatt & Douglas NeJaime, *Exposing Sex Stereotypes in Recent Same-Sex Marriage Jurisprudence*, 30 HARV. J.L. & GENDER 461, 463 (2007) (observing that “[s]uch unexamined reliance on sex stereotypes [in same-sex marriage cases] stands in sharp contrast to recent changes in family law and constitutional law requiring gender neutrality, which has led to the removal of explicit sex-based classifications and the disavowal of sex-based presumptions in custody, alimony and other areas that had previously relied on gender stereotypes.”).

<sup>53</sup> *Virginia*, 518 U.S. at 533.

<sup>54</sup> *Id.* at 542 (noting that its decision remains the same, even if assuming, *arguendo*, that “most women would not choose VMI’s adversative method.”).

cisely that, namely relies on stereotypical assumptions about women's roles and preferences regarding childrearing and their perceived incompatibility with a scientific career. An uncritical reliance on the childrearing explanation for the dearth of women in science could be considered an illegitimate response to the *prima facie* case of sex discrimination presented by the gender disparities in composition of the scientific workforce, one that ought to be discussed and given an opportunity to be challenged rather than merely tacitly accepted.<sup>55</sup> Why, when faced with *prima facie* evidence, is our first inclination to point to children, home, and hearth? It is worrisome that this is not more critically examined, and it should at the very least arouse our suspicion absent further supporting evidence, for the story being told to "rebut" or explain the *prima facie* case is one that harkens back to traditional stereotypes about women. Indeed, it is troubling in at least two respects. First—and as discussed in this article—it may lend a sort of tunnel vision to the inquiry that potentially masks discriminatory conduct perpetrated in the sciences. Second, it serves a powerful expressive function in perpetuating the notion that work-family balance is a quandary unique to women, thereby reifying the idea that the domestic realm is an exclusively feminine domain.<sup>56</sup>

Jumping from a *prima facie* case to a conclusion rooted in stereotypical notions of femininity and women's roles, rather than probing other, or additional salient explanations may reflect a pervasive cognitive bias toward matching problems related to under-representation of women with traditional female caretaking roles.<sup>57</sup> In other words, a knee-jerk reaction of allowing for childrearing to explain away the gender gap in science, rather than opening up our minds to other possible issues lurking in the labs that could explain the scarcity of women, is perhaps a result of a gender bias in itself that prevents us from hearing or taking seriously, and thereby from effectively implementing solutions to, the problems that are unrelated to

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<sup>55</sup> I would like to thank Professor Katharine Silbaugh in particular for introducing me to this idea.

<sup>56</sup> As Virginia Valian puts it,

Newspaper and magazine articles about heterosexual women who work outside the home typically pose the question of how *women* can handle both their household and job responsibilities. It is young *women* who are especially concerned about how they will combine a professional life with having a family. From an Olympian perspective, there is an inexplicable lacuna. Why are there so few articles posing the question of how *men* can handle both their household and job responsibilities? . . . Instead, the usual solutions proffered to solve "women's" problem are higher-quality, more affordable, more widely available child care; flexible work hours; and family-leave policies. All those improvements are needed, but they fail to question the way the problem is framed. They do not ask why combining work and family is a female problem rather than a human problem, and thus do not address it as a human problem.

VALIAN, *supra* note 49, at 45.

<sup>57</sup> For a discussion of implicit bias, see Nosek et al., *supra* note 50.

family, yet that severely and adversely impact women in the sciences qua women rather than qua caretakers.<sup>58</sup>

At this point, I would like to emphasize that the above assertions absolutely should not be construed as a denial that there are gender-based disparities when it comes to amount of time devoted to caretaking or that many workplaces as currently configured are unaccommodating to parents who wish to play a primary role in their children's upbringing in addition to pursuing a fulfilling career. And in this regard, I am wholly in concordance with gender equity advocates who are pushing for changes such as on-site childcare and more revolutionary and creative adjustments to enable both women and men to pursue high-powered careers and raise families. Indeed, some have argued that institutional structures that prevent caregivers, who are primarily women, from reaching higher echelons in the university or the corporation are themselves gender discriminatory,<sup>59</sup> or, relatedly, that the stereotypical but still persistent view of women as primary caregivers needs to give way to equal caregiving by men in order to ameliorate disparities correlative with gender that are due to disparate childrearing responsibilities.<sup>60</sup> However, regardless of whether one condones or concedes this view, one might also argue that something else is going on and that the work-family issue does not tell the whole story. In other words, even if the proffered work-family explanation is *legitimate*, it may very well be desperately incomplete. It is this second theme that I wish to focus on.

### C. *Step Three of a Burden-Shifting Analysis: Rebuttal of a Pretextual or Incomplete Explanation*

Even if the proposed explanation for a disparity is legitimate, i.e., not simply rooted in stereotypical assumptions about women's proper roles and preferences, it may still be pretextual or incomplete. Disparities certainly may, and most likely do, have multiple causes. While recognizing, as any good scientist would, that a complex interaction of variables is at play whenever human behavior is at issue, it is nonetheless instructive to delve deeper into some of the common explanations for the statistical disparities. After all, that is the role of the fact finder in a *McDonnell Douglas* framework. And if there is reason to think that a form of discrimination is operative, then it becomes a legal issue and in turn engenders a role for antidiscrimination law to play.

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<sup>58</sup> Alternatively, a focus on more nebulous structural factors like unconscious bias and work-family conflicts perhaps leads to less cognitive dissonance and less blameworthiness and are thus easier to confront from a cognitive standpoint.

<sup>59</sup> See, e.g., JOAN WILLIAMS, *UNBENDING GENDER: WHY FAMILY AND WORK CONFLICT AND WHAT TO DO ABOUT IT* (2000).

<sup>60</sup> See, e.g., Michael Selmi, *Care, Work, and the Road to Equality: A Commentary on Fineman and Williams*, 76 CHI.-KENT L. REV. 1557 (2001) (arguing that greater gender equality can be achieved by men shouldering more of the burden of taking care of the home and family).

As noted above in the discussion of the *McDonnell Douglas* framework, upon rebutting the prima facie case of a plaintiff with a non-discriminatory explanation for the statistical disparity, a defendant is not yet off the hook. Rather, the burden once again shifts, this time to the plaintiff, for an opportunity to demonstrate that the alternative reason given by the employer is pretextual, or, for our purposes here, is incomplete.

As an illustration of a third-step archetypical refutation of what might be termed a pretextual explanation for the disparities, the pipeline explanation has been soundly rebutted by a showing of the stagnation of the numbers of women science faculty in the face of rising numbers of female science Ph.D.s. Dr. Richard Zare, chair of the Stanford University Chemistry Department, has explained:

Let me dispel the myth that the problem is the pipeline. It is often stated that if we only had more women going into the sciences, the problem of gender equity would take care of itself. The facts deny this proposition quite unequivocally. Let's take my field, chemistry, and look at the statistics. The number of female graduate students for many years has been between 35 and 40% of the total, the number of female postdoctoral researchers is slightly above 20%, and the number of women in all faculty positions at the top 50 universities (as measured by federal dollars received) approaches 13%. Moreover, the increase of women in the professoriat has proceeded at a glacial pace.<sup>61</sup>

Expressing a similar sentiment, Dr. Marye Anne Fox, a chemist and current Chancellor of the University of California, San Diego, put it thus: "It was discouraging to know that when I went to the University of Texas in 1976, I was the second woman in a faculty of about 50, and when I left in 1998, they were again hiring a second woman."<sup>62</sup> During this time, the number of female chemists rose: "According to the U.S. Department of Education's statistics, the percentage of bachelor's degrees awarded to women (B.A. and B.S.) rose from 35.9% in 1987 to 42.7% in 1996. . . . During the same period, master's degrees rose from 33.9 to 43.7%, and doctorates rose from 21.0 to 30.1%."<sup>63</sup>

The University of Texas was most definitely not alone in displaying this stagnation phenomenon. The 1999 MIT Study recorded the number of women faculty in the MIT School of Science each year starting in 1985 and

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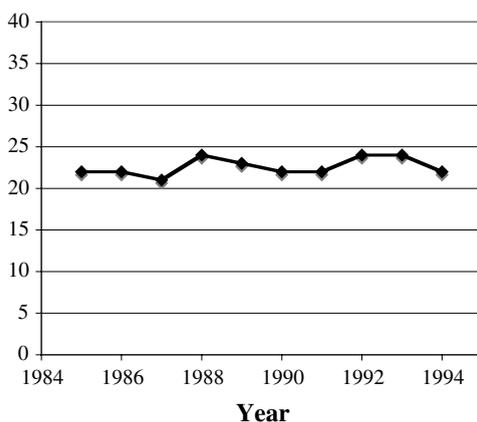
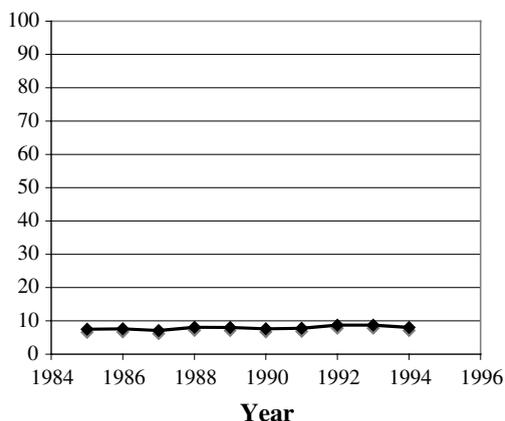
<sup>61</sup> Zare, *supra* note 46, at 46; *see also* HENRY ETZKOWITZ, CAROL KEMELGOR & BRIAN UZZI, *ATHENA UNBOUND: THE ADVANCEMENT OF WOMEN IN SCIENCE AND TECHNOLOGY* 12-13 (2000) (discussing "the fallacy of the 'supply side'" and noting that "[s]uch a focus tends to neglect analysis of the 'demand side,' especially organizational resistance to change and the persistence of barriers to entry of women into the scientific and engineering professions").

<sup>62</sup> Elizabeth Zubritsky, *Women in Analytical Chemistry Speak*, *ANALYTICAL CHEM.*, 272A (Apr. 1, 2000) (quoted in NELSON REPORT, *supra* note 38, at 2).

<sup>63</sup> *Id.*

ending in 1994, and the data showed a clear flat-lining,<sup>64</sup> while the overall pool of female Ph.D. recipients nationwide increased over the same period.<sup>65</sup> Thus, the pipeline explanation is no longer the primary, or even a respectable, reason still on the table.

**Figure 1. Women Faculty in the School of Science at MIT, 1985–1994.**<sup>66</sup>



**Graph 1. Percentage of Women Faculty**

**Graph 2. Number of Women Faculty**

<sup>64</sup> 1999 MIT REPORT, *supra* note 2, at 5.

<sup>65</sup> Baum, *supra* note 46, at 46–47 (“Professors [Valerie] Kuck and [Ronald] Breslow presented data that quantified the leaky pipeline. For example, for the years 1979–99, 37.8% of total bachelor’s degrees in chemistry went to women, Kuck said. Moving up the professional scale, for the same years, 25.6% of Ph.D. degrees went to women, 16.9% of postdoctoral fellowships went to women, and 9.9% of the faculty positions at the top 50 chemistry departments were held by women. Kuck’s data came from the 2001 [American Chemical Society] ‘Directory of Graduate Research.’”).

<sup>66</sup> Data taken from 1999 MIT REPORT, *supra* note 2, at 5.

A similar sort of *McDonnell Douglas*-type third-step refutation to allow for a more searching analysis appears to be missing from the discussion of the work-family causal theory, that “[t]he attrition of women from the academic pipeline [is] largely due to the competing demands of family and academic life.”<sup>67</sup> For example, the University of California at Berkeley recently instituted paid maternity leave for graduate students<sup>68</sup> after finding that forty-six percent of women entering their Ph.D. program reported wanting to pursue a career as a research professor, but that after the first year of doctoral studies only thirty-one percent of women remained interested in such a career.<sup>69</sup> Forty-two percent of women respondents whose career plans changed from when they first started their Ph.D. program cited issues related to children as a “very important” factor affecting their career goals.<sup>70</sup> The drop-off in interest in an academic career after the first graduate school year was more pronounced when the survey was narrowed from encompassing all doctoral programs (including the humanities) to those pertaining only to certain fields of science:

In a recent campus survey, 48 percent of female Ph.D. student respondents in physical sciences, technology, engineering, and math said they intended, at the start of their doctoral studies, to pursue a career at a research university (versus only 25 percent beyond their first year of doctoral work). For men, interest in a research-university career dropped from 44 percent initially to 32 percent by a year or more in.<sup>71</sup>

Simply because forty-two percent of women cited family reasons to explain their change in views about entering academia, this does not mean, ipso facto, that family is the predominant reason, and certainly does not mean it is the only salient factor, for the low numbers of women in academic science. This still leaves fifty-eight percent—well over half who did not cite a perceived incompatibility of work and family as a “very important” factor modulating their desire to pursue academic aspirations.<sup>72</sup>

In addition, there is a tendency to lump all sciences together when analyzing the problem—even I am guilty of this as I set out to tackle *the* “women in science problem”—as if there were a single problem equally

<sup>67</sup> Cockrell, *supra* note 46.

<sup>68</sup> See Memorandum from the Office of the Dean, Graduate Div., Univ. of Cal., Berkeley, on UC Berkeley Policy on Accommodation of Research Doctoral Student Parents (Mar. 8, 2007), *available at* [http://www.grad.berkeley.edu/policies/memos\\_parent\\_policies.shtml](http://www.grad.berkeley.edu/policies/memos_parent_policies.shtml). Stanford has also instituted a maternity policy. Stanford Graduate Student Handbook, Childbirth Policy for Women Graduate Students at Stanford University (Jan. 2006), *available at* [http://www.stanford.edu/dept/DoR/GSH/childbirth\\_policy.pdf](http://www.stanford.edu/dept/DoR/GSH/childbirth_policy.pdf).

<sup>69</sup> Cockrell, *supra* note 46.

<sup>70</sup> *Id.*

<sup>71</sup> *Id.* at fig. 1 (“Women Scientists’ Changing Career Goals”), *available at* <http://www.berkeley.edu/news/berkeleyan/2007/03/goals.shtml>.

<sup>72</sup> Cockrell, *supra* note 46.

applicable to all the sciences. However, it has been pointed out that “[o]ne reason there is such a variety of reactions is that local environments can vary tremendously.”<sup>73</sup> In fact, “[d]isciplinary and subdisciplinary differences in cultural environment combined with varying numbers of women become substantial factors that interact with laboratory climate to impact the lives of women scientists and engineers.”<sup>74</sup> It may be high time to recognize that the causal factors leading to gender disparities are not necessarily the same or as pronounced in all fields of science, and thus we ought to resist the tendency to view science as a single monolithic unit when addressing the disparities.

As an example of the potential ramifications of failing to disaggregate the analysis by scientific discipline, consider the following generalization by Dr. Mary Ann Mason, Dean of Graduate Studies at U.C. Berkeley, in commenting on why “family-accommodation policies” for graduate students have become more and more important: “The whole clock has been pushed forward . . . and graduate students ever more frequently are in their prime childbearing years—their late 20s, early 30s—while pursuing their degrees, so they start to really think about issues involved with forming a family.”<sup>75</sup> Unfortunately, this statement utterly obscures the enormous differences in the Ph.D. and particularly the postdoctoral timelines observed when comparing fields such as chemistry with biology.

For example, postdoctoral length and, more generally, the length of training required before starting one’s first job—a topic of much concern in the biological sciences community and among gender equity advocates who discuss work-family issues—is viewed as being in conflict with raising a family. However, postdoctoral length is *extremely* varied by field. Postdoctoral fellowships<sup>76</sup> in the biological sciences usually last around five years, and a first fellowship is often followed by yet another before a first job is finally obtained. In stark contrast, chemistry postdoctoral fellowships usually last a maximum of two years, and in the case of some top-flight organic chemistry labs (usually those with an organic synthesis emphasis), a postdoc is not even necessary to obtain a job; a graduate student coming from such a lab can usually find an industry position straight out of graduate school, a phenomenon nearly unheard of in the biological sciences.

As a result of these differences, it is certainly a possibility that the childrearing issue may be much more prominent in biology than in chemistry or, for that matter, than in other fields as well. Sue Rosser points out that survey responses suggest that “women in CISE [computer and information science and engineering] perceive problems of their low numbers . . . to be of higher priority than the pressure to balance career and family . . . , although

<sup>73</sup> Zubritsky, *supra* note 62, at 273A.

<sup>74</sup> SUE V. ROSSER, *THE SCIENCE GLASS CEILING: ACADEMIC WOMEN SCIENTISTS AND THE STRUGGLE TO SUCCEED* 81 (2004).

<sup>75</sup> Cockrell, *supra* note 46 (quoting Dr. Mary Ann Mason).

<sup>76</sup> Both postdoctoral *fellowships* as well as postdoctoral *fellows* are commonly referred to as “postdocs.”

both are important issues.”<sup>77</sup> Indeed, judging from the amount of rhetoric surrounding postdoc length and childrearing issues, one might expect there would be *more* women in chemistry, not fewer, than in biology, because chemists make it out the other end of the pipeline much more quickly. Yet this is not borne out by the numbers, and the irony is that the type of chemistry most coveted by the pharmaceutical industry (and thus the type of doctoral degree that will most likely lead to a job straight out of graduate school without a postdoc prerequisite) is synthetic organic chemistry—one of the most male-dominated subspecialties of chemistry. This discrepancy exemplifies how conflating different fields of science may obscure issues that women face more often in the physical sciences than in the biological sciences, and it illustrates how disaggregating by field may reveal additional factors that bear upon the chronic under-representation of women in the sciences.

