# STEMING OUT DISPARITIES: THE CHALLENGES OF APPLYING TITLE IX TO THE STUDY OF SCIENCES, TECHNOLOGY, ENGINEERING, AND MATHEMATICS

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## I. INTRODUCTION

Title IX has positively impacted American schools in the forty

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years since its inception. Female students now have access to athletic opportunities that were once unfairly denied to them because of their gender, and schools are now accountable if learning environments tolerate sexual harassment and gender bias. Although Title IX's implementation in athletics has caused some adverse effects towards men's sports teams,[1] the statute has largely been a success.[2]

Lately, some groups have been calling for a stronger application of Title IX to STEM (Science, Technology, Engineering, and Mathematics) fields.[3] In July 2004, the Government Accountability Office ("GAO") released a report in response to concerns about "the limited participation of women in mathematics, engineering, and science."[4] Pointing to the low percentage of women involved in STEM fields, and the even lower proportion of women holding faculty positions, the report advocated stricter Title IX compliance at schools and government agencies.[5] Since then, some women's rights advocates have called for an enhanced use of Title IX to change what they perceive to be a discriminatory academic environment. Critics of applying Title IX to STEM, however, fear that such efforts will be used to establish gender quotas and address gender imbalances within STEM fields. They point to the effects Title IX has had on college sports, arguing that Title IX's application to STEM could eventually mirror athletics requirements that measure compliance, in part, by looking to the ratio of men to women in a given program.[6]

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1. Current Title IX jurisprudence has led to the suspension of men's sports teams in schools throughout the country. *See, e.g.*, Victoria Langton, Note, *Stop the Bleeding: Title IX and the Disappearance of Men's Collegiate Athletic Teams*, 12 VAND. J. ENT. & TECH. L. 183 (2009); Allison Kasic, *Title IX and Athletics: A Case Study of Perverse Incentives and Unintended Consequences*, INDEP. WOMEN'S F. 1 (June 2010).

2. Prior to Title IX, female athletes amounted to less than 32,000 in colleges and 300,000 in high schools, while the number of men in college and high school athletics programs approximated nearly 170,000 and 3.6 million, respectively. *See The Battle for Gender Equity in Athletics in Elementary and Secondary Schools*, NAT'L WOMEN'S L. CENTER (Jan. 30, 2012), http://www.nwlc.org/resource/battle-gender-equity-athletics-elementary-and-secondary-schools; *The Battle for Gender Equity in Athletics in Colleges and Universities*, NAT'L WOMEN'S L. CENTER (Aug. 25, 2011), http://www.nwlc.org/sites/default/files/pdfs/2011_8_battle_in_college_athletics_final.pdf. Female participation in sports has dramatically improved since Title IX's passage. *See, e.g.*, Marcia D. Greenberger & Neena K. Chaudhry, *Worth Fighting For: Thirty-Five Years of Title IX Advocacy in the Courts, Congress and the Federal Agencies*, 55 CLEV. ST. L. REV. 491, 492 (2007).

3. *See infra* notes 33-35 and accompanying text.

4. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-04-639, GENDER ISSUES: WOMEN'S PARTICIPATION IN THE SCIENCES HAS INCREASED, BUT AGENCIES NEED TO DO MORE TO ENSURE COMPLIANCE WITH TITLE IX, at 1 (2004) [hereinafter GAO REPORT].

5. *See generally id.*

6. In Title IX athletics cases, courts have followed a "substantial proportionality" doctrine, under which schools must show that the ratio of men to women in sports

Both the calls for change and criticisms may be exaggerating Title IX's potential.

Title IX advocates rightly contend that the statute's application is not limited to sports. It certainly is a proper legal mechanism to deal with tangible gender discrimination in STEM fields, and there is no reason why schools should not conduct Title IX compliance reviews to ensure a fair environment for all students and faculty. Moreover, efforts to attract greater numbers of talented individuals (regardless of gender) to the studies of science, technology, engineering, and mathematics would benefit those fields and should be encouraged.[7] However, the law limits the scope of Title IX and the ways in which schools can be held accountable under the statute. The purpose of this Note is to explore these limitations. Namely, it seeks to address whether fears of Title IX gender balancing within STEM are valid, overblown, or, perhaps, a little of both.

This Note will begin by reviewing the statutory and legal history of Title IX from its inception to the present day, with a particular emphasis on the history of gender proportionality requirements in athletics. Next, the Note will examine the current limitations of Title IX's ability to address gender imbalances within STEM, first, by distinguishing athletics case law from the academic context, and second, by looking to the legal parameters that guide Title IX in the academic context. Although private Title IX suits require intentional discrimination on the part of an educational institution, administrative remedies may eventually provide a means for agencies to hold schools accountable for the dearth of women in science, technology, engineering, and mathematics.

Finally, this Note will examine policy considerations that should guide future congressional action in this area. First, Congress never

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mirrors that in the student body in general. *See, e.g.*, Walter B. Connolly, Jr. & Jeffrey D. Adelman, *A University's Defense to a Title IX Gender Equity in Athletics Lawsuit: Congress Never Intended Gender Equity Based on Student Body Ratios*, 71 U. DET. MERCY L. REV. 845, 870-73 (1994).

7. *See, e.g.*, Londa Schiebinger, *Getting More Women into Science: Knowledge Issues*, 30 HARV. J.L. & GENDER 365, 370-76 (2007) ("Since the Sputnik years, the United States [has] attempted to increase the participation of [its] population[] in science—women as well as men."); President Barack Obama, State of the Union Address (Jan. 25, 2011), *available at* http://www.whitehouse.gov/the-press-office/2011/01/25/remarks-president-state-union-address ("We need to out-innovate, out-educate, and out-build the rest of the world. . . . This is our generation's Sputnik moment."). The inclusion of more women in STEM fields may lead to increased knowledge and greater understanding within these fields. *See, e.g.*, Schiebinger, *supra*, at 373-76. Additionally, the dearth of women in certain fields may be indicative of a larger problem. *See, e.g.*, Cornelia Dean, *Computer Science Takes Steps to Bring Women to the Fold*, N.Y. TIMES, Apr. 17, 2007, at F1 (raising the assertion that "[f]actors driving women away [in computer science] will eventually drive men away as well").

intended Title IX to require that schools be responsible for lopsided gender ratios in any setting. This intent should guide future Title IX action as it relates to STEM. Second, over the past decades, educational institutions have witnessed a dramatic rise in overall female participation and success and a decline in male academic performance. Lawmakers should consider that gender dynamics in the academic environment have changed considerably since Title IX's passage. Finally, other factors besides discrimination may account for the scarcity of women in STEM fields. Lawmakers should not reflexively blame hidden gender bias for the lack of gender proportionality in STEM.

## II. THE ARGUMENT FOR TITLE IX IN STEM

### *A. Four Decades Later and Still Underrepresented in Science, Technology, Engineering, and Mathematics*

While Title IX challenges at schools have largely dealt with athletics or sexual harassment, the focus of Title IX is now shifting toward gender parity within the academic context itself, specifically within STEM fields.[8]

On the whole, women have achieved extraordinary success in higher education in the last few decades. In 1969-70, women earned 43.1% of bachelor's degrees conferred.[9] By 2008-09, that number jumped to 57.2%.[10] Women earned 39.7% of all master's degrees and 13.3% of all doctor's degrees in 1969-70.[11] By 2008-09, those figures increased to 60.4% and 52.3% respectively.[12] Women now earn an overwhelming majority of the nation's doctoral degrees in previously male-dominated fields, such as psychology and health-related sciences.[13] Additionally, women are now equally represented in undergraduate programs at the nation's top universities.[14]

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8. *See, e.g.*, Catherine Pieronek, *Title IX and Gender Equity in Science, Technology, Engineering and Mathematics Education: No Longer an Overlooked Application of the Law*, 31 J.C. & U.L. 291, 292 (2005).

9. *See Degrees Conferred by Degree-Granting Institutions, by Level of Degree and Sex of Student: Selected Years, 1869-70 Through 2019-20*, NAT'L CTR. FOR EDUC. STAT., http://nces.ed.gov/programs/digest/d10/tables/dt10_279.asp (last visited May 24, 2012) [hereinafter *Degrees by Level of Degree*].

10. *See id.*

11. *See id*.

12. *See id.*

13. In 2008-09, women earned 73% of all doctoral degrees in psychology and 73.7% of doctoral degrees in "Health Professions and Related Clinical Sciences." *See Doctor's Degrees Conferred by Degree-Granting Institutions, by Sex, Race/Ethnicity, and Field of Study: 2008-09*, NAT'L CTR. FOR EDUC. STATISTICS, http://nces.ed.gov/programs/digest/d10/tables/dt10_303.asp (last visited May 24, 2012) [hereinafter *Doctor's Degrees by Field of Study*].