1. *Why it is important to reach the third rebuttal step*

*[A] wider perspective aids judgment by forestalling the exaggerated importance that long immersion [in one focused area] may lend to some social problem.*<sup>78</sup>

In halting the debate at the second *McDonnell Douglas* step by relying on reflexive assumptions about traditional roles and stereotypes about women and not demanding a more searching inquiry, we risk failing to uncover potentially actionable discriminatory treatment that may be obscured by the initial superficial or incomplete rebuttal of prima facie evidence. What makes the standstill in analysis at this stage particularly unfortunate is that civil rights laws like Title IX of the Education Amendments of 1972<sup>79</sup> and Title VII of the Civil Rights Act of 1964 may lose their import if these superficial explanations for gross disparities are unquestionably accepted. These laws are most effectively brought to bear on disparities resulting from intentional discrimination against individuals in protected classes. If one assumes that the disparity in numbers is simply a result of choice—whether that choice reflects a lack of interest or (more popularly) a desire to spend more time with family and less in lab—then it does seem rather difficult to employ antidiscrimination law due to doubts that work-family balance and unconscious bias fit into a framework in which proof of discriminatory motive is a critical component of a disparate treatment claim.

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<sup>77</sup> ROSSER, *supra* note 74, at 69.

<sup>78</sup> Harold Bruff, *Specialized Courts in Administrative Law*, 43 ADMIN. L. REV. 329, 331 (1991).

<sup>79</sup> 20 U.S.C. § 1681 (2000). Title IX was renamed the Patsy Takemoto Mink Equal Opportunity in Education Act, in honor of the late U.S. Rep. Patsy Mink, D-Hawaii, who played a key role in the enactment of Title IX. See Pub. L. No. 107-255, 116 Stat. 1734 (2002).

Title IX prohibits sex discrimination by any education program or activity that receives federal funding.<sup>80</sup> Pursuant to statutory authority,<sup>81</sup> federal agencies may promulgate regulations to ensure compliance with the Act by recipient institutions, and the Department of Education, through its Office for Civil Rights (“OCR”), is the primary enforcement agency of Title IX.<sup>82</sup> If a funding recipient is found to be in noncompliance with Title IX regulations, then the various agencies are authorized to take remedial action by terminating funds or “by any other means authorized by law.”<sup>83</sup> Such action may not be taken unless the educational institution refuses to comply voluntarily even after it has been notified of its breach.<sup>84</sup> However, the Supreme Court has held that exhaustion of administrative remedies is not required in order to commence a private cause of action, which the Court in *Cannon v. University of Chicago*<sup>85</sup> held exists under Title IX.<sup>86</sup>

In *Cannon*, the petitioner, who was denied admission to several private medical schools that received federal funding, alleged that she was excluded on account of her gender. Although both the federal district court and the Seventh Circuit found that the statute did not contain an implied private right of action, the Supreme Court reversed, relying on its analysis of four factors, delineated in *Cort v. Ash*,<sup>87</sup> relevant to determining whether a private remedy is implicit in a statute.<sup>88</sup> Subsequent litigation and legislation fleshed out the reach of the statute as well as the types of remedies that are available and under what circumstances. In *Grove City College v. Bell*,<sup>89</sup> the Supreme

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<sup>80</sup> 20 U.S.C. § 1681(a) reads, in relevant part: “No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance. . . .” Title IX applies to preschools, elementary or secondary schools, and vocational, professional, or other institutions of higher education, regardless of whether they are public or private, as long as they receive some sort of federal financial assistance. 20 U.S.C. § 1681(c).

<sup>81</sup> 20 U.S.C. § 1682 (2000).

<sup>82</sup> See 34 C.F.R. § 106.10 (2007); 1 RONNA GREFF SCHNEIDER, EDUCATION LAW: FIRST AMENDMENT, DUE PROCESS AND DISCRIMINATION LITIGATION § 4:3 (2006). The National Science Foundation (“NSF”) and the National Aeronautics and Space Administration (“NASA”), among other agencies, have also promulgated regulations under Title IX. See 45 C.F.R. § 618 (2007) & 14 C.F.R. § 1253 (2007), respectively.

<sup>83</sup> 20 U.S.C. § 1682.

<sup>84</sup> *Id.*

<sup>85</sup> 441 U.S. 678 (1979).

<sup>86</sup> See *id.* at 706 n.41 (“[W]e are not persuaded that individual suits are inappropriate in advance of exhaustion of administrative remedies. Because the individual complainants cannot assure themselves that the administrative process will reach a decision on their complaints within a reasonable time, it makes little sense to require exhaustion.”)

<sup>87</sup> 422 U.S. 66 (1975).

<sup>88</sup> Those factors are (1) whether the statute was enacted for the benefit of a special class of which plaintiff is a member; (2) the legislative history; (3) whether a private remedy, if implied, would frustrate the underlying purpose of the legislative scheme; and (4) whether implying a federal remedy is inappropriate because the subject matter involves an area basically of concern to the states. *Cannon*, 441 U.S. at 688 n.9 (citing *Cort*, 422 U.S. at 78).

<sup>89</sup> 465 U.S. 555 (1984).

Court held that students' receipt of federal scholarships brings an educational institution within the scope of Title IX. However, *Grove City* also held that Title IX applied only to programs that directly receive or benefit from federal financial assistance; in other words, in order for Title IX to apply, the discrimination must have occurred in the particular program that was actually receiving federal funds. This latter portion of the Court's holding was overturned by the Civil Rights Restoration Act of 1987, which specifies that all programs of an educational institution that receives federal funds are subject to Title IX, even if only one of its departments or programs actually receives the federal aid.<sup>90</sup> *Franklin v. Gwinnett County Public Schools*,<sup>91</sup> a case in which a high school student sought damages under Title IX for sexual harassment by her coach, after teachers and administrators at her school failed to take action to stop the harassment and discouraged her from pressing charges against her harasser, held that money damages were available to private litigants under Title IX.<sup>92</sup>

Although the Department of Education regulations bar certain policies and practices that have discriminatory effects,<sup>93</sup> a private cause of action may only be based on intentional discrimination and may not be brought to enforce disparate-impact regulations promulgated under Title IX. The Supreme Court held as much in *Alexander v. Sandoval*,<sup>94</sup> which, although a Title VI case, is widely believed to apply to Title IX as well.<sup>95</sup>

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<sup>90</sup> See 20 U.S.C. § 1687 (2000).

<sup>91</sup> 503 U.S. 60 (1992).

<sup>92</sup> *Id.* at 63-65.

<sup>93</sup> A disparate-impact regulation promulgated by the Department of Education, 34 C.F.R. § 106.3(c) (2007) ("Self-evaluation"), states in part:

Each recipient education institution shall, within one year of the effective date of this part:

- (1) Evaluate, in terms of the requirements of this part, its current policies and practices and the effects thereof concerning admission of students, treatment of students, and employment of both academic and non-academic personnel working in connection with the recipient's education program or activity;
- (2) Modify any of these policies and practices which do not or may not meet the requirements of this part; and
- (3) Take appropriate remedial steps to eliminate the effects of any discrimination which resulted or may have resulted from adherence to these policies and practices.

<sup>94</sup> 532 U.S. 275 (2001).

<sup>95</sup> See, e.g., 1 EDUC. LAW § 4.03; see also *Pennhurst State Sch. & Hosp. v. Halderman*, 451 U.S. 1, 17 (1981) (discussing the contractual nature of Title VI, which parallels Title IX). Title IX was patterned after Title VI of the Civil Rights Act of 1964, 42 U.S.C. § 2000d (2000), and contains nearly identical language. In approaching Title IX cases, courts often rely on Title VI doctrine for guidance; indeed, Title IX has been called the "gender-based twin" of Title VI. *Sandoval*, 532 U.S. at 297 (Stevens, J., dissenting); see also *Franklin v. Gwinnett County Pub. Sch.*, 503 U.S. 60, 70 (1992) (relying on parallels between Titles VI and IX to support finding that money damages are available as a remedy under Title IX); *Cannon v. Univ. of Chicago*, 441 U.S. 677, 694 (1979) (drawing upon Title VI legislative history to decide whether a private right of action exists under Title IX).

At issue in *Sandoval* was the Alabama Department of Public Safety policy of administering driver's license examinations only in English, a policy that plaintiff-respondent argued had the effect of discriminating against non-English speakers on the basis of national origin and therefore violated Title VI disparate-impact regulations.<sup>96</sup> In a majority opinion authored by Justice Scalia, the *Sandoval* Court held that private individuals may not sue to enforce disparate-impact regulations promulgated under Title VI of the Civil Rights Act of 1964.<sup>97</sup> Justice Stevens's dissent, joined by Justices Souter, Ginsburg, and Breyer, berated the majority for not affirming the lower court's judgment. Stevens pointed out that, although all the Court in *Cannon* said about the alleged discrimination in the text of the opinion was that the petitioner was denied admission because of her sex, *Cannon* was in fact a disparate-impact case.<sup>98</sup> A footnote in the *Cannon* opinion illuminates the details of the type of discrimination at issue: both medical schools at which petitioner was denied admission maintained policies against admitting applicants over 30 years of age.<sup>99</sup> Allegedly, these policies had a discriminatory effect, since more women than men interrupt their schooling (presumably for childrearing reasons) and are therefore more likely to not meet the age criterion; "[a]s such, the existence of the criteria either makes out or evidences a violation of the medical school's duty under Title IX to avoid discrimination on the basis of sex."<sup>100</sup> Nonetheless, as the understanding of Title IX jurisprudence now stands, a private cause of action for disparate impact claims is not recognized.

Title VII, the key piece of civil rights legislation regarding employment discrimination on the basis of sex, race, national origin, or religion, on the other hand, does allow for a private cause of action for disparate impact claims without a showing of discriminatory animus.<sup>101</sup> In fact, unlike the Department of Education's Office for Civil Rights under Title IX, the Equal Employment Opportunity Commission ("EEOC") does not have independent rule making or enforcement authority, although it may assist in mediation, initiate enforcement litigation, and promulgate (non-binding)

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<sup>96</sup> 532 U.S. at 275. For purposes of its decision, the Court assumed that these regulations promulgated by the Department of Justice and the Department of Transportation were valid. *Id.* at 282.

<sup>97</sup> *Id.* at 293.

<sup>98</sup> *Id.* at 298 (Stevens, J. dissenting); see *Cannon v. Univ. of Chicago*, 441 U.S. at 680 (1979).

<sup>99</sup> *Cannon*, 441 U.S. at 680 n.2 (Powell, J. dissenting).

<sup>100</sup> *Id.*

<sup>101</sup> See *Dothard v. Rawlinson*, 433 U.S. 321 (1977); *Griggs v. Duke Power Co.*, 401 U.S. 424 (1971); see also Civil Rights Act of 1991, Pub. L. No. 102-166, codified at 105 Stat. 1077.

guidelines.<sup>102</sup> Thus, private actions brought by employees constitute Title VII's primary enforcement mechanism.<sup>103</sup>

The difference between Title VII and Titles VI and IX with respect to disparate impact claims stems from their constitutional bases. Titles IX and VI were passed pursuant to Congress's powers under the Spending Clause,<sup>104</sup> and are thus akin to a contractual agreement, in that federal financial assistance to an educational program is conditioned on a promise by the funding recipient not to discriminate on the basis of certain protected characteristics.<sup>105</sup> Thus the Court held that intent to discriminate is critical to its scheme of civil liability, and determination of liability is not analogous to Title VII's conceptual framework.<sup>106</sup> Title VII, on the other hand, was ostensibly passed pursuant to Congress's power under Section 5 of the Fourteenth Amendment to enact "[l]egislation which deters or remedies constitutional violations . . . even if in the process it prohibits conduct which is not itself unconstitutional,"<sup>107</sup> poses an absolute rather than conditional prohibition against sex discrimination,<sup>108</sup> and therefore requires no such prerequisite intent.

However, the business necessity defense often stands as a powerful barrier against a successful Title VII disparate impact suit. In the case of a disparate impact, as opposed to a disparate treatment, claim, once a plaintiff has presented evidence sufficient to create a prima facie case of sex discrimination, namely has shown that an employer's facially neutral policy or practice produces sex-discriminatory effects, the burden shifts to the defendant employer to "demonstrate that the challenged practice is job related for the position in question and consistent with business necessity."<sup>109</sup> A defendant employer may fully fend off liability for the disparate impact of a facially neutral policy or practice if it can show that it serves a business necessity

<sup>102</sup> Sturm, *Architecture of Inclusion*, *supra* note 15, at 263 n.62 (citing U.S. Gov't ACCOUNTABILITY OFFICE, REPORT TO CONGRESSIONAL REQUESTERS, GENDER ISSUES: WOMEN'S PARTICIPATION IN THE SCIENCES HAS INCREASED, BUT AGENCIES NEED TO DO MORE TO ENSURE COMPLIANCE WITH TITLE IX 10 (July 2004), available at <http://www.gao.gov/cgi-bin/getrpt?GAO-04-639> [hereinafter GAO REPORT]).

<sup>103</sup> *Id.*

<sup>104</sup> U.S. CONST. art. I, § 8, cl. 1.

<sup>105</sup> See, e.g., *Gebser v. Lago Vista Indep. Sch. Dist.*, 524 U.S. 274, 287 (1998); *Franklin v. Gwinnett County Pub. Sch.*, 503 U.S. 60, 74-75 & n.8 (1992); see also *Pennhurst State Sch. & Hosp. v. Halderman*, 451 U.S. 1, 17 (1981) (discussing the contractual nature of Title VI, which parallels Title IX).

<sup>106</sup> *Gebser*, 524 U.S. at 275.

<sup>107</sup> *City of Boerne v. Flores*, 521 U.S. 507, 518 (1997). Disparate impact claims are not cognizable under the Equal Protection Clause. See *Washington v. Davis*, 426 U.S. 229 (1976); see also *Personnel Adm'r of Mass. v. Feeney*, 442 U.S. 256 (1979). "The Supreme Court itself has not yet addressed Congress's power under Section 5 to enact the disparate impact branch of Title VII." Christine Jolls, *Antidiscrimination and Accommodation*, 115 HARV. L. REV. 642, 674 (2001).

<sup>108</sup> 42 U.S.C. § 2000e-2(e) (2000).

<sup>109</sup> *Id.* at § 2000e-2(k).

and that no other, nondiscriminatory practices are available that would achieve the same goal.<sup>110</sup>

The perception appears to be that any remedying of the women-in-science situation would involve a disparate impact, as opposed to a disparate treatment, theory resulting from the effect of entrenched institutional structures on men's and women's differential caregiving responsibilities.<sup>111</sup> The benefit of having the option to bring a disparate impact claim under Title VII notwithstanding, it is quite straightforward to appreciate that any contention that a system-wide pattern or practice—for example, the scientific practices of spending long hours in the lab and the university tenure system—presents a disparate impact on women who are mothers,<sup>112</sup> could easily be countered via a business necessity-type defense, insofar as accommodations for parenting would present costs prohibitive of excellence in scientific research,<sup>113</sup> and especially when taking into account the deference courts usually accord to universities on such issues as tenure and hiring decisions.<sup>114</sup> As to a disparate treatment claim under either Title VII or Title IX, the prerequisite showing of intent to discriminate in order for discrimination to be deemed actionable renders it unlikely that unconscious bias would pass that threshold. Thus, when the assumption is that the type of discrimination present would only support a disparate impact claim, any private cause of action relating to women's under-representation in the sciences would immediately appear to bump up against the edges of *Sandoval*, in the case of Title IX, or else the business necessity defense under Title VII. This has led to a concomitant rejection of conventional legal tools for combating discrimination in this arena. However, if there were a greater awareness of intentional discrimination occurring in science labs, these statutory civil rights tools might appear more applicable.

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<sup>110</sup> *See, e.g.*, *Lanning v. Se. Pa. Transp. Auth.*, 308 F.3d 286 (3d Cir. 2002) (upholding a test for running speed to screen prospective transit police officers).

<sup>111</sup> *See, e.g.*, Baum, *supra* note 46, at 46-47 (quoting Dr. Elga Wasserman as saying, "Today, overt discrimination against women scientists has been virtually eliminated.").

<sup>112</sup> Note that, although the Supreme Court has held that discrimination on the basis of pregnancy is not discrimination on the basis of sex under the Equal Protection Clause, Title VII was amended by the Pregnancy Discrimination Act of 1978, Pub. L. No. 95-555, 92 § Stat. 2076 (1978), codified at 42 U.S.C. § 2000e(k) (2000), such that discrimination on the basis of pregnancy *is* a statutory violation. Further, it is arguable that constitutional equal protection jurisprudence is out of date, and that because *Geduldig v. Aiello*, 417 U.S. 484 (1974), the case that decided this issue, came down before the scrutiny accorded to gender-based classifications morphed into its present heightened form, an equal protection-based pregnancy discrimination claim might turn out differently today.

<sup>113</sup> *But see* RHONA RAPOPORT, LOTTE BAILYN, JOCYE K. FLETCHER & BETTYE H. PRUITT, *BEYOND WORK-FAMILY BALANCE: ADVANCING GENDER EQUITY AND WORKPLACE PERFORMANCE* (2002) (delineating how it can actually be beneficial to businesses, and not just to employees, to rethink entrenched practices that are not necessarily the most efficient, thereby designing a more equitable *and* a more effective workplace).

<sup>114</sup> *See, e.g.*, Sturm, *Architecture of Inclusion*, *supra* note 15, at 264 n.65.

III. LOCALIZING THE DISCRIMINATORY ACTIONS:  
HOSTILE LABORATORY ENVIRONMENTS

*Women who are eligible for faculty positions have earned a Ph.D. in a chemistry department. They have absorbed the tone of that environment . . . and have decided they don't want any more of it.*

—Prof. Janet Osteryoung, former Director, Division of Chemistry, National Science Foundation.<sup>115</sup>

*Many smart motivated women have cited isolation and marginalization as reasons for moving out of science and engineering at major research institutions.*

—Prof. Abigail Stewart, Founding Director, Institute for Research on Women and Gender, Professor of Psychology and Women's Studies, University of Michigan.<sup>116</sup>

*I think a very plausible case can be made that academic departments are an unhealthy—even hostile—environment for women.*

—Dr. Debra Rolison, Naval Research Laboratory.<sup>117</sup>

When people talk about gender discrimination in the sciences, it is often in the form of nebulous, amorphous claims of “hostility,” “isolation,” and “marginalization”; for example, Princeton University’s report on the status of its female faculty cited as one of its findings incidents of “[e]ngag[ing] in unprofessional behavior in gender-related matters.”<sup>118</sup> Such descriptions tend to lead to uncertainty, confusion, and misconceptions about what sorts of concrete actions are subsumed by words such as “hostile” or “unhealthy.” In tackling the problem it would help matters if there were some discussion of what, exactly, this discriminatory behavior consists of, and where, exactly, this discriminatory behavior is taking place.

Part of the reason for this lack of a clear and precise description of what constitutes the alleged discrimination may be that people outside of the natural sciences—and more specifically, people outside of the physical sciences, where the gender disparities are more marked than in the biological sciences<sup>119</sup>—simply are unaware of the details. Indeed, there appear to be many misconceptions, even among advocates for gender equity, about both

<sup>115</sup> Zubritsky, *supra* note 62, at 10 (quoted in NELSON REPORT, *supra* note 38, at 4).

<sup>116</sup> Judy Steeh, *\$3.7 Million Grant Aids Women in Science and Engineering*, THE UNIVERSITY RECORD (Univ. of Michigan), Oct. 15, 2001 (quoted in NELSON REPORT, *supra* note 38, at 5).

<sup>117</sup> Zubritsky, *supra* note 62, at 10 (quoted in NELSON REPORT, *supra* note 38, at 6).

<sup>118</sup> PRINCETON REPORT, *supra* note 4, at 34-35.

<sup>119</sup> See *supra* Table 1.

the locus of the problem—i.e., in precisely what realm it is situated—and what the discrimination entails.

A. *Gender Equity Advocates Focus on the Faculty  
Hiring and Promotion Stage*

The MIT Report on the Status of Women Faculty perhaps came closest to delineating tangible adverse employment actions, but it focused on the faculty level, not the graduate student or postdoctoral level.<sup>120</sup> Indeed, much of the scholarship and advocacy surrounding the advancement of women in science has focused on the faculty hiring and retention stage.<sup>121</sup>

In considering potential points of impact, it may well be that this is too late a stage, and that in order to effectively combat bias and improve retention, considerable efforts ought to be made at an earlier stage, namely during the crucial years of graduate training, as it is during these and the postdoctoral years when many promising women scientists decide to forego academic careers or careers in science altogether.<sup>122</sup> As a 1991 Harvard report concluded, “it is clear that the pipeline of qualified women interested in accepting faculty positions is drying up in graduate school.”<sup>123</sup> Dr. Janet Osteryoung, former Director of the Division of Chemistry of the National Science Foundation, has postulated, “women who are eligible for [chemistry] faculty positions have earned a Ph.D. in a chemistry department. They have absorbed the tone of that environment . . . and have decided they don’t want any more of it.”<sup>124</sup> One reason for such low numbers is that, in many cases, few women apply for academic positions, which doesn’t surprise Debra Rolison of the Naval Research Laboratory. “I think a very plausible case can be made that academic departments are an unhealthy—even hos-

<sup>120</sup> See 1999 MIT REPORT, *supra* note 2.

<sup>121</sup> See, e.g., NAT’L SCI. FOUND., ADVANCE: INCREASING THE PARTICIPATION AND ADVANCEMENT OF WOMEN IN ACADEMIC SCIENCE AND ENGINEERING CAREERS (2005), <http://www.nsf.gov/pubs/2005/nsf05584/nsf05584> (“Institutional Transformation Awards support academic institutional transformation to promote the increased participation and advancement of women scientists and engineers in academe. These awards support innovative and comprehensive programs for institution-wide change.”); Abigail J. Stewart, Janet E. Malley & Danielle La Vaque-Manty, *Faculty Recruitment Mobilizing Science and Engineering Faculty*, in LEARNING FROM ADVANCE (Abigail J. Stewart & Janet E. Malley eds., 2006); Sturm, *Architecture of Inclusion*, *supra* note 15. But see FAS STANDING COMM. ON THE STATUS OF WOMEN, REPORT ON WOMEN IN THE SCIENCES AT HARVARD, PART I: JUNIOR FACULTY AND GRADUATE STUDENTS 3-9, 23-27 (Feb. 13, 1991) [hereinafter 1991 HARVARD REPORT]; 2005 HARVARD SCIENCE REPORT, *supra* note 4, at 22-27, 34; *id.* at Appendix F (HARVARD GRADUATE STUDENT & POSTDOCTORAL WORKING GROUP REPORTS), available at [http://www.womenstaskforces.harvard.edu/pdf/Graduate\\_Student\\_Working\\_Group.pdf](http://www.womenstaskforces.harvard.edu/pdf/Graduate_Student_Working_Group.pdf) & [http://www.womenstaskforces.harvard.edu/pdf/Postdoc\\_Working\\_Group.pdf](http://www.womenstaskforces.harvard.edu/pdf/Postdoc_Working_Group.pdf); ETZKOWITZ ET AL., *supra* note 61, at 69-103. For a discussion of those efforts that do focus on the graduate student level, see *infra* Section III.B and *infra* notes 129 and 135.

<sup>122</sup> See, e.g., 1991 HARVARD REPORT, *supra* note 121, at 17; Cockrell, *supra* note 67.

<sup>123</sup> 1991 HARVARD REPORT, *supra* note 121, at 17.

<sup>124</sup> Zubritsky, *supra* note 62, at 277A.

tile—environment for women. Women recognize that and vote with their feet.”<sup>125</sup> Although the pool of science doctoral degree recipients may be large enough to expect to have seen an increase in the number of women faculty, the pool of *applicants* may not be; an attempt to remedy the problem simply by trying to hire more women may be inapposite if qualified applicants have already taken themselves out of the running by pursuing other career options in science or elsewhere upon successful defense of their doctoral dissertations. Specifically, an emphasis on hiring and retaining faculty does not address the problem that many women, having experienced pervasive hostile environments during their training as graduate students or postdocs, may already be discouraged at that stage from pursuing faculty positions.

Thus, aggressive faculty hiring and retention efforts may be ineffectual to the extent that they may miss the point almost entirely. Indeed, it is not uncommon for gender equity advocates who focus on faculty hiring and tenure decisions to express frustration that “conventional administrative and judicial responses to persistent inequality in faculty hiring have not been proven to work.”<sup>126</sup> Sturm states, “There is also a substantial question as to whether the subtle and structural dynamics producing women’s under-participation satisfy current judicial and administrative definitions of discrimination, particularly in those areas with low female representation in the applicant pool.”<sup>127</sup> Endeavoring to increase hiring from a small pool of female applicants without a concomitant resolution of the underlying forces contributing to the maintenance of a small applicant pool, i.e., hostile environments during the crucial and formative years of graduate training, is like attempting to squeeze water out of a rock.

*B. Gender Equity Advocates Are Often Unapprised of the Type and Extent of Invidious Discrimination Occurring at the Graduate Student and Postdoctoral Levels*

In order to address the low numbers, we need to be clear about what exactly the problem entails. And, quite frankly, I believe that there is a fundamental disconnect between the perception of many well-meaning advocates for gender equity about what constitutes the problem, and the actual problem, resulting in a similar dissonance between the problem and any proposed solutions. Even upon turning the focus of the discussion from the faculty to the graduate student stage, many advocates seem to be unaware of incidents of blatant discrimination at the graduate student level.<sup>128</sup> Thus, to the extent that they do look to the graduate studies stage, it is mostly to

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<sup>125</sup> *Id.*

<sup>126</sup> Sturm, *Architecture of Inclusion*, *supra* note 15, at 267.

<sup>127</sup> *Id.* at 262.

<sup>128</sup> *See, e.g.*, sources cited *supra* note 46 and accompanying text (attributing the statistical gender disparity in the sciences to women’s roles as childbearers).

advocate an across-the-board solution by promoting the work-family accommodation agenda for both faculty and students.<sup>129</sup>

At the outset, I should note that there is a much higher proportion of women in the biological sciences, yet it is not uncommon for synthetic organic chemistry laboratories, for example, to have anywhere from just one or two female members to none whatsoever among their ranks. As Nelson points out, the (relatively) high proportion of women receiving doctoral degrees in chemistry from 1993 to 2002 (31%) is misleading, in that this data includes biological areas of specialization in chemistry:

Biochemistry and chemical biology are biological sciences. Congress has recently indicated that biological sciences no longer warrant special funds in some situations, because females are overrepresented at the undergraduate level in these sciences. In addition, females are represented in greater proportion in biological sciences than in chemistry. Therefore, including biochemistry and chemical biology inflates the representation of females in chemistry.<sup>130</sup>

As a result there may not only be a non-scientist/scientist divide, but also a biological/physical scientist divide in the perception and observation of blatantly discriminatory conduct in laboratories, if indeed the lower percentage of women in physical science laboratories is correlated with a greater incidence of discrimination and harassment.

### C. A Brief Overview of Graduate Education in the Natural Sciences

Even among otherwise well-informed non-scientist advocates for gender equality, there appears to be a misconception that the setting in which complained-of discrimination takes place at the graduate level is primarily in the classroom, with an instructor lecturing or supervising students. How-

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<sup>129</sup> See, e.g., MASON & GOULDEN, UC DOCTORAL STUDENT CAREER LIFE SURVEY, *supra* note 69; Cass Cliatt, *University Expands Family-Friendly Policies for Graduate Students*, PRINCETON WEEKLY BULLETIN, Apr. 2, 2007, available at <http://www.princeton.edu/pr/pwb/07/0402/1a.shtml> (“[A]ccording to administrators at Princeton, the primary source of gender imbalances among faculty nationwide is the challenges that graduate students and postdoctoral researchers face before they apply for their first faculty position. This is particularly the case in the sciences and engineering. Princeton has established a ‘continuum’ of support that the University believes is the first in academia to address the full range of obstacles such as maternity leave, child care, research travel, home ownership and other stumbling blocks that often discourage graduate students—and particularly female students—from persisting along the path toward an academic career. Among the most notable initiatives is a childbirth policy adopted by the Graduate School that provides a three-month suspension of academic work for birth mothers, and financial support plus extension of academic deadlines for birth mothers or primary caregivers.”); 2005 HARVARD SCIENCE REPORT, *supra* note 4, at 34-35 (recommending that the University explore options to provide paid maternity leave for graduate students and postdocs).

<sup>130</sup> Nelson, *supra* note 42.

ever, unlike undergraduate science education, which is chiefly imparted through the classroom experience, graduate students spend the majority of their time in the largely unsupervised environment of the laboratory, and it is here that many of the overt acts of hostility and discrimination take place. As Sue Rosser observes in *The Science Glass Ceiling*, “in general, the academic community is fairly ‘enlightened’ when it comes to gender equality in undergraduate education. However, as you move up the ladder into masters and doctoral programs, you start to see increasing amounts of ‘sexism.’”<sup>131</sup> In fact, in *Athena Unbound*, Henry Etzkowitz and coauthors highlight the observation that “[a]fter the supportive social environment that many experienced in their undergraduate training, female students are often surprised at the resistance to their presence in graduate departments.”<sup>132</sup>

The reality is that life as a graduate student in the natural sciences is more akin to employment as a research scientist working for a principal investigator (“PI”). Graduate science education is primarily facilitated by independent work on projects in research laboratories; these endeavors are largely self-guided and graduate students turn primarily to peers rather than to their faculty advisor for everyday experimental advice. Certainly graduate education also consists of coursework; however, after the first year or two in which some time is spent in classes as well as assisting the teaching of undergraduate courses, a science graduate student’s time is predominantly—indeed exclusively—spent as a research assistant, where learning takes the form of a quasi-apprenticeship rather than the lecture or seminar style common in undergraduate education.<sup>133</sup> For example, the Harvard University Chemistry Department website states, “Thesis research becomes the student’s chief concern following an initial period of course work, teaching, and sampling research opportunities through our laboratory rotation system. Students’ own interests and those of their faculty supervisor(s) guide the direction of the doctoral studies.”<sup>134</sup>

Graduate students usually select their Ph.D. advisors and research groups during their first year in graduate school. Sometimes these spots are highly competitive, depending on how many new students an advisor is willing to take on. Graduate students as well as postdoctoral fellows are assigned projects and tasked with obtaining experimental results that their advisor can then publish in scientific journals and present to the scientific community, naming their research assistants as coauthors. This is a crucial distinction to graduate students in the humanities, whose Ph.D. dissertations

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<sup>131</sup> ROSSER, *supra* note 74, at 42.

<sup>132</sup> ETZKOWITZ ET AL., *supra* note 61, at 71.

<sup>133</sup> See, e.g., 1991 HARVARD REPORT, *supra* note 121, at 7 (noting the “apprenticeship approach of graduate study”); ETZKOWITZ ET AL., *supra* note 61, at 69 (“The most crucial transition in the experimental sciences is the one from being a student in courses to becoming part of a research environment. A female graduate student described it as an apprenticeship.”); *id.* at 71 (discussing the apprenticeship format of graduate education).

<sup>134</sup> Harvard University, Department of Chemistry & Chemical Biology, Mission, <http://www.chem.harvard.edu/intro/mission.php> (last visited Nov. 18, 2007).

tend not to be tethered to their faculty advisor's research endeavors and thus their advisor's academic success does not directly hinge on whether or not their students deliver experimental results.

Because the PI of the lab, i.e., the faculty advisor, is usually not present in the actual laboratory environment (nor is there usually anyone else present in an official supervisory position), younger, less-experienced students often turn to postdoctoral fellows and more senior graduate students for their scientific or technical expertise and mentoring. As most tenured professors in the experimental sciences no longer perform experiments in the lab themselves, but rather spend their time applying for grants and giving lectures around the country on the results coming out of their laboratory, graduate students' and postdoctoral fellows' roles as researchers on the frontlines often put them in a better position to help with and give advice on experimental procedures.<sup>135</sup> Indeed, many of the skills one learns in graduate school are gained not through classes but by independent problem solving or by asking others in the lab for direction, such as for help troubleshooting experimental techniques and using sophisticated laboratory equipment. Not only do the younger students benefit through this informal training program, but this arrangement in turn provides informal training experience for senior graduate students and postdocs to build confidence and develop the skills necessary to become independent principal investigators and faculty members. Thus, "[g]etting a Ph.D. involves far more than passing qualifying examinations and producing high quality research for a dissertation. Success in graduate school is highly dependent upon being included in the informal social relations of academic departments."<sup>136</sup>

As a result of the nature of graduate training it would appear that graduate students are caught in the interstices between Title VII (insofar as they work in a lab as research assistants during their graduate school years, do not pay tuition but rather receive a research assistantship stipend, and are not in the throes of the typical educational environment consisting of classrooms, coursework, and extensive guidance or supervision) and Title IX (insofar as they are formally considered students rather than employees). Particularly illuminating in this regard, however, is that several federal courts have des-

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<sup>135</sup> The 2005 Harvard Task Force on Women in Science and Engineering suggested interdepartmental and inter-laboratory networking to promote cohesiveness among women students in science who are otherwise isolated in their laboratories as the only, or one of just a few, women. Letter from Marcia Greenberger, Co-President, & Jocelyn Samuels, Vice President of Education & Employment, Nat'l Women's Law Center, to Dean Drew Gilpin Faust, Dean, Radcliffe Institute for Advanced Study, Harvard Univ., et al., at 3 (June 27, 2005), available at <http://www.nwlc.org/pdf/CommentsonHarvardTaskForcesReports.pdf>. However, although it might be nice to meet fellow women scientists over coffee, this approach does not address the critical problem that labs are often so highly specialized in their niche research that one needs to turn to colleagues within one's own laboratory in order to obtain particular knowledge and skills. See 2005 HARVARD SCIENCE REPORT, *supra* note 4, at 22-23.

<sup>136</sup> ETZKOWITZ ET AL., *supra* note 61, at 101.

ignated science graduate students as “employees” for purposes of Title VII, often basing this finding on a functional “economic realities” test. For purposes of this section, I relate this case law only to emphasize the uniquely employment-related nature of the graduate student experience in the experimental sciences. The implications of this case law for a graduate student potentially being able to bring a sex discrimination suit as an employee under Title VII, rather than as a student under Title IX, will be discussed in Section IV.C.2 below.

Although the definition of an “employee” under Title VII is rather unhelpful—“an individual employed by an employer”<sup>137</sup>—courts have fleshed out its meaning within the particular circumstances of each case. For instance, in *Cuddeback v. Florida Board of Education*,<sup>138</sup> the Eleventh Circuit held that a graduate student in the biological sciences who brought a gender discrimination claim under Title VII for termination of her research assistantship, was an “employee” of the University of South Florida for purposes of Title VII under an economic realities test. Such a test takes a functional approach, construing the term “employee” in light of “common law principles of agency and the right of the employer to control the employee” and, as the name suggests, taking into account the economic realities of the surrounding factual circumstances.<sup>139</sup> “Specifically, the court should consider factors such as whether the defendant directed the plaintiff’s work and provided or paid for the materials used in the plaintiff’s work.”<sup>140</sup> The court concluded:

Applying the economic realities test, the fact that much of Cuddeback’s work in Dr. Wang’s lab was done for the purpose of satisfying the lab-work, publication, and dissertation requirements of her graduate program weighs in favor of treating Cuddeback as a student rather than an employee. However, the following facts weigh in favor of treating Cuddeback as an employee for Title VII purposes: (1) she received a stipend and benefits for her work; (2) she received sick and annual leave; (3) a comprehensive collective bargaining agreement governed her employment relationship with the University; (4) the University provided the equipment and training; and (5) the decision not to renew her appointment was based on employment reasons, such as attendance and communication problems, rather than academic reasons. Although the record does not indicate the amount that she was paid for the year in which she was terminated, the record does demonstrate that she

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<sup>137</sup> 42 U.S.C. § 2000e(f).

<sup>138</sup> 381 F.3d 1230, 1234 (11th Cir. 2004) (citing *Cobb v. Sun Papers, Inc.*, 673 F.2d 337, 340-41 (11th Cir. 1982), for the proposition that the economic realities test was appropriate for determining whether a Title VII plaintiff is an employee).