14. *See, e.g.*, Carrie Lukas, *Studying Women and Science: Why Women's Lower*

However, despite overall gains in academics as a whole, women are still underrepresented in STEM fields. In 2003, women constituted 37% of scientists, 33% of mathematicians, and only 14% of engineers.[15] Although women earn the majority of bachelor's and master's degrees, women still earn fewer science degrees at all levels in comparison to their male counterparts.[16] The greatest deficiency of women is found in the field of engineering.[17] In 2008-09, women earned 18% of engineering bachelor's degrees, 22.4% of master's degrees, and 21.7% of doctoral degrees.[18]

These statistics did not go unnoticed. In 2000, Debra Rolison, a chemist at the U.S. Naval Research Laboratory, was among the first to propose the Application of Title IX to STEM fields.[19] She called for the "withdrawal of federal dollars" in order to "move[] the environment toward one more amenable to women."[20] In 2004, due to "increased interest about women's access to mathematics, engineering, and science," the GAO released a report calling for greater Title IX compliance in those fields.[21]

The discourse over women in STEM fields reached a fever pitch when Lawrence Summers, then President of Harvard University, stated that the lack of women in science might be due to innate gender differences in aptitude.[22] Numerous women's rights groups

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*Rate of Participation in Science, Technology, Engineering, and Mathematics Courses Isn't a Problem for the Government to Solve*, INDEP. WOMEN'S F. 1, 5, 5 fig. 1 (May 2008) (delineating roughly equal gender ratios at Ivy League schools); Alex Williams, *The New Math on Campus*, N.Y. TIMES, Feb. 7, 2010, at ST1 (raising a similar assertion).

15. GAO REPORT, *supra* note 4, at 14.

16. The one exception is in the field of life sciences, in which women earn a greater number of bachelor's and master's degrees. *Id.* at 16.

17. *See* Pieronek, *supra* note 8, at 293-95.

18. *See Bachelor's Degrees Conferred by Degree-Granting Institutions, by Sex, Race/Ethnicity, and Field of Study: 2008-09*, NAT'L CTR. FOR EDUC. STATISTICS, http://nces.ed.gov/programs/digest/d10/tables/dt10_297.asp (last visited Mar. 22, 2012) [hereinafter *Bachelor's Degrees by Field of Study*]; *Master's Degrees Conferred by Degree-Granting Institutions, by Sex, Race/Ethnicity, and Field of Study: 2008-09*, NAT'L CENTER FOR EDUC. STATISTICS, http://nces.ed.gov/programs/digest/d10/tables/dt10_300.asp (last visited May 24, 2012); *Doctor's Degrees by Field of Study*, *supra* note 13.

19. *See* Debra R. Rolison, *A Title IX Challenge*, CHEM. & ENG'G NEWS, Mar. 13, 2000, at 5; Debra R. Rolison, *Title IX for Women in Academic Chemistry: Isn't a Millennium of Affirmative Action for White Men Sufficient?*, *in* WOMEN IN THE CHEMICAL WORKFORCE: A WORKSHOP REPORT TO THE CHEMICAL SCIENCES ROUNDTABLE 74 (2000) [hereinafter Rolison, *Academic Chemistry*], *available at* http://www.ncbi.nlm.nih.gov/books/NBK44855/pdf/TOC.pdf.

20. Rolison, *Academic Chemistry*, *supra* note 19, at 85.

21. GAO REPORT, *supra* note 4, at 30.

22. *See* Daniel J. Hemel, *Summers' Comments on Women and Science Draw Ire*, HARV. CRIMSON, Jan. 14, 2005, http://www.thecrimson.com/article/2005/1/14/summers-comments-on-women-and-science.

have since called for greater Title IX compliance within STEM fields. Such groups include the National Organization for Women,[23] the American Association of University Women,[24] and the National Coalition for Women and Girls in Education.[25] Members of Congress have also called for more stringent enforcement of Title IX in STEM fields,[26] as has President Obama.[27]

In response to growing calls for congressional scrutiny, federal agencies have started examining the issue of women in STEM fields more closely. NASA has already begun to improve and expand upon its level of Title IX compliance.[28] Similar efforts are underway within the Department of Energy, the National Science Foundation, and the National Institutes of Health;[29] and the Department of Education has looked into its own compliance regime as well.[30] Members of these agencies have started conducting on-site compliance reviews—in some cases for the first time—at university campuses across the country.[31]

### *B. Title IX in STEM: Fears, Fantasies, and Legal Realities*

Increasing the participation of women in STEM fields is a worthwhile goal, and Title IX may play some role in reaching it. However, before discussing whether and how Title IX should be applied, one must consider what is legally possible under the current Title IX regime.

Some staunch advocates of gender equity in STEM have asserted

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23. *See* Kim Gandy, *Opposing View: End the Discrimination: Girls Interested in Math, Science Are Discouraged at Every Turn*, NAT'L ORG. FOR WOMEN (Oct. 12, 2007), http://www.now.org/issues/title_ix/2007-10-12oped.html.

24. *See* CATHERINE HILL ET AL., AM. ASS'N OF UNIV. WOMEN, WHY SO FEW?: WOMEN IN SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS 91 (2010).

25. *See, e.g.*, THE NAT'L COAL. FOR WOMEN AND GIRLS IN EDUC., TITLE IX AT 35: BEYOND THE HEADLINES: A REPORT OF THE NATIONAL COALITION FOR WOMEN AND GIRLS IN EDUCATION 16-17 (2008).

26. *See, e.g.*, Ron Wyden, *Title IX and Women in Academics*, COMPUTING RES. NEWS, Sept. 2003, at 1.

27. Jessie DeAro, *Bringing Title IX to Classrooms and Labs*, THE WHITE HOUSE (June 24, 2010, 4:00 PM), http://www.whitehouse.gov/blog/2010/06/24/bringing-title-ix-classrooms-and-labs.

28. *See* NASA, NP-2009-06-592-HQ, TITLE IX & STEM: PROMISING PRACTICES FOR SCIENCE, TECHNOLOGY, ENGINEERING, & MATHEMATICS 6 (2009), http://odeo.hq.nasa.gov/documents/71900_HI-RES.8-4-09.pdf.

29. Representatives from each of these agencies met to discuss Title IX compliance measures. *See* CYNTHIA M. FRIEND & KENDALL N. HOUK, WORKSHOP ON BUILDING STRONG ACADEMIC CHEMISTRY DEPARTMENTS THROUGH GENDER EQUITY 1 (2006), http://www.seas.harvard.edu/friend/GenderEquity_report+cover.pdf.

30. Press Release, U.S. Dep't of Educ., U.S. Education Secretary Duncan Commemorates 38th Anniversary of Title IX (June 23, 2010).

31. *See* Yudhijit Bhattacharjee, *U.S. Agencies Quiz Universities on the Status of Women in Science*, SCI. MAG., Mar. 30, 2007, at 1776.

that Title IX should be "used as a tool to change the gender composition" of STEM fields.[32] Additionally, some have suggested that Title IX should be used to address perceived, covert bias within academia, not just instances of overt gender discrimination.[33] Critics have expressed concerns that STEM fields might eventually be subject to criteria similar to the proportionality standard that governs Title IX athletics inquiries.[34] One commentator argues that "any engineering, physics, math or computer-technology program that moves too slowly toward gender parity is inviting a government investigation and loss of funding."[35]

Are hopes (or fears) of "gender balancing" in STEM fields valid given current Title IX law? As of now, the answer is no. From a survey of the law as it stands today, two things become evident: Title IX cannot be applied to academics in the same way it has been applied to athletics, and in the academic context, Title IX establishes a high burden of proof in order for a school to be privately liable. Moreover, the current Title IX regulations in place make gender balancing highly unlikely in the context of administrative compliance reviews. Future congressional or regulatory action, however, may expand the scope of Title IX in ways that make schools culpable for gender imbalances in STEM programs.

## III. THE HISTORY OF TITLE IX

### *A. Statutory and Regulatory History of Title IX*

In 1972, Congress passed the statute known as Title IX to stave off discrimination against women in the educational arena. Title IX provides: "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 . . . ."[36] Because Congress passed Title IX without any hearings or committee reports, there is little legislative history to draw upon,[37] other than debates and

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32. Richard N. Zare, *Sex, Lies, and Title IX*, 84 CHEM. & ENG'G NEWS 46 (2006). *See also* Rolison, *Academic Chemistry*, *supra* note 19, at 75 (suggesting that federal funding be cut from "universities that don't have a minimum number of female faculty in their science and engineering departments").

33. *See, e.g.*, Rolison, *Academic Chemistry*, *supra* note 19, at 80-86.

34. *See* Lukas, *supra* note 14, at 24.

35. Christina Hoff Sommers, *Gender Bias Bunk*, FORBES.COM (Feb. 11, 2010, 10:00 AM), http://www.forbes.com/forbes/2010/0301/opinions-women-national-science-foundation-on-my-mind.html.

36. 20 U.S.C. § 1681(a) (2006).