<sup>139</sup> *Id.* (quoting *Cobb*, 673 F.2d at 340-41).

<sup>140</sup> *Id.*

was paid during that year and was also paid \$15,000 in her first year with Dr. Wang.<sup>141</sup>

The *Cuddeback* court surveyed other courts' decisions on the graduate student-employee issue and noted that courts "have distinguished between [graduate students'] roles as employees and as students" and that those courts that have declined to treat graduate students as employees for purposes of Title VII generally did so "only where their academic requirements were truly central to the relationship with the institution."<sup>142</sup>

Therefore, even though Cuddeback's course work obligations required her to complete a rotation in three laboratories and much of her work in Dr. Wang's lab was to fulfill the program's requirements, the economic realities of this particular situation lead us to conclude that the district court correctly found that Cuddeback was an employee for Title VII purposes.<sup>143</sup>

Similarly, in *Ivan v. Kent State University*, a federal district court relied on the economic realities test and the Sixth Circuit's exposition of the term "employee" to find that plaintiff graduate student should be considered an employee within the meaning of Title VII.<sup>144</sup> The court elaborated on why an examination of economic realities is particularly germane to the Title VII context, stating that "economic dependence increases an employee's susceptibility to discriminatory practices under Title VII. The 'economic realities test' allows a case-by-case determination of employment status based on the totality of the circumstances of employment."<sup>145</sup> The Court held that, despite Ivan's formal status as a graduate student, she should nonetheless be deemed an employee within the meaning of Title VII, citing three contracts

<sup>141</sup> *Id.* at 1234-35.

<sup>142</sup> *Id.* at 1235 (comparing *Stilley v. Univ. of Pittsburgh of the Commonwealth Sys. of Higher Educ.*, 968 F. Supp. 252, 261-62 (W.D. Pa. 1996) (student researcher held to be employee), and *Ivan v. Kent State Univ.*, 863 F. Supp. 581, 585-86 (N.D. Ohio 1994) (paid graduate student researcher held to be an employee), with *Jacob-Mua v. Veneman*, 289 F.3d 517, 520-21 (8th Cir. 2002) (volunteer graduate student researcher held not to be an employee because she did not receive financial compensation), and *Pollack v. Rice Univ.*, No. H-79-1539, 1982 WL 296 at \*1 (S.D. Tex. Mar. 29, 1982) (graduate student held not to be an employee because research or teaching assistantship was "attendant to his capacity as a graduate student").

<sup>143</sup> *Id.* (citing *United States v. New York City*, 359 F.3d 83 (2d Cir. 2004) (holding that welfare beneficiaries who are required to work "are employees entitled to federal protection" against sex- or race-based harassment, because, *inter alia*, the benefits they receive are remuneration for their work)).

<sup>144</sup> 863 F. Supp. 581 (N.D. Ohio 1994), *aff'd* 92 F.3d 1185 (6th Cir. 1996) (unpublished opinion); see also *MohanKumar v. Kansas State Univ.*, 60 F. Supp.2d 1153, 1160 (D. Kan. 1999) ("The court will assume for purposes of this claim that by virtue of her agreement to teach classes at the university in exchange for a stipend, plaintiff was an employee covered by Title VII and that the discontinuation of a stipend was either a refusal to hire her or a denial of a term or condition of her employment." (citing *Ivan*, 863 F. Supp. 581)).

<sup>145</sup> *Ivan*, 863 F. Supp. at 585 (citations omitted).

providing for her employment “in which she agreed to ‘render service’ to Kent State,” her graduate assistantship stipend, and the fact that Kent State withheld state retirement benefit contributions from her paycheck and agreed to pay her compensation “in compliance with state and federal law.”<sup>146</sup> The court also pointed to the “broad remedial purposes” of Title VII to justify construing “employee” liberally and in Ivan’s favor.<sup>147</sup>

Those courts that have denied a cause of action to graduate students as employees under Title VII nonetheless have conceded that graduate students tend to occupy a dual role as both student and employee. However, when the alleged discriminatory action was taken against them with respect to their role as a *student*, rather than as an employee, Title VII was found to be inapplicable.<sup>148</sup>

#### *D. Illustrations of Intentional Sex Discrimination in Science Laboratories*

Having described the locus of this particular discriminatory conduct—graduate student versus faculty, laboratory versus classroom—what remains to be discussed is the nature of the discriminatory behavior. A significant problem is the scarcity of easily accessible illustrations of exactly what occurs. This is likely due in large part to the reluctance of many women to come forward for fear of reprisal in the form of, for example, diminished career prospects. As Elizabeth Zubritsky discovered in writing her article on women in analytical chemistry,

[s]ome women, even those who have tenure, are wary of discussing gender bias. Three women conducted their interviews for this article via e-mail so that they could choose their words carefully, and parts of several phone interviews were classified by the sources as not for attribution. In most of these cases, the women worry about the possible impact on future job prospects, appointments to boards and committees, or award nominations.<sup>149</sup>

The Government Accountability Office’s 2004 Report to Congressional Requesters on women’s participation in the sciences came to a similar conclusion as to the reason the Departments of Energy, Education, NSF, and NASA have not received many Title IX sex discrimination complaints involving the sciences:

[Among other reasons, it was] suggested they would be unlikely to file a complaint for fear of retribution from supervisors or col-

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<sup>146</sup> *Id.* at 585-86.

<sup>147</sup> *Id.* at 586.

<sup>148</sup> *See, e.g.*, Pollack v. Rice Univ., No. H-79-1539, 1982 WL 296 (S.D. Tex. Mar. 29, 1982).

<sup>149</sup> Zubritsky, *supra* note 62, at 273A.

leagues. For example, some women faculty members we spoke with said that although they perceive that discrimination exists in their department, filing a complaint could hinder their ability to attain tenure. In addition, filing a sex discrimination complaint would take time away from their research.<sup>150</sup>

If faculty feel vulnerable and are reluctant to file complaints for fear of jeopardizing their careers,<sup>151</sup> then graduate students and postdocs, who have yet to obtain their first academic job, may be even more reticent. In the academy, where so much is dependent on subjective personal rapport with one's advisor and other faculty members, it can be crucial not to ruffle feathers, especially when first embarking on one's career. As the 1991 Harvard Report observed, "It is extremely difficult for graduate student women to bring grievances forward, because faculty, especially advisers, have extensive influence on a graduate student's advancement and future career."<sup>152</sup>

1. *Women's ideas, abilities, and leadership efforts are often either dismissed or countered with hostility*

A common assertion is that sex discrimination is simply a matter of old-guard male professors who hold antiquated views, and that an enlightened crop of younger male scientists will eventually replace them. This view is analogous to the pipeline argument, that it is just a matter of time before more female Ph.D.s make their way to faculty positions and the old-guard retires. This assertion unfortunately does not hold true. To the contrary, a 1991 Harvard study on women in the sciences reported:

We found that male graduate students present a greater problem in many departments than male faculty. In some sciences, one must still prove oneself according to "macho" standards (e.g., who can climb the biggest rock, write the fastest program), and graduate

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<sup>150</sup> GAO REPORT, *supra* note 102.

<sup>151</sup> See Sturm, *Architecture of Inclusion*, *supra* note 15, at 263 n.60 ("Many plaintiffs report that the professional and personal risks of bringing a lawsuit are equally daunting. . . . According to plaintiffs in sex discrimination actions, being labeled a 'troublemaker' 'taints all levels of your professional life' and 'makes getting other academic appointments more difficult' because 'it's understood that deans won't trust you.'" (quoting AM. ASSOC. OF UNIV. WOMEN EDUC. FOUND. & AM. ASSOC. OF UNIV. WOMEN LEGAL ADVOCACY FUND, *TENURE DENIED: CASES OF SEX DISCRIMINATION IN ACADEMIA* 68 (2004) [hereinafter *TENURE DENIED*])); *id.* at 263 ("Studies have shown that many women faculty members are reluctant to initiate discrimination lawsuits against their universities. They worry about being labeled a whiner, and many are unwilling to risk provoking retaliation or avoidance by their colleagues." (citing *TENURE DENIED*, at 65-66)).

<sup>152</sup> 1991 HARVARD REPORT, *supra* note 121, at 6.

students seem to find it acceptable to claim that women are only capable of research in the “softer” subareas.<sup>153</sup>

There are many ways in which this sexism displayed by younger men plays out, as will be illustrated by examples in the discussion below, and often the discrimination is neither unconscious nor subtle. The Court in *Teamsters* noted that the Government did not rely on statistics alone in bringing suit against defendant employer and union. In addition, “[t]he individuals who testified about their personal experiences with the company brought the cold numbers convincingly to life.”<sup>154</sup> Here, too, the statistical evidence is merely a starting point, and the personal experiences of many women in science bring the disparities “convincingly to life.”

Many (seemingly small) incidents become cumulative, and over the years of graduate training build up to generate feelings of isolation, marginalization, and generally being unwelcome.<sup>155</sup> The 1991 Harvard Report noted that

[s]ome behavior was explicitly sexist (e.g., viewing some parts of the field as ‘manly’ or women as less qualified merely because they were female), but less overt behavior is also a problem (e.g., [paraphrase] ‘I gave an answer to a question that was dismissed, but when the male student next to me said the same thing, he received a lot of encouragement from the instructor.’).<sup>156</sup>

This was borne out by the experiences of many of the women I interviewed.<sup>157</sup> “Ellen”<sup>158</sup> recounted from her graduate school days in the mid-1990s that a fellow (male) graduate student remarked that it was not surprising that only one woman was assigned to a particular high-profile and challenging project in his lab and implied that women were not as scientifically capable as men. This same man once told her not to “worry [her] pretty head” about something lab-related. Another woman, “Marie,” recalls that in her first year of graduate school in 1999, a fellow male graduate student,

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<sup>153</sup> *Id.* I would not be surprised if the authors of the report were referring to synthetic organic chemistry in particular, where synthesizing the biggest and most complex molecule is indeed a mark of accomplishment.

<sup>154</sup> *Int’l Bhd. of Teamsters v. United States*, 431 U.S. 324, 339 (1977).

<sup>155</sup> See, e.g., ETZKOWITZ ET AL., *supra* note 61, at 91, 237.

<sup>156</sup> 1991 HARVARD REPORT, *supra* note 121, at 7.

<sup>157</sup> Except where otherwise indicated, the following examples are taken from telephone interviews, e-mails, and various face-to-face conversations with female scientists from July 2005 through April 2007. Anecdotal information was gathered from seven women, representing nine laboratories (both graduate and postdoctoral for some) and seven institutions. All of the women spoke on condition that their experiences be kept anonymous; some further requested that any potentially identifying factors, such as their field or position, be omitted as well. In order to protect confidentiality, specific citation as well as identifying information has been removed from the anecdotal information below.

<sup>158</sup> This is a pseudonym. All names in the examples that follow have also been changed, except in cases where both first and last names are identified.

in an entering chemistry class of about fifteen men and three women, remarked that the women in his class were most likely only admitted to the program to fulfill some kind of quota. This incident is apparently not an isolated occurrence; as Etzkowitz and coauthors point out in *Athena Unbound*, “a belief permeates many departments, and is transmitted to incoming female students, that their admission is based on affirmative action rather than merit.”<sup>159</sup> “Rosalind,” a chemist now employed as a research scientist at a pharmaceutical company, recalls an incident one day over lunch with several group members during graduate school at a time when she was one of only two women in a research lab of fifty people: a male postdoc told her that his mother thought she should not get a Ph.D. in chemistry because she would be taking a job away from men who needed to feed their families.

As discussed above in Section III.C, younger, less experienced students often turn to postdoctoral fellows and more senior graduate students for scientific expertise and mentoring.<sup>160</sup> Many women working in male-dominated laboratories report that they are not sought out in such an informal advisory role and that their skills and experience not only are not acknowledged in this capacity, but also sometimes resented. For example, “Rachel,” a young assistant professor in chemistry, recalls that as a senior graduate student, she had two confrontations with male postdocs who felt she was trying to “run” the lab. Previously, she had felt that her experience with the laboratory equipment and chemistry in the group was an asset (and she had been oblivious to any hard feelings about it), but after these incidents she was considerably more cautious in offering advice to others. Echoing this sentiment, “Lise,” a young assistant professor in immunology, observed that it seems like less credence is given to women’s ideas, but that it is hard to measure this tangibly. For instance, lab meetings are an occasion for lab members to report on their progress and solicit suggestions from their co-workers on how to overcome hurdles in their research. Some women report that often the ideas they voice in lab meetings are dismissed, but when a man says the same ideas they are accepted.<sup>161</sup> A female graduate student interviewed by the authors of *Athena Unbound* stated that:

if somebody came in to ask what drying agent to use to clean up THF [tetrahydrofuran, a common solvent in organic chemistry], they would never ask me. It just wasn’t something that would

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<sup>159</sup> ETZKOWITZ ET AL., *supra* note 61, at 69.

<sup>160</sup> See *supra* text accompanying note 135.

<sup>161</sup> See, e.g., ETZKOWITZ ET AL., *supra* note 61, at 84.

For example, a female graduate student reported different treatment of men’s and women’s contributions. She said, ‘In group meetings I get the sense that if a woman says something, “okay fine” and that’s the end of that.’ In contrast, the response to males would be enthusiastic. . . . This graduate student even mentioned that a woman might make the same observation and be met with a dismissal while a male student would receive accolades for the thought.

cross their minds. Nobody ever came in my office to ask what an answer was. People came in my office to ask the person who was in my room with me.<sup>162</sup>

2. *Hostility toward assertiveness and knowledge displayed by women, but not by men*

*In the specific context of sex stereotyping, [a defendant] who acts on the basis of a belief that a woman cannot be aggressive, or that she must not be, has acted on the basis of gender.*<sup>163</sup>

It is not uncommon to hear that the attrition of women in science is due to the fact that scientific success requires aggressiveness and competitiveness, and because women generally are not—or do not want to be—aggressive, they take themselves out of the running.<sup>164</sup> Putting aside the debate about whether women are or want to be “aggressive” (a debate that itself has deep normative implications),<sup>165</sup> I find it troubling that those women who do display such hallmarks prized in the scientific enterprise are very often denigrated for it.

Howard Georgi, a Harvard physicist and former member of the National Research Council’s Committee on Women in Science and Engineering, has pointed out the no-win situation often faced by female scientists: he notes that aggressiveness and single-mindedness are traits rewarded in science, but that “[t]his tends to eliminate women,’ *even those who are assertive, because they are perceived as ‘disagreeable.’*”<sup>166</sup> Richard Zare, chair of the Stanford chemistry department, describes the dilemma in similar terms: “Let a man be assertive and we admire his courage to speak out. Let a woman be assertive and we feel threatened by what she might next say.”<sup>167</sup> A number of the female chemists interviewed by Zubritsky cited the same problem:

Unfortunately, being aggressive can be just as bad [as not being so]. “It’s much easier for a woman to make a faux pas this way than a man,” says Karen Sentell of Ciba Vision. “We’re supposed

<sup>162</sup> ETZKOWITZ ET AL., *supra* note 61, at 74.

<sup>163</sup> Price Waterhouse v. Hopkins, 490 U.S. 228, 250 (1989).

<sup>164</sup> 1991 HARVARD REPORT, *supra* note 121, at 12.

<sup>165</sup> See, e.g., Londa Schiebinger, *Getting More Women into Science: Knowledge Issues*, 30 HARV. J.L. & GENDER 365, 373 (2007) (“It is important to understand, however, that gender characteristics often attributed to women—cooperation, caring, cultivating a feeling for the organism, or whatever it may be—date back to the eighteenth century and were produced in efforts to keep women out of science and the public sphere.” (citing LONDA SCHIEBINGER, *THE MIND HAS NO SEX? WOMEN IN THE ORIGINS OF MODERN SCIENCE* 214-64 (1989))).

<sup>166</sup> Zernike, *supra* note 10 (quoting Prof. Howard Georgi) (emphasis added).

<sup>167</sup> Zare, *supra* note 46, at 46-49.

to be soft-spoken and well-behaved. If we're blunt, we're more likely to be considered abrasive."<sup>168</sup>

As Rachel, the assistant professor in chemistry, observes, "I get the impression that a female instructor who is a challenging instructor can be criticized in the minds of the students for not being more 'motherly' and 'supportive.' There is not or less of that expectation for male instructors." Thus, Justice Brennan's succinct explanation in *Price Waterhouse v. Hopkins* of the phenomenon of hostility toward female assertiveness—"An employer who objects to aggressiveness in women but whose positions require this trait places women in an intolerable and impermissible [C]atch[-]22: out of a job if they behave aggressively and out of a job if they do not"<sup>169</sup>—can be forcefully analogized to this perception of many women's experiences in the sciences.

Certainly this occurs at the faculty level, but disturbingly it also occurs among peers in the laboratory environment. Female graduate students thus seem to be in a double bind: in order to succeed in science, they must be assertive—for example, in order to have input on which project to work on, in order to discuss ideas in lab meetings and more informally in day-to-day lab interactions. In fact, "after multiple years of research on a given topic, I was one of the experts in the field," explains a female Ph.D. chemist who now works as a consultant.<sup>170</sup> It takes a certain amount of confidence to achieve such an expert status, to recognize it, and to rise to the responsibilities thereof. Giving voice to one's own scientific ideas, challenging others about their ideas, and generally participating in scientific interchanges are, I believe, some of the most crucial aspects of graduate education and one of the most effective means by which to master a discipline. It is not enough to simply work alone on a project or to read the scientific literature; in order to truly grasp new ideas and grow as a scientist one needs to be vocal and participate in scientific discussions. "You learn the part of being a physicist through interaction with other physicists," explains one of the graduate students interviewed by Etzkowitz and coauthors.<sup>171</sup> Often the best ideas come up in this manner. Thus, both women and men who remain passive and withdrawn and do not engage in such exchanges often do not learn as much or gain as much confidence in themselves as scientists.

However, women who do attempt to participate in scientific dialogues, voice their opinions, and demonstrate assertiveness or leadership qualities,

<sup>168</sup> Zubritsky, *supra* note 62, at 276A (quoting Karen Sentell).