37. *See* Jill K. Johnson, Note, *Title IX and Intercollegiate Athletics: Current Judicial Interpretation of the Standards for Compliance*, 74 B.U. L. REV. 553, 557 (1994).

statements by lawmakers.[38] Although this has clouded attempts to discern congressional intent in some respects, it is clear Congress rejected the use of quota requirements; § 1681(b) of Title IX explicitly states that the statute is not to be used for the purpose of gender balancing in schools.[39] The Title IX statute is seen as an extension of the Civil Rights Act of 1964, or Title VI,[40] which provided the basis for Title IX's scope and language.[41] Moreover, although Title IX is a product of congressional legislation, most of its specific dictates are administrative. The statute itself "sketches wide policy lines, leaving the details to regulating agencies."[42]

After Title IX became law, it was still unclear whether the statute was applicable to intercollegiate athletics. In 1974, Congress enacted the Javits Amendment, which empowered the Department of Health, Education, and Welfare ("HEW") to develop regulations for Title IX that "shall include with respect to intercollegiate athletic[s] . . . reasonable provisions considering the nature of particular sports."[43] As part of its overall Title IX regulatory framework, the HEW promulgated athletics-specific regulations, the last of which became effective in 1975.[44] The most pertinent among them was 34 C.F.R. § 106.41(c)(1), which provided that equal opportunity between the sexes is determined in part by "[w]hether the selection of sports and levels of competition effectively accommodate the interests and abilities of members of both sexes."[45]

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38. *See infra* Part V.A.

39. 20 U.S.C. § 1681(b) ("Nothing contained in subsection (a) of this section shall be interpreted to require any educational institution to grant preferential or disparate treatment to the members of one sex on account of an imbalance which may exist with respect to the total number or percentage of persons of that sex participating in or receiving the benefits of any federally supported program or activity, in comparison with the total number or percentage of persons of that sex in any community, State, section, or other area . . . .").

40. Pub. L. No. 88-352, § 601, 78 Stat. 241, 252 (1964) (codified as amended at 42 U.S.C. § 2000(d)) ("No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.").

41. *See* Johnson, *supra* note 37, at 557-58; Cannon v. Univ. of Chi., 441 U.S. 677, 694-98 (1979); Alexander v. Sandoval, 532 U.S. 275, 297 (2001) (Stevens, J., dissenting). Title IX also appears to comport with the case law and history of Title VI in its rejection of quotas. *See* Christopher Paul Reuscher, Comment, *Giving the Bat Back to Casey: Suggestions to Reform Title IX's Inequitable Application to Intercollegiate Athletics*, 35 AKRON L. REV. 117, 120 (2001).

42. Cohen v. Brown Univ. (*Cohen II*), 991 F.2d 888, 893 (1st Cir. 1993).

43. Education Amendments of 1974, Pub. L. No. 93-380, § 844, 88 Stat. 484 (codified as amended in scattered sections of 20 U.S.C.).

44. *See* 34 C.F.R. § 106.37 (2012) (regarding the distribution of athletic scholarships); *id.* § 106.41 (regarding athletics generally).

45. *Id.* § 106.41(c)(1).

In 1979, the Office for Civil Rights of the Department of Education ("OCR") formulated a "Policy Interpretation" of the regulations in order to clarify the scope of Title IX athletics requirements.[46] Among other provisions, it specifically addressed 34 C.F.R § 106.41(c)(1) by outlining three ways in which schools would be assessed regarding their ability to effectively accommodate student interests and abilities:

> (1) Whether intercollegiate level participation opportunities for male and female students are provided in *numbers substantially proportionate to their respective enrollments*; or
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> (2) Where the members of one sex have been and are underrepresented among intercollegiate athletes, whether the institution can show a *history and continuing practice of program expansion* which is demonstrably responsive to the developing interest and abilities of the members of that sex; or
>
> (3) Where the members of one sex are underrepresented among intercollegiate athletes, and the institution cannot show a continuing practice of program expansion such as that cited above, whether it can be demonstrated that the *interests and abilities of the members of that sex have been fully and effectively accommodated* by the present program.[47]

In order to be found noncompliant, a university must fail all three criteria of the OCR test, and during a Title IX assessment, the three parts "may be considered consecutively."[48] However, the first section of the three-part OCR test has been the most determinative and has arguably "mandate[d] a de facto quota system."[49] This is reflected in the current Title IX case law.

### *B. Title IX Athletics Case Law*

In the seminal case of *Cohen v. Brown University*, members of the women's volleyball and gymnastics teams at Brown University brought a class action suit against the school on behalf of "all present and future Brown University women students and potential students who participate, seek to participate, and/or are deterred from participating in intercollegiate athletics funded by Brown."[50] In

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46. 44 Fed. Reg. 71413 (1979). *See* Charles Spitz, *Gender Equity in Intercollegiate Athletics as Mandated by Title IX of the Educational Amendments Act of 1972: Fair or Foul?*, 21 SETON HALL LEGIS. J. 621, 629 (1997).

47. 44 Fed. Reg. 71413 (1979) (emphasis added).

48. VALERIE M. BONETTE & LAMAR DANIEL, U.S. DEP'T OF EDUC., TITLE IX ATHLETICS INVESTIGATOR'S MANUAL 21 (1990).

49. *See* Donald C. Mahoney, Note and Comment, *Taking a Shot at the Title: A Critical Review of Judicial and Administrative Interpretations of Title IX as Applied to Intercollegiate Athletic Programs*, 27 CONN. L. REV. 943, 954 (1995).

50. Cohen v. Brown Univ. (*Cohen I*), 809 F. Supp. 978, 979 (D.R.I. 1992). The *Cohen* plaintiffs were entitled to a private right of action under a theory that the

ruling for the plaintiffs, the district court deferred to the OCR three-part test, finding, in part, that the university did "not have a 'substantially proportionate' ratio of male and female varsity athletes relative to their respective undergraduate enrollments."[51] On appeal, the First Circuit affirmed, supporting the district court's deference to the OCR test and endorsing elimination of men's teams as a way to achieve Title IX compliance.[52] On remand, the district court rejected Brown's argument that gender disparities might be due to differences in athletic interest, noting, in part, that "it would be almost impossible for an institution to remain in compliance with Title IX by staying abreast of the ever-changing relative 'interests' of its . . . students and adjusting its program offers accordingly."[53]

The proceedings in *Cohen* set the tone for future Title IX athletics decisions. In *Favia v. Indiana University of Pennsylvania*, plaintiffs sued after the university eliminated the women's field hockey and gymnastics programs.[54] The cuts reduced the percentage of female athletes from 37.77% to 36.51%, compared to an undergraduate female enrollment of 55.61%.[55] Mirroring the reasoning in *Cohen*, the court in *Favia* deferred to the OCR three-part test and used the school's lack of gender proportionality to find the university in violation of Title IX.[56]

In *Roberts v. Colorado State University*, members of a women's softball team sued the university after it cut their team from the athletics program.[57] The court, relying heavily on the three-part test, found in favor of the plaintiffs.[58] Chief among the court's findings was that the university failed the first prong of the test due to a gender disparity of 10.6% in the school's athletics program compared

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school intentionally discriminated against women's teams. *Cohen II*, 991 F.2d 888, 892-93 (1st Cir. 1993); *see also infra* Part IV.B.i (discussing requirements for private Title IX lawsuits).

51. *Cohen I*, 809 F. Supp. at 991. The court found that, during the 1991-92 school year, varsity sports participation comprised of 63.4% men and 36.6% women. That same year, the undergraduate enrollment consisted of 51.8% of men and 48.2% women. *Id.*

52. *Cohen II*, 991 F.2d at 898 n.15 ("Title IX does not require that a school pour ever-increasing sums into its athletic establishment. If a university prefers to take another route, it can also bring itself into compliance with the first benchmark of the accommodation test by subtraction and downgrading, that is, by reducing opportunities for the overrepresented gender . . . .").

53. Cohen v. Brown Univ. (*Cohen III*), 879 F. Supp. 185, 206 n.44 (D.R.I. 1995), *aff'd in part and rev'd in part*, 101 F.3d 155 (1st Cir. 1996).

54. 812 F. Supp. 578, 580 (W.D. Pa. 1993), *aff'd*, 7 F.3d 332 (3d Cir. 1993).

55. *Id.* at 580.

56. *Id.* at 584-85.

57. 814 F. Supp. 1507, 1509 (D. Colo. 1993), *aff'd in part and rev'd in part sub nom.* Roberts v. Colo. State Bd. of Agric., 998 F.2d 824 (10th Cir. 1993).

58. *Id.* at 1518-19.

to undergraduate enrollment.[59] In both *Favia* and *Roberts*, the courts rejected budgetary constraints as a defense.[60]

Recent Title IX athletics cases have continued to adopt the arguments set forth in *Cohen*, *Favia*, and *Roberts*.[61] While suits by female plaintiffs have been successful, challenges to Title IX by male plaintiffs whose teams faced elimination have all failed at the circuit level.[62] Men's teams have also faced some counterintuitive setbacks. In 2010, a district court ruled that competitive cheerleading could not be considered a sport for Title IX compliance purposes.[63] Such decisions have compounded the difficulty schools face in showing adequate female participation and avoiding the forced elimination of their men's teams.

Title IX athletics case law illustrates how schools can be liable for failing to achieve gender parity in athletics programs, and how meeting proportionality requirements often seems to be the only guarantee of avoiding Title IX litigation in this context.[64] Moreover, recent cases demonstrate how courts have actually encouraged

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59. *Id.* at 1513, 1518-19. Although the school argued under prong two that it was actively working toward proportionality by cutting men's baseball, the court found this argument unavailing since it did not represent a sincere effort to expand opportunities for women. *Id.* at 1514.

60. *Id.* at 1518 (noting that "a financial crisis cannot justify gender discrimination"); *Favia*, 812 F. Supp. at 583 ("Title IX does not provide for any exception to its requirements simply because of a school's financial difficulties.").