<sup>169</sup> *Price Waterhouse v. Hopkins*, 490 U.S. 228, 251 (1989). Justice Brennan also added that "Title VII lifts women out of this bind." *Id.*

<sup>170</sup> MICHELLE STOHLMEYER, FROM THE LAB TO THE BOARDROOM: TRANSFERRING SKILLS FROM GRAD SCHOOL TO CONSULTING, (Stanford School of Medicine, Career Center, 2006), available at [http://www.stanfordcareercenter.org/article/new\\_career\\_paths/consulting/from\\_the\\_lab\\_to\\_the\\_boardroom:\\_transferring\\_skills\\_from\\_grad\\_school\\_to\\_consulting.html](http://www.stanfordcareercenter.org/article/new_career_paths/consulting/from_the_lab_to_the_boardroom:_transferring_skills_from_grad_school_to_consulting.html).

<sup>171</sup> ETZKOWITZ ET AL., *supra* note 61, at 69.

are often disparaged, excluded, and treated with hostility, and thus “[e]ven when women are admitted to the official Ph.D. program, they are often still excluded from the unofficial, informal doctoral training process.”<sup>172</sup> One of the women interviewed by Etzkowitz et al. compellingly described this state of affairs:

If you’re not in that scientific conversation then you’re stifled. You can’t get any help and you can’t progress as far. Sitting and talking about scientific issues makes your brain work. Your creative juices flow and that didn’t happen for me as a woman because discussions didn’t occur. What was hard was that I was in class with all these people, and often getting better grades, and they knew I wasn’t stupid, but it didn’t matter. Oh, it was very isolating.<sup>173</sup>

Dr. Debra Rolison, a chemist at the Naval Research Laboratory, has advised, “And don’t worry about being considered abrasive. I’ve been called a bitch, but I don’t consider it an insult.”<sup>174</sup> Yet, such advice overlooks the fact that the result of being considered “abrasive” is often not simply a matter of not being liked or of being shunned by the men; rather, it may lead to bright, assertive female graduate students being shut out from critical opportunities to learn and advance. Marie, who earned her doctorate in chemistry a few years ago, recalls the first time in graduate school that she experienced this double-bind head on. As is custom in academic science laboratories, her PI had assigned each member of her lab a “group job,” such as ordering chemicals and laboratory supplies or keeping the solvent purification system up and running. One of her tasks was to collect summaries of interesting scientific journal articles from each lab member, compile them into a packet for reference, and distribute copies of this weekly “literature review” to the whole lab. Many of the lab members simply refused to turn their summaries in to her. When she confronted one of the more senior male graduate students about this, he explained that they had nothing inherently against the literature review per se; rather they were boycotting her efforts to initiate it, because she “was a feminist,” and, unlike the only other woman in the lab, she was comparatively “too assertive.” He told her that people in the lab got along fine with the other woman in the lab because she was not assertive. This was around Marie’s second year of graduate school and the first time she realized that she was not welcome in the lab. She surmises that there probably were signs before, but that she had tried to ignore them and just focus on doing good science. Marie also reported that the men would often

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<sup>172</sup> *Id.* at 73; *see also id.* at 17 (describing “the interpersonal networks that promote learning, the practice of the craft, the knowledge transfer, and ultimately the psychological freedom to take the risks inherent in innovative and creative work” that female scientists very often miss out on).

<sup>173</sup> *Id.* at 75.

<sup>174</sup> Zubritsky, *supra* note 62.

gather informally around the chalkboard to discuss scientific ideas and troubleshoot problems with each other's experiments. She occasionally tried to join in, but was told at one point by one of the more senior male graduate students that it was not appreciated when she "butted in." (It was during the above-described epiphanous conversation with the graduate student about the "lit review" boycott that she also learned why she had been excluded from the "chalk talks.")

Although Rosalind expressed similar experiences of not being included in scientific discussions, she pointed out that her research group of fifty members was quite large, and although a larger group meant there was much less possibility for oversight of laboratory practices and climate, the advantage of its size was that she still had at least a few people with whom she could "talk science." In contrast, Marie, the scientist whose literature review was boycotted, worked in a relatively small lab, composed of fewer than twenty people, and thus exclusion by a large group of men from scientific conversations effectively meant complete exclusion from scientific discourse in the lab as a whole.

3. *Competitiveness is not the problem, sexism is: male scientists collaborate, just often not with women*

Related to the trope that women just are not, or are not willing to be, aggressive and that science's rewarding of competitiveness and aggressiveness needs to change in order to accommodate women, is the idea that, if only science were more embracing of collaboration, then women would feel more included and more women would join in.<sup>175</sup> Yet such an argument neglects to notice that science as currently practiced is highly collaborative. As Etzkowitz and coauthors explain in their discussion of the evolution of science doctoral programs in the United States, "In time the Ph.D. training process in the sciences was also transformed from an individualized research endeavor, which still persists in the humanities, to a group effort."<sup>176</sup> Long gone are the days where a single experimenter, alone in a laboratory, could get anything of note done. Scientific journal articles are usually coauthored by multiple researchers who have worked together on the subject matter described therein. Projects are often team efforts by numerous graduate students and postdoctoral fellows. Such collaborations also extend outside a given laboratory to inter-laboratory and interdepartmental collaborations. Indeed, several high level institutions pride themselves on fostering interdisciplinary collaboration. For example, The Scripps Research Institute emphasizes

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<sup>175</sup> This rationale strikes me as akin to the notion that computers and lab equipment need to be pink in order to lure girls into science and technology.

<sup>176</sup> ETZKOWITZ ET AL., *supra* note 61, at 71.

the pursuit of fundamental scientific advances through interdisciplinary programs and collaborations . . . . The design of each facility, with a central galleria area ringed by laboratories and offices around its perimeter, is a tangible reflection of the value placed on multidisciplinary collaboration in traditional and emerging areas of science. . . . [T]he cooperative, collaborative spirit is encouraged and embraced.<sup>177</sup>

Additionally,

“What is paradoxical is that while women pursue the myth that scientific individualism and isolation spurs scientific breakthrough, it is in fact a fiction that undermines their advancements, even as men (and some successful women) operate within networks of collaborative learning that advance ideas most competitively.”<sup>178</sup>

Indeed,

[c]ontrary to gender stereotypes, female graduate students are often left to be the “rugged individualists,” having to fend for themselves, while male professors draw many of their male graduate students into a supportive, caring environment. . . . Even when men do not receive ideal support from their advisor interactions among peers and senior associates provide sufficient connection, feedback and information to shore up their self-confidence, thereby encouraging the capacity for assertiveness and [scientific] risk-taking.<sup>179</sup>

The National Institutes of Health program project grants,<sup>180</sup> highly lucrative sources of funding, provide “support for multidisciplinary, long-term research programs involving groups of investigators. Because these grants are

<sup>177</sup> The Scripps Research Institute, Introduction, <http://www.scripps.edu/intro/overview.html> (last visited Nov. 19, 2007).

<sup>178</sup> ETZKOWITZ ET AL., *supra* note 61, at 17 (citing Walter W. Powell, Kenneth W. Koput & Laurel Smith-Doerr, *Interorganizational Collaboration and the Locus of Innovation: Networks of Learning in Biotechnology*, 41 ADMIN. SCI. Q. 116, 116-45 (1996)).

<sup>179</sup> *Id.* at 71-72.

<sup>180</sup> See, e.g., Nat’l Inst. of Child Health & Human Dev., Nat’l Insts. of Health, Program Project (P01) Guidelines, [http://www.nichd.nih.gov/funding/mechanism/p01\\_guide.cfm#definition](http://www.nichd.nih.gov/funding/mechanism/p01_guide.cfm#definition) (last visited, Nov. 19, 2007).

The program project grant is an institutional award made in the name of a program director for the support of a broadly based, long-term, multidisciplinary research program that has a well-defined central theme, research focus, or objective. . . . Interrelationships and synergism among component research projects should result in greater scientific contributions than if each project were supported through a separate mechanism. The grant is based on the concept that projects closely related to a central theme can be conducted more effectively and efficiently through a coordinated, collaborative, multidisciplinary approach.

awarded only to pre-existing groups of investigators, subtle forms of exclusion may affect the extent to which female faculty are invited to participate in these groups and gain eligibility for these grants.”<sup>181</sup> Marie recalls that her advisor “was buddies” with a molecular biology professor who wanted to apply for an NIH program project grant and needed collaborators in other disciplines in order to do so. Hence, the professor invited her advisor as well as a few other male professors with whom he was friends, and the result was a collaboration among five professors, all male. Lise recounts the following experience in attempting to collaborate with a male scientist at another institution:

My [ ] collaborator assumed I was no longer interested in the project or serious about it when he found out I was on maternity leave. He wanted to work with the competition instead. Clearly, one cannot have both a baby and also a scientific career. The odd thing is that you might expect that from an older man, but this guy is maybe 45. His postdoc [ ] emailed me to say to call his boss right away, but not to mention that the postdoc had ever contacted me—that’s how I found out, and set the boss straight. I’m just irritated that I had to do that.

#### 4. *Professors’ attitudes*

Although quite often the perpetrators of discriminatory behavior are one’s peers in the laboratory, that is not to say that faculty members are immune from actively contributing to an unwelcome environment for women in a department. In addition to the ostrich-in-the-sand phenomenon by which faculty advisors tacitly encourage rampant discrimination in their labs by refusing to deal with the problem, some actions by professors themselves are overtly discriminatory. One female undergraduate physics major interviewed by the author was told by her department head that the only role women in physics should have is as a secretary. During a graduate level chemistry class at another institution, in which about three women were present out of a class of twenty, the professor explained a concept by drawing an analogy to a type of laundry detergent and then remarked that the “females [in the class] would know more about this” kind of thing, i.e., domestic chores like laundry.

Marie tells of how her advisor would sometimes take a guest speaker on a tour of his laboratory and introduce him (the guest speaker was invariably a man) to all the male graduate students and postdoctoral fellows, but not to her, the one woman in the lab. Another female graduate student interviewed by the authors of *Athena Unbound* had a strikingly similar experi-

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<sup>181</sup> Letter from Marcia Greenberger & Jocelyn Samuels to Drew Gilpin Faust, *supra* note 135, at 2.

ence, “report[ing] that invisibility was imposed when ‘you have a visitor to the lab, the professor introduces the male students, but does not introduce you.’”<sup>182</sup> A female assistant professor in immunology interviewed for this Article recalls that in graduate school her advisor

would invite only the men in the lab to have dinner with the seminar speaker, ostensibly because we all had husbands and he thought we would want to go home and see them and the men he invited were single. [It is] possible he meant well, but I still felt slighted, as did another woman, as we were still clearly working [in] the lab when they came back.

But, she added, her sense was that her “PI [was] uncomfortable around women, [and] preferred not to talk to them.” “Barbara,” a chemist in industry, recalls that one of her advisors

regularly had male members of the groups to [his] home[] for dinners, and virtually never invited any of the women. Many of the women in the group never once received an invitation in all of their years in the group. These dinners very frequently included well-known visiting scientists, who were exactly the kind of contacts that we all needed.

She added that another of her advisors “demanded that I be in charge of buying and making coffee, despite my being the only non-coffee drinker (and the only woman) in the lab. . . . I was 21 years old and female, and I caved.”

At a 2001 symposium hosted by a renowned scientific institution, one of the distinguished plenary speakers began his talk with a plug for his new book, written, he said, for people who did not know anything about chemistry, like “your wife” or “your aunt.” He ended his lecture acknowledging, as is custom, all of his research assistants for their experimental work. However, he referred to male postdoctoral fellows as “Dr. [last name]”, but to female postdoctoral fellows by their first names only. He also persisted in making comments about the women’s looks (his slides contained photos of all his students), remarking, “This photo doesn’t do her justice.” Ellen recalls that in her first year of graduate school at a different university, an extremely eminent chemist at a high-profile annual symposium, in front of a packed audience of students, faculty from various universities, and scientists from industry, began his slide presentation on his group’s research with a photo of himself in a hot tub and surrounded by a bunch of women in the tub with him. His opening remarks in conjunction with the slide were about how wonderful it was to have French postdocs in one’s lab. Rosalind recounts that a professor giving a guest lecture in her department opened his presentation with a slide displaying two pictures side-by-side: one was of a

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<sup>182</sup> ETZKOWITZ ET AL., *supra* note 61, at 84.

woman in 19th century Victorian attire, the other was of a more modern-day woman skimpily clad in a bikini. He pointed to the slide and said that clearly women's fashion had improved greatly since the 19th century, but that chemistry, on the other hand, had not improved as much since then and had a great ways to go.

5. *Hostile environment in laboratories with no oversight, where the lab members, not the PI, predominantly run the roost*

Clearly, some faculty members are themselves guilty of intentionally discriminating against their female students. However, perhaps more often the problem is the bystander phenomenon displayed by some faculty advisors with respect to what goes on within their laboratories outside of their immediate presence. The 1991 Harvard Report stressed that PIs have an obligation to ensure that their graduate students do not exhibit sexist behavior:

The apprenticeship approach of graduate study makes it incumbent on faculty to insure that graduate students know that even subtle forms of harassment and gender discrimination are unacceptable. In those disciplines that have traditionally been unaccepting of women as equals, it is especially important for faculty to take an active role in education about gender discrimination.<sup>183</sup>

But not only are PIs rarely in the actual laboratory rooms, they also have little to no accountability to anyone else related to oversight of their laboratory practices: “[M]uch of what goes on informally in individual laboratories is not subject to review, [so] greater University oversight of laboratories . . . would prevent many gender-biased laboratory customs and practices from taking place unchecked.”<sup>184</sup> The highly decentralized nature of the academic research enterprise is indeed a hallmark of academic freedom. Each PI runs his or her lab like a private “fiefdom,” with minimal departmental or institutional oversight of internal laboratory practices. As the 1991 Harvard Report conceded, “science departments typically are loose federations of independent research groups.”<sup>185</sup>

Ellen recounts that some of the hostility exhibited by senior group members, especially toward the newer members of her lab, was gender-related, while other incidents were part of a more general hazing directed indiscriminately toward men and women alike. She surmises that the intense pressure on graduate students and postdoctoral fellows in her lab most likely contributed to the negative atmosphere in the lab and the mob mentality in

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<sup>183</sup> 1991 HARVARD REPORT, *supra* note 121, at 7.

<sup>184</sup> Letter from Marcia Greenberger & Jocelyn Samuels to Drew Gilpin Faust, *supra* note 135, at 3.

<sup>185</sup> 1991 HARVARD REPORT, *supra* note 121, at 11.

which the more senior and vocal members of the lab took out their frustrations on the newest members of the lab. "They were at their wits' end," she says. That, along with the complete lack of supervision and oversight over interactions and behavior in the lab, helped to foster an "anything goes," locker room environment, in which an unprofessional mentality prevailed, one that would have made even the most seasoned human resources personnel cringe.

However, even while explaining that this hazing was indiscriminate with respect to male and female members of the lab, Ellen remarked that it took on a particularized form for each person, such that it would manifest itself in a gender-specific tone when it was directed toward her. For example, she recounts that for about a month, some male lab members thought it would be amusing to ask her, several times a day, what the ideal woman was (according to them, one that was waist-high, with a flat head, and no teeth, so that a man could place a beer on her head while she was giving him a blow job). Another graduate student in her lab, who eventually left to join another research group to complete her doctoral studies, worked in a lab room where the men insisted on playing Rush Limbaugh on the radio even after she asked them to stop because she found the sexist and racist epithets disturbing. Even though some men in the lab may have been disturbed or offended by the prevailing atmosphere as well, Ellen said she had the distinct impression that anything she said or did was viewed as representative of women as a whole. She recalls walking into a neighboring all-male lab room on her floor and hearing one guy shout the alarm, "Woman in the lab! Watch your language!"

Ellen eventually joined another research group for her postdoctoral fellowship, one that included considerably more women, and found a much different atmosphere (though it, too, had its share of incidents).<sup>186</sup> As a consequence, she strongly believes that a critical mass is crucial, especially of women, but also of both women and men who will not tolerate sexist behavior. Echoing this sentiment, Rosalind stated that, based on a comparison between her graduate and her postdoctoral experiences, a critical mass is crucial and would make a world of difference in fostering an atmosphere that rejects unprofessional and sexist behavior. For about two years she was the only woman in her graduate lab; when a female postdoctoral fellow joined later on, she found that simply having another woman in the lab helped. In contrast, the research group in which she did her postdoctoral fellowship was composed of approximately one-third women out of about twenty members in total. As one of the women Rosser interviewed for *The Science Glass Ceiling* explained,

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<sup>186</sup> Ellen recalls that while she was a postdoctoral fellow, one of her colleagues, who happened to be the boyfriend of another lab member who harbored a vendetta against her, was a "big guy" who would "stare her down" and intentionally bump into her whenever she encountered him in the hallway. Eventually she told him that she would call the police if he ever did that again; he ceased to bump into her, but the staring continued.

The laboratory climate makes a tremendous difference. Everyone needs a work environment that is comfortable, supportive, and non-threatening. I feel fortunate to have this now, at this stage in my career, but I know that many women do not. My sense is that younger women are often not taken seriously enough in their work environment and many women are excluded from important informal information exchange that goes on in the laboratory.<sup>187</sup>

Ellen surmised that her advisor “would have been mortified” had he known what went on behind closed doors in his laboratory. However, the ingrained norm of, as Rosalind describes it, “independent study to the nth-degree” in the academic laboratory environment also leads to an expectation that one will “tough it out” and roll with the punches; as a result, involving one’s advisor in what is often deemed to be mere “interpersonal conflicts” is almost considered taboo. It may also be the case, however, that some information does trickle up to faculty and that there may be various incentives for PIs to avoid confronting what is going on in their labs under the auspices of their leadership and mentorship. For example, they may be conflict-averse and thus prefer a hear-no-evil, see-no-evil approach to running the lab. On the other hand, some PIs may believe that the locker room environment, hostility, and insults “pump people up,” which might explain why the environment selects for a narrow group of people who perpetuate these social norms.