61. *But see* Pederson v. La. State Univ., 912 F. Supp. 892, 914 (M.D. La. 1996), *aff'd in part & rev'd in part*, 201 F.3d 388 (5th Cir. 2000) (rejecting substantial proportionality test on grounds that it contradicts the statutory text of Title IX, 20 U.S.C. § 1681(b) (2006)). The *Pederson* court, rejecting *Cohen's* premise that men and women have equal interest in sports, asserted that athletic interest and ability may vary from school to school. *Id.* at 913-14.

62. *See, e.g.*, Kelley v. Bd. of Trs., 35 F.3d 265, 272-73 (7th Cir. 1994); Chalenor v. Univ. of N.D., 291 F.3d 1042, 1049 (8th Cir. 2002); Nat'l Wrestling Coaches Ass'n v. U.S. Dep't of Educ., 263 F. Supp. 2d 82, 129-30 (D.D.C. 2003).

63. Biediger v. Quinnipiac Univ., 728 F. Supp. 2d 62, 94 (D. Conn. 2010); *see also* Ashlee A. Cassman, *Bring It On! Cheerleading vs. Title IX: Could Cheerleading Ever Be Considered an Athletic Opportunity Under Title IX, and if So, What Implications Would That Have on University Compliance?*, 17 SPORTS LAW. J. 245, 254-55 (2010) (distinguishing between conceptions of traditional cheerleading and modern day competitive cheerleading).

64. Schools that fail the proportionality test can, in theory, fall back on the second or third prongs of the OCR test as an alternative means of demonstrating compliance. However, this is essentially a Hobson's choice since schools have little hope of succeeding on these criteria. *See, e.g.*, David Aronberg, *Crumbling Foundations: Why Recent Judicial and Legislative Challenges to Title IX May Signal Its Demise*, 47 FLA. L. REV. 741, 786 (1995) (noting that the second and third prongs of the test are "nearly impossible to satisfy"); Allison Kasic, *Trends in Title IX*, INDEP. WOMEN'S FORUM (Mar. 30, 2007), http://www.iwf.org/news/2432972/Trends-in-Title-IX ("[P]roportionality is the only measure that provides quantitative proof of compliance. The other prongs are subjective and leave schools in a vulnerable position. The NCAA itself recognizes proportionality as the only measure of compliance.").

schools to cut men's teams as a means of compliance.

While advocates of current developments in Title IX see the law as a rectification of decades of injustice against female athletes, one may argue that injustice cuts both ways and can be felt by members of either gender.[65] Indeed, male athletes feel no less aggrieved when deprived of their athletics programs.[66] Proportionality requirements, rather than eliminating injustice, can often shift the perception of injustice from members of one gender to the other. This is precisely why striking an appropriate balance between preserving and expanding upon gains made by female athletes and avoiding unfair injury toward male athletes has been so challenging. Accordingly, lawmakers have periodically sought to revise Title IX regulations to address competing concerns of fairness.

### *C. Recent Regulatory Developments*

Some members of universities and male athletics teams criticized the Title IX regulatory approach for being overly formulaic and for ignoring the role of varying student interest in athletics.[67] As one commentator noted, "[t]he proportionality test purports to be a test of gender fairness, but its logic rests on one critical and dubious assumption, that males and females at every college in the nation have an equal desire to play competitive team sports."[68] In 2003, the Department of Education created an advisory panel designed to study Title IX and its effects and formulate more comprehensive

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65. Arguments raised by federal courts seem to offer a somewhat perverted view of Title IX's guarantee against gender discrimination at any level. *Compare, e.g.*, Kelley v. Bd. of Trs., 832 F. Supp. 237, 242 (C.D. Ill. 1993) ("[A]ccording to the regulations and the case law, members of the men's swimming team have not been discriminated against under Title IX. Even though elimination of their program excluded them from varsity participation as individuals, the percentage of all men participating in the varsity program is more than 'substantially proportionate' to the percentage of men represented by the undergraduate population."), *with* 20 U.S.C. § 1681(a) ("No person . . . shall, on the basis of sex, be excluded from participation in . . . any educational program or activity . . . ."), *and* § 1681(b) ("Nothing contained in subsection (a) . . . require[s] any educational institution to grant preferential . . . treatment to the members of one sex on account of an imbalance which may exist with respect to the total number or percentage of persons of that sex participating in any . . . program or activity . . . .").

66. Rationales for remedying past discrimination may offer little solace to a male athlete who has trained for a sport for his entire life only to find his team eliminated at the college level. *See* WELCH SUGGS, A PLACE ON THE TEAM: THE TRIUMPH AND TRAGEDY OF TITLE IX, at 139-40 (2005).