This perception is borne out in the experiences of some female graduate students who did finally “break down” and talk to their advisors. One chemistry graduate student received the following response from her advisor: “I can’t keep hearing about this.” Marie, a chemistry graduate student who experienced continuous harassment for months by a postdoctoral fellow in her laboratory, was met with a less than supportive response from her advisor when she finally decided to tell him about it. It began with the postdoc constantly making sexually-charged jokes in the lab, asking Marie, “Is it that time of the month?”, and repeatedly asking female coworkers if they were pregnant. On one occasion, when Marie was at the chalkboard presenting a hypothesis during a lab meeting, the postdoc got up from his seat, went up to the board next to her, and proceeded to explain to the group the concept that she had been explaining. When she tried to interpose, he became angry at her, and when she confronted him afterwards about his behavior, he yelled at her that she was too aggressive. The postdoc’s desk was directly adjacent to Marie’s desk in the office they shared with a few other students and postdocs, and he commenced to repeatedly sit sideways with his legs blocking her desk drawers; whenever she needed to open a drawer she would have to ask him to move his legs. He became angry with her for opening up her own desk drawers, and later accused her of doing so

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<sup>187</sup> ROSSER, *supra* note 74, at 45.

in order to provoke him. The lab was set up such that the offices directly adjoined the laboratory space. Whenever Marie spoke in the lab, and the postdoc was in the office, the postdoc would slam the door between the office and lab shut. Unfortunately, the postdoc and Marie also worked at adjoining fume hoods. A broken glass waste receptacle was located in between the two hoods, and the postdoc would hurl test tubes and other broken or disposable glass laboratory items into the container, narrowly missing Marie while she was standing at her hood setting up experiments, and indeed once hitting her in the leg with a glass test tube. When she began to fear for her physical safety, she finally asked her advisor if she could move to another desk and fume hood; she was granted permission, but was also told by her advisor that perhaps she was being "too sensitive."

Ellen says she did not have the self-confidence to stick up for herself in the beginning, especially because in her first year she felt like she was struggling to keep on top of her coursework and experiments in the lab. Moreover, outside of some waitressing jobs in the past, graduate school was her first immersion in a workplace environment and, in her early twenties when she entered graduate school, she lacked a point of reference to recognize that the behavior exhibited by her colleagues was inappropriate; to her, it was "normal," and so she figured she should not question it. To her credit, she persevered and eventually became extremely successful in the laboratory. She recalls a turning point in her experience: at one point she made an off-hand comment that she was going to quit graduate school, and thereafter things changed and colleagues "laid off" her. Indeed, she felt that as a senior graduate student, she was respected by some of her colleagues, who would approach her for advice on both chemistry and career matters. Though she notes that some people dismissively attributed her success to her having benefited from affirmative action as a woman in science, she speculates that this attitude may have obscured a deeper feeling of competition, insofar as colleagues began to view her as a threat now that she was "good."

Ellen's reflections on her graduate experience echo that of the other scientists interviewed: there are no standard rules of conduct, no policies, and no oversight; as a result, people will do whatever they can get away with. Although lack of oversight is a problem across disciplines, overt and unimpeded sexist behavior appears to be especially egregious in organic chemistry labs. Stated an interviewee for *The Science Glass Ceiling*:

In many fields of chemistry, the laboratory climate is detrimental to the careers of women scientists. Indeed, many women leave the field of organic chemistry primarily because of the climate. Alternatively, the numbers of women in physical and analytical chemistry (my areas), continue to grow.<sup>188</sup>

Another female respondent said,

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<sup>188</sup> *Id.* at 55.

I am an organic chemist, and this area has been heavily dominated by men. In labs that I have been in as a postdoctoral fellow, many women graduate students (and myself, come to think of it) were sexually harassed in minor or major ways. Many female graduate students dropped out in these high pressure, male dominated labs.<sup>189</sup>

In sum, the standards of acceptable practices in many academic laboratories stand in stark contrast to those of many corporate workplaces in this day and age. Although some PIs might envision the “free for all” norms and absence of oversight as part and parcel of a successful research enterprise, scientists like Ellen view these antics as counterproductive. Thus, hostile laboratory environments are endemic problems that transcend gender to affect the quality of the graduate research experience and perhaps even scientific discovery more broadly.<sup>190</sup> In the wake of Harvard organic chemistry graduate student, Jason Altom’s, suicide in 1998,<sup>191</sup> world-renowned Stanford chemistry professor, and “father” of the birth-control pill, Carl Djerassi offered the following commentary and entreaty, as published in the prominent scientific journal *Nature*:

The social structure of the professor-graduate student relationship in the sciences is distinct . . . [and] the effects of this one-on-one mentor-disciple relationship may last a lifetime. Must people die before research universities will place serious emphasis on monitoring, evaluating and, crucially, on mentoring the mentors in their graduate school science faculties?<sup>192</sup>

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<sup>189</sup> *Id.* at 63.

<sup>190</sup> For a discussion of how the marginalization of minorities, for example, may serve as a warning sign for all, see LANI GUINIER & GERALD TORRES, *THE MINER’S CANARY: ENLISTING RACE, RESISTING POWER, TRANSFORMING DEMOCRACY* 11 (2002):

Those who are racially marginalized are like the miner’s canary: their distress is the first sign of a danger that threatens us all. It is easy enough to think that when we sacrifice this canary, the only harm is to communities of color. Yet others ignore problems that converge around racial minorities at their own peril, for these problems are symptoms warning us that we are all at risk.

<sup>191</sup> Stephen S. Hall, *Lethal Chemistry at Harvard*, N.Y. TIMES, Nov. 29, 1998, § 6, at 120.

<sup>192</sup> Carl Djerassi, Commentary, *Who Will Mentor the Mentors?*, 397 NATURE 291, 291 (1999) (proposing mandatory anonymous evaluations of principal investigators by their graduate students as a method for improving oversight of laboratory culture and practices); see also Letter, *Curb Abuses in Graduate School*, 398 NATURE 366, 366 (1999) (written in response to Djerassi’s Commentary):

Many students will suffer in their careers, or be driven to abandon science altogether, because of the difficulties and abuses in graduate school. In addition to the personal suffering that this engenders, it is an enormous waste of scientific talent. Any effort to provide graduate students with fair, reasonable and considerate advice will not only improve their lot but will be positively reflected in the manner in which they conduct themselves throughout their careers and in their relationship with colleagues and students of their own.

## IV. POTENTIAL POINTS OF IMPACT

A. *Title IX Compliance Reviews by Federal Agencies*

Several gender equity supporters have advocated the use of Title IX to increase the number of women in science.<sup>193</sup> They have called upon regulatory agencies tasked with enforcing Title IX to conduct compliance reviews of academic science departments, and they have urged agencies to pull funding from institutions deemed noncompliant.<sup>194</sup> There are several difficulties with this approach. First, termination of funds in order to force compliance has never been ordered in the past, and such a drastic measure is unlikely to happen in the future, particularly in light of the unsavory political ramifications of such action. Moreover, although several members of Congress commissioned the Government Accountability Office (“GAO”) to outline recommendations for ensuring Title IX compliance—short of pulling funding—directed at the agencies responsible for doing so, it remains to be seen how much effect the report, issued in 2004, will have.<sup>195</sup>

Embryonic efforts at Title IX compliance review by several key federal agencies are indeed underway as a consequence of the GAO report,<sup>196</sup> and NSF, Department of Energy (“DOE”), and NASA officials have recently visited four science departments on three campuses in order to monitor compliance with Title IX: DOE administrators visited Columbia’s physics department, NSF visited Columbia’s electrical engineering department, and NASA looked at aerospace engineering at the University of Michigan, Ann Arbor and the University of Maryland, College Park. It is important to underscore what an almost revolutionary step this is, for it is “the first time the government has applied [Title IX] to long-standing gender imbalances in fields such as physical sciences and engineering.”<sup>197</sup> Nevertheless—and at the risk of sounding cynical—there are reasons to doubt the ultimate efficacy of such efforts, at least insofar as they continue along the same trajectory, for

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<sup>193</sup> See, e.g., Jeffrey Mervis, *Can Equality in Sports Be Repeated in the Lab?*, 298 SCIENCE 356 (Oct. 11, 2002); Debra R. Rolison, *Can Title IX Do for Women in Science and Engineering What it Has Done for Women in Sports?*, AM. PHYSICAL SOC. NEWS ONLINE (May 2003), <http://spider.ipac.caltech.edu/staff/rebull/women/rolison.aps.pdf>.

<sup>194</sup> See, e.g., Rolison, *supra* note 193.

<sup>195</sup> See GAO REPORT, *supra* note 102.

<sup>196</sup> For instance,

In the past, NSF believed that the Education Department had agreed to conduct compliance reviews on the agency’s behalf, but it will now find other ways to get the reviews done. To this end, [Bijan Gilanshah, assistant general counsel at NSF,] notes that NSF is working with other federal agencies through the Department of Justice—which is charged with coordinating agencies’ efforts under Title IX—to develop an efficient process for doing compliance reviews.

Susan R. Morrissey, *Ensuring Inclusion of Women in Science: GAO report looks at how federal science agencies monitor grantees’ compliance with Title IX*, CHEM. & ENG’G NEWS, August 25, 2004, at 20.

<sup>197</sup> Bhattacharjee, *supra* note 14.

the reviewers do not appear to have a complete understanding of the environments they are investigating. For example, some of the questions that agency officials have asked these departments include “whether male and female graduate students were equally likely to get research assistantships” and whether women are as likely as men to have access to laboratory equipment.<sup>198</sup> This has led the physics department chair at Columbia University, Dr. Andrew Millis, to surmise that the reviewers “do not really understand basic academic science.”<sup>199</sup> As a female biologist working in the pharmaceutical industry commented upon hearing about the reviews, “It’s scary that they think the only issue of gender inequity in science is access to equipment. That is the *least* of our problems.”<sup>200</sup> Indeed, such an approach does not mesh at all with the experiences of women such as Rosalind who, as the only woman in a laboratory of fifty, felt that, scientifically, she had been treated fairly by her advisor, insofar as she had not been assigned to a “bad project,” but who nevertheless had to endure an extremely hostile laboratory environment during her graduate school years. Hence, rather than waiting, perhaps in vain, for executive branch agencies to enforce Title IX, another more immediate option for advocates to pursue is a private cause of action for hostile environment sex discrimination under the statute.

*B. Impact Litigation: Deprivation of Equal Educational Opportunity Claims under Title IX*

Before evaluating the pros and cons of going the private cause of action route, I will give a brief overview of Title IX sexual harassment jurisprudence, which has been developed chiefly in the context of the primary and secondary school level, rather than in the university setting. Although *Franklin v. Gwinnett*<sup>201</sup> already stood for the proposition that a school district may be held liable in damages for a teacher’s sexual harassment of a student, that case had not defined the parameters of school district liability. The issue in *Gebser v. Lago Vista Independent School District*<sup>202</sup> was whether the school district was liable for a high school teacher’s making inappropriate remarks in class, making suggestive comments to petitioner, and eventually engaging in a sexual relationship with petitioner, a minor high school student. When parents of two other students complained about this teacher’s classroom remarks, the school principal arranged a meeting and spoke with the school’s guidance counselor about the incident, but did not report it to the school district’s superintendent, who was also the district’s Title IX coordina-

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<sup>198</sup> *Id.*

<sup>199</sup> *Id.*

<sup>200</sup> E-mail from Dr. Holly Heaslet, research scientist at Pfizer, to Lucy Stark (Apr. 9, 2007) (on file with author).

<sup>201</sup> 503 U.S. 60 (1992).

<sup>202</sup> 524 U.S. 274 (1998).

tor.<sup>203</sup> However, after police encountered the teacher and student having sex, the teacher was arrested, his employment terminated, and his teaching license suspended.<sup>204</sup> Petitioner then filed suit against the school district and the teacher, raising Title IX, among other claims.<sup>205</sup> The *Gebser* Court rejected petitioner's argument that Title VII standards of *respondeat superior* employer liability for a supervisor's harassment of an employee be applied to Title IX sexual harassment cases, reasoning that the funding recipient itself—as represented by a school district official empowered to take action, rather than merely a teacher—must be aware of discrimination in its programs in order to be held liable.<sup>206</sup>

In addition to this “actual notice” requirement, the Court stated that petitioner must further show that the response of the school district, once it was informed of the harassment, amounted to “deliberate indifference.”<sup>207</sup> Otherwise, the funding recipient would be liable not for its own official decision, but rather for its employee's independent actions—a liability the Court was not willing to assign.<sup>208</sup> It is the deliberate indifference displayed by the school officials toward the harassment, then, that amounts to sex discrimination prohibited by Title IX, rather than the harassment itself.<sup>209</sup>

In the subsequent case of *Davis v. Monroe County Board of Education*, the mother of a fifth grader filed suit against the school board and school officials under Title IX for peer sexual harassment.<sup>210</sup> The student, LaShonda Davis, was subjected for many months to sexual touching and statements by one of her classmates, which she reported to her teacher.<sup>211</sup> This particular student harassed other female students as well, and though the female students attempted to speak with the principal about the problem, the students were denied access to the principal.<sup>212</sup> Davis's mother spoke with the principal, yet no disciplinary action was taken, nor was there any attempt to separate Davis from her harasser.<sup>213</sup> The Supreme Court held that

<sup>203</sup> *Id.* at 278.

<sup>204</sup> *Id.*

<sup>205</sup> *Id.* at 279.

<sup>206</sup> *Id.* at 282-83 (citing *Meritor Sav. Bank v. Vinson*, 477 U.S. 57 (1986) (relying on common law agency principles for assessment of employer liability under Title VII for sexual harassment of employee by a supervisor)).

<sup>207</sup> *Id.* at 290.

<sup>208</sup> *Id.* at 290-91.

<sup>209</sup> In the case of *Gebser*, the Court stated that the only information the principal had about any harassing behavior was that imparted by the parents complaining about inappropriate comments; this, the Court felt, was not enough for the principal to be on notice about the teacher's sexual relationship with Gebser. *Id.* at 291. Furthermore, action had been taken: the teacher had been discharged upon discovery of his illicit relationship with the student. *Id.* The lack of any school grievance procedure for harassment claims was insufficient, said the Court, for liability under Title IX, and it refused to impose liability on the school district for the independent misconduct of the teacher. *Id.* at 292.

<sup>210</sup> 526 U.S. 629, 632 (1999).

<sup>211</sup> *Id.* at 633-34.

<sup>212</sup> *Id.* at 635.

<sup>213</sup> *Id.*

Davis had a private cause of action under Title IX against the school board for student-on-student harassment, as long as an official with substantial control over both the harasser and the context in which the harassment occurred acted with deliberate indifference, and the harassment was so severe as to effectively bar the student's access to equal educational opportunity.<sup>214</sup>

In sum, the Supreme Court has held that Title IX prohibits sexual harassment of students by teachers and by fellow students, but it has set a rather high bar for plaintiffs to overcome in seeking relief: school district officials must be shown to have had "actual knowledge" of the harassment and to have responded with "deliberate indifference," and, in the case of peer harassment, the harassment must have been so severe as to effectively deny the student equal access to educational opportunity.

In order to apply *Gebser* and *Davis* to the academic laboratory setting, a variety of questions would first need to be settled. First, who would qualify as the person to whom "actual notice" must be tendered, i.e., who in the graduate school context represents the funding recipient itself in the same way that a school district official empowered to take action represents the funding recipient in a primary or secondary school context? Relatedly, what would such deliberate indifference entail in the academic science laboratory setting? Second, the Court made clear that the sexual harassment had to be so severe and pervasive as to constitute denial of equal access to education—what precisely would meet this standard in the context of a graduate school laboratory environment?

The lower federal courts have not been consistent in their interpretations of the *Gebser* and *Davis* standards. Some circuits have applied them so narrowly as to raise the bar for liability even higher than indicated by the Supreme Court decisions themselves, whereas other circuits have been more protective of Title IX sexual harassment plaintiffs.<sup>215</sup> Given that there is disagreement among the courts on how to apply these precedents at the secon-

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<sup>214</sup> *Id.* at 633. Professor Verna Williams, lead counsel in *Davis* and who argued the case before the Supreme Court, hypothesizes that the reason *Gebser* and *Davis* came out so differently was because of the framing of the issues in the briefs. Verna Williams, Professor of Law, Univ. of Cincinnati Coll. of Law, *Remarks at the Harvard Journal of Law & Gender Spring Conference: Changing Social Norms? Title IX and Legal Activism* 64-66 (Apr. 13, 2007) (transcript on file with the Harvard Journal of Law and Gender). Petitioner assumed, without explaining, that the teacher's behavior was sex discriminatory, and Williams surmises that this failure to explain why it constituted discrimination based on sex allowed the Court to treat it as a child welfare case rather than one involving systemic sexism. *Id.* at 65-66. The Court thus embraced a tort standard echoing *DeShaney v. Winnebago County Dep't of Soc. Servs.*, 489 U.S. 189 (1989), that absent a special relationship, the school board harbors no duty to protect. *Id.* at 66. By contrast, petitioners in *Davis* overtly argued that peer harassment reified gender roles in education and deserved more than a tort-type analysis. *Id.* at 67.

<sup>215</sup> See Linda Wharton, Assoc. Professor of Political Science, Richard Stockton Coll. of N.J., *Remarks at the Harvard Journal of Law & Gender Spring Conference: Changing Social Norms? Title IX and Legal Activism* 48-56 (Apr. 13, 2007) (transcript on file with the Harvard Journal of Law and Gender) (setting out four categories in which serious questions remain about the efficacy of a Title IX cause of action for sexual harassment).

dary and elementary school level, it would not be at all surprising for a graduate level sexual harassment suit to face even more uncertainty. In any case, it is far from settled who in the school district with authority to take corrective action is the person required to have “actual notice.”<sup>216</sup> Further, it is unclear what constitutes “actual notice”: some courts hold that harassment of other students occurring prior to plaintiff’s harassment is enough to state a claim of actual notice, whereas others insist that the specific harassment of the plaintiff must have come to the attention of the appropriate school official.<sup>217</sup> Moreover, while holding that school districts may be held liable for deliberate indifference in the face of peer sexual harassment, the *Davis* Court did not dictate or prescribe any particular course of action that school administrators need to follow when confronted with a situation of harassment, as long as they do not act in a manner that is “clearly unreasonable.”<sup>218</sup> Thus, whether a school to overcome “deliberate indifference” must take serious or substantial steps toward ending the harassment, or whether, instead, the school just has to do *something*, regardless of how inept or inappropriate, is a matter of dispute among the lower courts as well.<sup>219</sup>

Finally, there remains the question of exactly what types of behavior constitute sexual harassment in violation of Title IX. In holding that damages are only available where sexual harassment is “so severe, pervasive, and objectively offensive” that it deprives the plaintiff of equal educational opportunities, and in response to the *Davis* dissent’s concern that “mere teasing” would trigger liability,<sup>220</sup> the *Davis* majority specifically cautioned that “mere teasing” would not suffice in this regard: “Damages are not available for simple acts of teasing and name-calling among school children, however,

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<sup>216</sup> Compare *Warren ex rel. Good v. Reading Sch. Dist.*, 278 F.3d 163, 169-70 (3d Cir. 2002) (holding that principal could be an “appropriate person” to receive actual notice under Title IX), with *Baynard v. Malone*, 268 F.3d 228, 238-39 (4th Cir. 2001) (finding that principal did not have power to take remedial action on behalf of school board, and therefore was not appropriate person to receive actual notice Title IX).

<sup>217</sup> Compare *Sherman ex rel. Sherman v. Helms*, 80 F. Supp. 2d 1365, 1371 (M.D. Ga. 2000) (finding that prior complaints by students other than the plaintiff did not constitute “actual notice”), with *Michelle M. v. Dunsuir Joint Union Sch. Dist.*, No. 2:04-cv-2411-MCE-PAN, 2006 WL 2927485, at \*4-5 (E.D. Cal. Oct. 12, 2006) (holding that knowledge of harasser’s prior behavior toward other victims may constitute actual notice).

<sup>218</sup> *Davis v. Monroe County Bd. of Educ.*, 526 U.S. 629, 648 (1999) (“School administrators will continue to enjoy the flexibility they require so long as funding recipients are deemed ‘deliberately indifferent’ to acts of student-on-student harassment only where the recipient’s response to the harassment or lack thereof is clearly unreasonable in light of the known circumstances.”).

<sup>219</sup> See, e.g., *Doe ex rel. Doe v. Dallas Indep. Sch. Dist.*, 220 F.3d 380 (5th Cir. 2000) (where principal received notice about teacher fondling student, and subsequently met with the student and mother, but did not formally reprimand or transfer the teacher, principal’s actions were held erroneous and ineffective, but did not constitute deliberate indifference).

<sup>220</sup> *Davis*, 526 U.S. at 677 (Kennedy, J., dissenting).

even where these comments target differences in gender.”<sup>221</sup> In fleshing out the parameters of this constraint, many of the lower courts have viewed physically threatening conduct as the benchmark, thereby discounting “mere” humiliating conduct, or conduct that falls short of causing a nervous breakdown.<sup>222</sup> This rather onerous burden is in marked contrast to that imposed by courts in workplace harassment suits under Title VII; indeed, in the paradigmatic Title VII hostile environment case *Harris v. Forklift Systems*,<sup>223</sup> Justice O’Connor famously remarked that “Title VII comes into play before the harassing conduct leads to a nervous breakdown”.<sup>224</sup>

A discriminatorily abusive work environment, even one that does not seriously affect employees’ psychological well-being, can and often will detract from employees’ job performance, discourage employees from remaining on the job, or keep them from advancing in their careers. Moreover, even without regard to these tangible effects, the very fact that the discriminatory conduct was so severe or pervasive that it created a work environment abusive to employees because of their race, gender, religion, or national origin offends Title VII’s broad rule of workplace equality. The appalling conduct alleged in *Meritor*, and the reference in that case to environments “so heavily polluted with discrimination as to destroy completely the emotional and psychological stability of minority group workers,” merely present some especially egregious examples of harassment. They do not mark the boundary of what is actionable.<sup>225</sup>

### C. *Impact Litigation: Hostile Environment Claims under Title VII*

Although the heightened standards for actionable sexual harassment under Title IX, in comparison to Title VII, have proven to be a quandary for many plaintiffs seeking redress for sex discrimination in educational environments, doctoral students in the natural sciences, unlike elementary and secondary school students, undergraduates in college, or even, it seems, graduate students in the humanities, are in the unique position of being able to bring such a suit under Title VII instead. Thus, a more immediate solution for addressing hostile environments in laboratories is for potential plaintiffs

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<sup>221</sup> *Davis*, 526 U.S. at 652.

<sup>222</sup> *See, e.g.*, *Hawkins v. Sarasota County Sch. Bd.*, 322 F.3d 1279, 1288-89 (11th Cir. 2003) (finding that harassment of second graders by classmate over period of months did not constitute severe and pervasive enough conduct so as to deprive access to equal educational opportunity, because plaintiffs did not suffer a decline in grades, their teacher did not notice a difference in their classroom behavior, and the girls did not tell their parents about the harassment for months).

<sup>223</sup> 510 U.S. 17 (1993).

<sup>224</sup> *Id.* at 22.

<sup>225</sup> *Id.* (citing *Meritor Sav. Bank v. Vinson*, 477 U.S. 57, 66 (1988) (quoting *Rogers v. EEOC*, 454 F.2d 234, 238 (5th Cir. 1971), *cert. denied*, 406 U.S. 957 (1972))).

to reap the benefits of Title VII's lower burden on a variety of levels, that is, a constructive, rather than actual, notice requirement; a showing that the employer did not take reasonable steps to prevent and correct the harassing behavior, rather than the more stringent deliberate indifference standard for school administrators' actions; and the fact that, unlike under Title IX, the sexual harassment alleged under Title VII need not be so severe as to cause distress as extreme as a deterioration in health. In sum, these factors all point to the marked benefit of approaching the graduate student hostile laboratory environment from a Title VII, as opposed to a Title IX, standpoint.

Indeed, Title VII seems preferable to Title IX not only because the Title VII framework is more amenable to sexual harassment claims insofar as it presents a lower bar to liability, but also because as a statutory tool it seems much better suited to the actual realities faced by graduate students working in laboratory environments. Because the graduate student experience resonates more with places of employment than with the classroom context, this translates into a better match with Title VII sexual harassment case law than with that of Title IX. Thus, a Title VII approach appears to be a more palatable option, at least in the short term, to combat hostile environments at the graduate student and postdoctoral levels.<sup>226</sup>

### 1. *Title VII sexual harassment jurisprudence*

The landmark Supreme Court case of *Meritor Sav. Bank v. Vinson*<sup>227</sup> set forth the principle that sexual harassment is discrimination *because of sex* and thus in accordance with the statutory prohibition of Title VII. Although the sexual harassment at issue in *Meritor* constituted so-called quid pro quo sexual harassment, the Supreme Court in *Harris v. Forklift Systems*<sup>228</sup> also recognized hostile environment sexual harassment claims for adverse employment actions, insofar as the harassment at issue was "sufficiently severe or pervasive 'to alter the conditions of [the victim's] employment and create an abusive working environment,'" thereby changing "a term, condition, or privilege of employment" in contravention of the statute.<sup>229</sup> Moreover, although the popular understanding of the term "sexual harassment" is of behavior motivated by or reflecting sexual desire, Justice Scalia, speaking for the Court in *Oncale v. Sundowner Offshore Drilling Services*,<sup>230</sup> made clear that the harassment at issue need not be sexual in nature, but rather may also

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<sup>226</sup> For an example of a sex discrimination suit brought by a postdoctoral fellow under Title VII, see *Woodruff v. Ohman*, No. 05-5268, 166 Fed. Appx. 212, 2006 WL 305670 (6th Cir. Feb. 9, 2006) (unpublished opinion), *reh'g en banc denied* (May 22, 2006).

<sup>227</sup> 477 U.S. 57 (1986).

<sup>228</sup> 510 U.S. 17 (1993); see also *Robinson v. Jacksonville Shipyards, Inc.*, 760 F. Supp. 1486 (M.D. Fla. 1991).

<sup>229</sup> *Meritor*, 477 U.S. at 67 (quoting *Henson v. City of Dundee*, 682 F.2d 897, 904 (11th Cir. 1982)).

<sup>230</sup> 523 U.S. 75, 79 (1998) (holding that sexual harassment perpetrated by co-workers who were of the same sex as the victim constitutes sex discrimination under Title VII).

encompass gender-based animus that is not necessarily reflective of sexual desire; such conduct is discrimination “because of sex” and thus within the statutory prohibition. In fact, although the facts in *Harris* included inappropriate and unwanted sexual overtures, the complaint incorporated comments by the company’s president that were derogatory of women, but not sexual in nature, such as calling plaintiff “a dumb ass woman” and telling her “on several occasions, in the presence of other employees, ‘You’re a woman, what do you know,’ and ‘We need a man as the rental manager.’”<sup>231</sup>

As set out by the Supreme Court in *Burlington Industries v. Ellerth*<sup>232</sup> and *Faragher v. City of Boca Raton*,<sup>233</sup> the framework for Title VII employer liability centers on a constructive rather than actual notice standard, in that common law principles of agency allow for vicarious liability on the part of the employer if it knew or should have known about the discrimination at issue. If, however, “the employer exercised reasonable care to prevent and correct promptly any sexually harassing behavior, and . . . the plaintiff employee unreasonably failed to take advantage of any preventive or corrective opportunities provided by the employer or to avoid harm otherwise,” then the employer is entitled to an affirmative defense, at least where no tangible employment action, such as discharge, demotion, or unfavorable reassignment, was taken.<sup>234</sup>

## 2. *Application of Title VII sexual harassment jurisprudence to graduate students in the sciences*

Given the willingness of various federal courts to accept science graduate students as employees for purposes of Title VII, as discussed in Section III.C above, the possibility of a graduate student bringing a Title VII hostile environment suit against her university “employer” is not beyond the pale. As some of the examples in Section III.D illustrate, various types of discriminatory behavior perpetrated in science laboratories could constitute a claim for hostile environment sexual harassment under Title VII: “When the workplace is permeated with discriminatory intimidation, ridicule, and insult that is sufficiently severe or pervasive to alter the conditions of the victim’s employment and create an abusive working environment, Title VII is violated.”<sup>235</sup> The fact that many female graduate students who experience harassment in their laboratories do persevere and complete their doctoral work is a testimony to their determination and toughness, rather than a reason for universities to escape Title VII liability. “So long as the environment would reasonably be perceived, and is perceived, as hostile or abusive,

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<sup>231</sup> *Harris*, 510 U.S. at 19 (quoting App. to Pet. for Cert. A-13).

<sup>232</sup> 524 U.S. 742 (1998).

<sup>233</sup> 524 U.S. 775 (1998).

<sup>234</sup> *Burlington*, 524 U.S. at 765.

<sup>235</sup> *Harris*, 510 U.S. at 21 (citations and internal quotation marks omitted).

there is no need for it also to be psychologically injurious.”<sup>236</sup> It should be emphasized, however, that simple off-color jokes or offensive comments now and then are not what is at issue; indeed, the Court cautioned:

We have never held that workplace harassment, even harassment between men and women, is automatically discrimination because of sex merely because the words used have sexual content or connotations. “The critical issue, Title VII’s text indicates, is whether members of one sex are exposed to disadvantageous terms or conditions of employment to which members of the other sex are not exposed.”<sup>237</sup>

Nonetheless, it is essential to recognize that Title VII is not necessarily a panacea for female graduate students in the sciences (nor for other potential plaintiffs, for that matter). There are several difficulties that may confront a graduate student attempting to sue as an employee, in addition to those obstacles that may confront Title VII plaintiffs more generally.

A general concern in sexual harassment jurisprudence is the extent to which the admonition against discrimination “because of sex” applies to conduct that is derogatory of women without being sexual per se. *Oncale* certainly seemed to set the discourse in the right direction when the Court explicitly stated, “harassing conduct need not be motivated by sexual desire to support an inference of discrimination on the basis of sex.”<sup>238</sup> However, Vicki Schultz has written insightfully about the curious manner in which sexual harassment jurisprudence has developed despite this propitious beginning, in that it appears to have morphed into a theory of involuntary sexualization, rather than of gender-based animus more generally.<sup>239</sup> She points out that in *Oncale* itself “the Court reiterated that it would remain easier to win cases involving conduct motivated by sexual desire, because such conduct would be presumed to occur because of sex within the meaning of Title VII.”<sup>240</sup> Moreover, the lower courts have handled the sexual desire requirement erratically, thus lending less predictability to this area than would be desirable to a would-be plaintiff contemplating taking a step as significant as bringing a lawsuit. In summarizing the case law, Schultz concludes that “there is no uniform agreement about what conduct is required to prove actionable harassment, even at the level of stating the formal elements of a claim. Some court of appeals decisions still seem to expressly require con-

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<sup>236</sup> *Id.* at 22 (citing *Meritor Sav. Bank v. Vinson*, 477 U.S. 57, 67 (1986)).

<sup>237</sup> *Oncale v. Sundowner Offshore Drilling Servs.*, 523 U.S. 75, 80 (1998) (quoting *Harris*, 510 U.S. at 25 (Ginsburg, J., concurring)).

<sup>238</sup> 523 U.S. at 80.

<sup>239</sup> Vicki Schultz, *The Sanitized Workplace*, 112 *YALE L.J.* 2061 (2003); see also Vicki Schultz, *Reconceptualizing Sexual Harassment*, 107 *YALE L.J.* 1683 (1998).

<sup>240</sup> Schultz, *The Sanitized Workplace*, *supra* note 239, at 2085 n.64.

duct of a sexual nature,”<sup>241</sup> whereas other “circuits seem to have moved entirely away from the idea that harassment must be sexual, and require only proof that the conduct was ‘based upon sex.’”<sup>242</sup>

Though this uncertainty as to the necessity of a showing of sexual desire is certainly relevant for many potential Title VII plaintiffs, women scientists in labs are especially likely to encounter harassment that may not be sexual, but that is “because of sex.” Recall, for instance, Rosalind’s encounter with a male colleague who told her that she should not earn a Ph.D. because she would be taking a job away from a deserving man. Or Marie’s experience of having her group job boycotted because she was a feminist and “too assertive.” Such plaintiffs would fare better in front of a trial court like the one that heard *Robinson v. Jacksonville Shipyards* and ruled that “harassing behavior lacking a sexually explicit content but directed at women and motivated by animus against women satisfies this requirement.”<sup>243</sup> Yet, as Schultz describes the situation in the lower courts, it is conceivable that a court might view such conduct as Marie and Rosalind experienced as not actionable because it did not express sexual desire or promote involuntary sexualization.

Related to this problem of what counts as “because of sex,” is the situation in which one or two comments have gender references (such as “dumb ass woman” in *Harris*), but where other hostile or abusive conduct is not explicitly gender-referenced. Marie’s encounters with the postdoctoral fellow during her graduate training would exemplify such a situation: his initial remarks were gender-oriented (e.g., “Is it that time of the month?”, “I was taught never to argue with a woman.”), but his subsequent actions, although hostile, did not explicitly refer to her sex (e.g., throwing glassware in her direction, blocking access to her desk drawers, slamming the door shut whenever she spoke). Circumstantial evidence arguably points to a conclusion that his subsequent conduct was also motivated, at least in part, by gender-based animus, rather than by animus of a more general nature. For one thing, the behavior was supplemented with the earlier gender-referenced remarks. Moreover, his hostile actions were directed at her, the only woman in the lab, rather than at any of the men. Taken together, the inference might be drawn that his actions comprised gender discriminatory behavior, but of course, one cannot be sure at the outset that a trial judge, on deciding a motion for summary judgment, or a jury, if the case proceeded to trial, would also see it that way. If a court were to find that the supplemental, non-gender referenced conduct was unrelated to the initial sex-based com-

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<sup>241</sup> *Id.* at 2084 n.61 (citing *Rene v. MGM Grand Hotel, Inc.*, 305 F.3d 1061, 1065 (9th Cir. 2002), *cert. denied*, 538 U.S. 922 (2003); *Hall v. Bodine Elec. Co.*, 276 F.3d 345, 354-55 (7th Cir. 2002)).

<sup>242</sup> Schultz, *The Sanitized Workplace*, *supra* note 239, at 2084-85 n.61 (citing *Gregory v. Daly*, 243 F.3d 687, 691-92 (2d Cir. 2001)).

<sup>243</sup> *Robinson v. Jacksonville Shipyards, Inc.*, 760 F. Supp. 1486, 1522 (M.D. Fla. 1991).

ments, then the plaintiff would have only one or two incidents on which to stand, rather than a repeated pattern of conduct; this most likely would not be considered severe or pervasive enough to alter the terms and conditions of employment in violation of Title VII.

Another potential hurdle is an employer's affirmative defense of having taken reasonable actions to avert or rectify discriminatory conduct, specifically insofar as the university's promulgation of sexual harassment policies might constitute such a defense. Recall from *Burlington Industries* that if an employer took reasonable steps to prevent and correct harassing behavior, and the plaintiff-employee unreasonably failed to avail him or herself of those preventive or corrective measures, then the employer may avoid liability.<sup>244</sup> Although *Burlington Industries* specifically addressed the issue of sexual harassment policies, the precise parameters of when the existence of such a policy might provide some protection to an employer was left vague:

While proof that an employer had promulgated an antiharassment policy with complaint procedure is not necessary in every instance as a matter of law, the need for a stated policy suitable to the employment circumstances may appropriately be addressed in any case when litigating the first element of the defense. And while proof that an employee failed to fulfill the corresponding obligation of reasonable care to avoid harm is not limited to showing any unreasonable failure to use any complaint procedure provided by the employer, a demonstration of such failure will normally suffice to satisfy the employer's burden under the second element of the defense.<sup>245</sup>

Some scholars have hypothesized that the availability of such an affirmative defense would incentivize institutions to write and disseminate sexual harassment policies—and that this is a good thing. Sturm, for example, has argued that “[t]he Court’s sexual harassment and subjective employment practices opinions thus point toward a structural judicial approach . . . encouraging institutional innovation within workplaces by prescribing an approach that enables employers to avoid liability by preventing or redressing harassment or bias problems.”<sup>246</sup> However, other academics harbor a more cynical view of employer-crafted sexual harassment policies. An official sexual harassment policy may not be well-implemented in practice, leaving women who are victims of harassment with no effective internal recourse. Deborah Rhode has commented:

The prevailing assumption is that the answer lies with policies, complaint channels, and training programs, and that these structures will normally insulate employers from liability. Yet the evi-

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<sup>244</sup> *Burlington Indus. v. Ellerth*, 524 U.S. 742, 765 (1998).

<sup>245</sup> *Id.*

<sup>246</sup> Sturm, *Second Generation Employment Discrimination*, *supra* note 13, at 489.

dence available casts doubt on the adequacy of such initiatives. For the vast majority of victims, the costs of complaining outweigh the benefits: barriers include fears of reprisal, blacklisting, and loss of privacy, as well as doubts about the value of responses.<sup>247</sup>

Lise, the immunology professor interviewed, recalls that, as a graduate student, she “found HR non-supportive in a sexual harassment situation, tried to blame it on the female and seemed more interested in squelching the problem and fulfilling legal obligations than in fixing the problem.” Marie, the chemistry graduate student, recounts a similarly unpleasant experience when she followed internal harassment complaint procedures after months of being harassed by a postdoc in her lab.

Schultz levels an even more biting critique at such sexual harassment policies, arguing that such rules are in effect, if not in intent, often used as excuses not to mentor women in the same way as men, thus perpetuating the phenomenon of an “old-boys” network: “At a more individual level, sociologists have shown that men sometimes use the fear of women falsely accusing them of sexual harassment as an excuse for excluding women altogether.”<sup>248</sup> It may very well be that in the context of academic science at least, many sexual harassment policies as currently configured are counter-productive. Certainly, Lise’s and Marie’s experiences appear to bear out the viewpoint espoused by Rhode and Schultz on this front. In fact, Marie wryly remarked that one of her postdoctoral colleagues announced upon returning from Human Resource’s sexual harassment training for new employees, that the one thing he had learned from that session was to avoid being in a room alone with a woman, in case she falsely accused him of harassment. This anecdote matches up remarkably well with “the human resources literature [that] counsels supervisors that, in order to prevent accusations or even the appearance of sexual harassment, they should avoid meeting with their subordinates of a different sex alone behind closed doors.”<sup>249</sup> Schultz goes further to deplore that “[i]n the name of preventing sexual harassment, these segregationist policies turn Title VII on its head. If male supervisors cannot meet with their female subordinates in private settings, how will women ever gain access to the training and mentoring needed to succeed?”<sup>250</sup> Hence, in light of the possibility that sexual harassment policies may be

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<sup>247</sup> Deborah L. Rhode, *Social Research and Social Change: Meeting the Challenge of Gender Inequality and Sexual Abuse*, 30 HARV. J.L. & GENDER 11, 13 (2007).

<sup>248</sup> Schultz, *The Sanitized Workplace*, *supra* note 239, at 2134 (citing Beth A. Quinn, *The Paradox of Complaining: Law, Humor, and Harassment in the Everyday Work World*, 25 LAW & SOC. INQUIRY 1151, 1177-78 (2000)).

<sup>249</sup> *Id.* at 2135.

<sup>250</sup> *Id.* For a discussion of the significant effects that lack of mentoring can have on female scientists, see, for example, ETZKOWITZ ET AL., *supra* note 61, at 16 (“For example, because women are often excluded from information and informal channels in graduate school, they have less access to ‘social capital,’ the network of relationships and connections, than their male peers. Without this network of professional and social psychological partners, women of equal or better ‘human capital’ (their skills and knowl-

ineffective at best, and, at worst, may also impede mentoring for women, it would indeed be troubling if the very fact that such a policy is in place could provide an “out” for an employer by way of an affirmative defense to a sexual harassment claim.

Finally, there remains a question, specific to Title VII plaintiffs who are graduate students in the sciences, as to whether they will even be treated as employees for purposes of that statute. Not all of the lower federal courts that have addressed this issue have ruled favorably in this regard, although, as noted above in Section III.C, much of the disagreement among courts may have more to do with the way in which a particular graduate student’s role, as well as the particular discrimination alleged, was presented or analyzed in each case—namely, as tending more toward the employee side or the student side of the equation. Although cases such as *Ivan*,<sup>251</sup> *Cuddeback*,<sup>252</sup> and *MohanKumar v. Kansas State University*<sup>253</sup> have focused on whether remuneration for teaching or research assistance was involved and have tended to construe the term “employee” liberally to encompass graduate student plaintiffs, other courts have delved deeper into the roles and actions at issue in order to distinguish between educational and employment milieus in a particular situation. Hence, even if a graduate student occupies an employee-like role in some respects (e.g., acting as a teaching or research assistant), if the discrimination alleged is one pertaining to the educational component of her graduate student role, then she most likely cannot sue as an employee under Title VII. For example, in *Bucklen v. Rensselaer Polytechnic Institute*, although the plaintiff-graduate student “received wages, had taxes withheld, and received benefits” and thus arguably might be considered an employee, the discriminatory action itself was not found to have been taken with respect to his employee status or employment conditions, but rather with regard to his student role, and therefore Title VII was held not to apply.<sup>254</sup> In that case, a male graduate student who had thrice failed his Ph.D. qualifying examination, and had thus been forced to leave the doctoral program, brought a gender and national-origin discrimination suit against the university. The court explained that, while “acknowledg[ing] the unique dual role of graduate students, as potentially both students and employees, it cannot extend the parameters of Title VII to encompass purely

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edge) are more likely to drop out of graduate school, and those who receive a Ph.D. lack the ‘halo effect’ that comes from inclusion in such a network.”).

<sup>251</sup> *Ivan v. Kent State Univ.*, 863 F. Supp. 581 (N.D. Ohio 1994).

<sup>252</sup> *Cuddeback v. Fla. Bd. of Educ.*, 381 F.3d 1230 (11th Cir. 2004).

<sup>253</sup> 60 F. Supp. 2d 1153, 1160 (D. Kan. 1999) (“The court will assume for purposes of this claim that by virtue of her agreement to teach classes at the university in exchange for a stipend, plaintiff was an employee covered by Title VII and that the discontinuation of a stipend was either a refusal to hire her or a denial of a term or condition of her employment.”).

<sup>254</sup> 166 F. Supp. 2d 721, 725 (N.D.N.Y. 2001).

academic decisions, such as the testing and qualification of doctoral students, that have only a tangential effect on one's status as an employee."<sup>255</sup>

Similarly, in *Pollack v. Rice University*,<sup>256</sup> the plaintiff was held not to have been discriminated against with respect to the terms or conditions of employment when he was denied admission to the graduate program in chemistry at Rice University. Even though the court acknowledged that admission to the program would entail, among other benefits, employment as a research or teaching assistant, such employment would merely "be attendant to his capacity as a student."<sup>257</sup> The alleged discriminatory action at issue was thus denial of "admission to a scholastic program which entails the performance of services for remuneration, where the services are completely incidental to the scholastic program."<sup>258</sup> Hence, *admission* to the graduate program itself was held not to be related to employment for purposes of Title VII.

*Stilley v. University of Pittsburgh*<sup>259</sup> also emphasized that

the analysis of this case is complicated by the multiple roles and interactions between Plaintiff Lori Stilley and Defendant Petrosky, i.e., student-academic advisor/professor/dissertation committee chair and employee-supervisor. While recognizing that plaintiff's work on her dissertation[ ] is closely related to her work on the [project for which plaintiff was hired as a research assistant], the Title VII inquiry must focus only on the employee-employer relationship.<sup>260</sup>

In addition to sexual harassment by her advisor, plaintiff alleged that in retaliation for her rejection of his advances, he imposed "unfair and improper requirements for [her] first dissertation overview and actually sabotaged her second dissertation overview."<sup>261</sup> The court concluded, however, that "[b]ecause she was acting as a student, any alleged 'sabotage of the . . . overview' is not a proper subject for a Title VII analysis due to the lack of an employer-employee relationship."<sup>262</sup> However, it is important to note that the court in *Stilley* did indeed analyze plaintiff's separate sexual harassment and hostile environment claims under a Title VII framework;<sup>263</sup> it was only the dissertation retaliation allegation related to her student role that the court held not to be cognizable under Title VII. *Stilley* is thus instructive insofar as it clarifies the necessity for diligently parsing the employment-related aspects of a sex discrimination claim brought by a graduate student.

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<sup>255</sup> *Id.* at 725.

<sup>256</sup> No. H-79-1539, 1982 WL 296 (S.D. Tex. Mar. 29, 1982).

<sup>257</sup> *Id.* at \*1.

<sup>258</sup> *Id.*

<sup>259</sup> 968 F. Supp. 252 (W.D. Pa. 1996).

<sup>260</sup> *Id.* at 261.

<sup>261</sup> *Id.* at 257.

<sup>262</sup> *Id.* at 263.

<sup>263</sup> *Id.* at 261-64.

A graduate student bringing a Title VII claim, therefore, would be well-advised to argue that the alleged discrimination, e.g., the hostile environment, relates to the core of her employment relationship with the university and thus constitutes an adverse employment action, rather than a deprivation of equal educational opportunity. Because many of the instances of discriminatory conduct in academic science laboratories discussed in Section III.D above reference not purely academic decisions, such as denial of admission or retaliation by a dissertation committee, but rather the conditions of graduate research assistants' laboratory workplace, it may be argued that such a sex discrimination claim relates to the essence of the employee rather than the student role.<sup>264</sup>

Certainly, going this route would not preclude a plaintiff from also bringing a Title IX claim.<sup>265</sup> Moreover, a Title IX claim might be brought by a graduate research assistant not only in her capacity as a student, but also as an employee: for example, the plaintiff in *Ivan v. Kent State* brought both Title VII and Title IX claims, and the court there noted that

[b]oth the First and Seventh Circuits have analyzed cases involving allegations of gender discrimination by an educational institution in violation of Title IX against students in clinical training programs similar to the defendant's using the *McDonnell Douglas* burden shifting framework developed in Title VII cases, an analytical method we now adopt.<sup>266</sup>

The First Circuit in *Lipsett v. University of Puerto Rico*, though a Title IX case, analyzed a surgical resident's hostile environment claim as a workplace-related claim under *McDonnell Douglas*, holding that it would only do so in the case of employment-related cases.<sup>267</sup> Thus, the willingness of courts to entertain the conjunction of Title VII and Title IX causes of action in mixed employment-training settings such as medical residencies and graduate research assistantships in the sciences demonstrates an understanding on the part of the judiciary of the special nature of such quasi-employment

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<sup>264</sup> The sexist remarks made by professors in the classroom, for example, are obvious exceptions to this assertion.

<sup>265</sup> See, e.g., *Ivan v. Kent State Univ.*, No. 94-4090 92 F.3d 1185, \*2 n.10 (6th Cir. July 26, 1996) ("[T]he court overrules the conclusion reached by the district court in *Wedding v. University of Toledo*, 862 F. Supp. 201, 203 (N.D. Ohio 1994), that Title VII preempts an individual's private remedy under Title IX.").

<sup>266</sup> *Id.* at \*2 (citing *Yusuf v. Vassar Coll.*, 35 F.3d 709 (2d Cir. 1994); see also *Preston v. Virginia ex rel. New River Cmty. Coll.*, 31 F.3d 203 (4th Cir. 1994); *Andriakos v. Univ. of S. Indiana*, 19 F.3d 21 (7th Cir. 1994) (unpublished table decision); *Roberts v. Colorado State Bd. of Agric.*, 998 F.2d 824 (10th Cir. 1993); *Lipsett v. Univ. of Puerto Rico*, 864 F.2d 881, 897 (1st Cir. 1988); *Mabry v. State Bd. of Cmty. Colls. & Occupational Educ.*, 813 F.2d 311 (10th Cir. 1987); *O'Connor v. Peru State Coll.*, 781 F.2d 632 (8th Cir. 1986). But see *Franklin v. Gwinnett County Public Schs.*, 911 F.2d 617 (11th Cir. 1990), *rev'd on other grounds*, 503 U.S. 60 (1992)

<sup>267</sup> 864 F.2d 881 (1st Cir. 1988).

settings and the concomitant need for a legal framework that does not hew strictly to a student party line.

However, it is as yet an open question as to whether Title IX definitively applies to employment cases, so Title VII may in the end turn out to be the best bet for graduate student plaintiffs. The Supreme Court in *North Haven Board of Education v. Bell*<sup>268</sup> decided two consolidated cases, one involving a teacher who filed a complaint with the Department of Health, Education and Welfare (“HEW”) after the school district refused to rehire her after her maternity leave, and the other involving a former guidance counselor who filed a complaint with HEW claiming that the school district had discriminated against her on account of gender in job assignments, working conditions, and failure to renew her contract. The Court validated HEW’s Title IX regulations as they applied to the employment arena in the face of challenges by the two public school boards.<sup>269</sup> The Court pointed out that, rather than specifying that “no student” may be discriminated against on account of gender, the statute directed that “no person” may be discriminated against.<sup>270</sup> Although Title IX has thus been held to apply in the employment context, it is as yet unclear whether plaintiffs in educational employment discrimination cases are afforded a private cause of action, since *North Haven* involved complaints filed with a federal agency under its regulations rather than a private cause of action for damages.<sup>271</sup> In fact, lower courts are divided on the issue of whether a private cause of action for employment discrimination can be brought under Title IX when the facts would also support a Title VII claim. Some courts have stated that a potential plaintiff should not be able to circumvent Title VII administrative procedures by filing a Title IX claim instead.<sup>272</sup>

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<sup>268</sup> 456 U.S. 512 (1982).

<sup>269</sup> *Id.* at 535-38.

<sup>270</sup> *Id.* at 521 (“Because [Title IX] neither expressly nor impliedly excludes employees from its reach, we should interpret the provision as covering and protecting these ‘persons’ unless other considerations counsel to the contrary. After all, Congress easily could have substituted ‘student’ or ‘beneficiary’ for the word ‘person’ if it had wished to restrict the scope.”).

<sup>271</sup> See 1 EDUC. LAW § 4.03.

<sup>272</sup> Compare *Lowrey v. Texas A & M Univ. Sys.*, 117 F.3d 242 (5th Cir. 1997) (holding that Title IX does not afford a remedy for employees who are retaliated against as a result of allegations of employment discrimination at a federally funded educational institution), *Waid v. Merrill Area Pub. Sch.*, 91 F.3d 857 (7th Cir. 1996) (stating that Title VII preempted plaintiff’s claims for equitable relief under Title IX), *Lakoski v. James*, 66 F.3d 751 (5th Cir. 1995) (holding that Title VII provides the exclusive remedy for employment discrimination at federally funded educational institutions), and *Blalock v. Dale County Bd. of Educ.*, 84 F. Supp. 2d 1291 (M.D. Ala. 1999) (holding that Title VII provides the exclusive remedy in case of employment discrimination in federally funded educational institution), with *Preston v. Comm. of Va. ex rel. New River Community Coll.*, 31 F.3d 203 (4th Cir. 1994) (stating that a private right of action under Title IX applies to employment discrimination by educational institutions receiving federal funding), and *Lipsett v. Univ. of Puerto Rico*, 864 F.2d 881 (1st Cir. 1988) (holding that plaintiff, who was both an employee and a student, could sue under Title IX for hostile environment sexual harassment perpetrated by her supervisor at an educational institution).

## V. CONCLUSION: TO SUE OR NOT TO SUE

Unfortunately, just because certain conduct is actionable does not mean that legal advocates should recommend that legal action indeed be taken when it comes down to an individual potential plaintiff's career prospects, health, and general well-being. There may be many objections to the private cause of action route under Title VII, not the least of which are the severe repercussions that even the threat of a lawsuit might have for a graduate student's future scientific career. Moreover, career concerns aside, litigation is a long, arduous road not to be embarked upon by the faint of heart. And given that graduate school has a limited timeframe, many women might prefer to simply stick it out, earn their Ph.D., and then get out, making as few waves as possible in the process in order to facilitate the completion of their doctoral work—the endpoint of which is usually advisor-determined.

At the same time, for many people, simply putting up with harassment in the laboratory is not an acceptable option. As one of the scientists interviewed by Rosser commented, "Fighting this nonsense every day takes it out of people, and keeps them from thinking about important things."<sup>273</sup> Certainly if the concern of advocates in this arena is about the possibility that women who come forward will suffer in terms of career advancement, a middle ground ought to be pursued. For example, forging a connection between gender equity advocates who possess an intimate knowledge of the workings of academic research laboratories, and federal agencies like NSF, DOE, and NASA, who have very recently taken up efforts at Title IX compliance review, might be helpful insofar as those agencies may be guided toward asking the "right" questions of academic science departments, questions that bear on hostile laboratory environments and steps taken toward oversight thereof, rather than about access to equipment. In other words, whatever non-litigation strategies are pursued, it is crucial that these efforts at the very least incorporate the realities on the ground. This entails asking female scientists at the graduate student and postdoctoral levels—those women who are immersed in the laboratory environments at issue—about their experiences, and then really listening. It is necessary first to recognize that there even is a problem of intentional and invidious discrimination in science labs, and this recognition takes time—and dialogue. At bottom, there is a strong need for the voices of female scientists to be heard: women who have devoted years of training, and days and nights in the laboratory, fascinated by scientific discovery, only to become, in the end, one of the statistics of the much-cited "leaky pipeline." And if it is not likely that they will be heard immediately by the scientific community at large, then at the very least these women ought to be heard by gender equity advocates who aim to support and further them, rather than being silenced altogether.

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<sup>273</sup> ROSSER, *supra* note 74, at 80.