67. *See* U.S. DEP'T OF EDUC., "OPEN TO ALL": TITLE IX AT THIRTY 3-4 (2003) [hereinafter OPEN TO ALL].

68. Katherine Kersten, Senior Fellow, Ctr. of the Am. Experiment, The Secretary of Education's Commission on Opportunity in Athletics (Sept. 17, 2002), *available at* http://www2.ed.gov/about/bdscomm/list/athletics/transcript-091702.pdf.

guidelines for existing regulations.[69]

In 2005, the OCR promulgated a new regulation allowing schools to use a school-wide "Model Survey" to gauge student interest in athletics by gender.[70] Rather than replace the three-part test, the survey was designed to help schools comply with the third prong of "fully and effectively accommodat[ing]" the interests and abilities of the underrepresented sex.[71] The survey, if properly administered, would serve as "an accurate measure of student interest."[72] The school would need only to satisfy that level of interest to comply with prong three of the three-part test.[73]

However, the Model Survey was intensely criticized by women's rights advocates and the NCAA.[74] Some attacked provisions that sanctioned e-mail as a distribution medium.[75] Others argued that the guidelines were too broad and gave schools too much discretion.[76] Additional criticisms of the Model Survey included its failure to address the influence of negative gender stereotypes, the survey's methodology itself, and concerns that it would water down the rigors of the three-part test by undermining compliance with the first two prongs.[77]

In 2010, instead of revising the Model Survey to address these criticisms, the Department of Education eliminated it altogether.[78] Since 2010, there has been no subsequent regulation or clarification to help schools determine students' actual level of interest by gender.

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69. OPEN TO ALL, *supra* note 67, at 1.

70. U.S. DEP'T OF EDUC., OFFICE FOR CIVIL RIGHTS, ADDITIONAL CLARIFICATION OF INTERCOLLEGIATE ATHLETICS POLICY: THREE-PART TEST—PART THREE 5 (2005) [hereinafter 2005 CLARIFICATION].

71. *Id.* at 1-2; Title IX and Intercollegiate Athletics, 44 Fed. Reg. 71,418 (Dec. 11, 1979) (to be codified at 45 C.F.R. pt. 86).

72. 2005 CLARIFICATION, *supra* note 70, at 6.

73. *Id.* at 7.

74. *See, e.g.*, Press Release, Nat'l Women's Law Ctr., Bush Administration Weakens Title IX (Mar. 21, 2005); Press Release, Nat'l Collegiate Athletic Ass'n, In Honor Of Title IX Anniversary NCAA Urges Department Of Education To Rescind Additional Clarification Of Federal Law (June 22, 2005).

75. *See, e.g.*, Katherine B. Woliver, Note, *Title IX and the "E-Mail Survey" Exception: Missing the Goal*, 18 S. CAL. INTERDISC. L.J. 463, 473-75 (2009); Robin M. Preussel, Note, *Successful Challenge, Ruling Reversed: Why the Office of Civil Rights' Survey Proposal May Be Well-Intentioned But Misguided*, 13 SPORTS LAW. J. 79, 117-18 (2006).

76. Preussel, Note, *supra* note 75, at 118-19.

77. *See, e.g.*, Nat'l Collegiate Athletic Ass'n, *supra* note 74; Erin E. Buzuvis, *Survey Says . . . A Critical Analysis of the New Title IX Policy and a Proposal for Reform*, 91 IOWA L. REV. 821, 869-73 (2006).

78. Letter from Russlynn Ali, Assistant Sec'y for Civil Rights, U.S. Dep't of Educ., Office for Civil Rights (Apr. 10, 2010).

## IV. AN ANALYSIS OF TITLE IX ACADEMICS LAW AND ITS APPLICATION

### *A. Differences Between Title IX in Athletics and Academics*

Title IX athletics jurisprudence cannot be applied to Title IX cases regarding academics. First, the proportionality requirement that courts have relied upon in numerous Title IX cases, originating with *Cohen v. Brown University*,[79] is textually limited to athletics. As mentioned *supra*, the legal basis behind the *Cohen* decision, which sanctioned proportionality as a measure of Title IX compliance, was not derived from the language of Title IX but from subsequent administrative regulations.[80] While Title IX itself applies to all educational programs,[81] the relevant section of the OCR Policy Interpretation explicitly relates to "accommodating the interests and abilities of male and female *athletes*."[82] Because the language of the Policy Interpretation is limited to Title IX compliance in athletics, *Cohen* and its progeny are not directly applicable to the academic context.

Second, Title IX athletics case law deals with treatment of athletic teams, rather than individual students.[83] This is particularly relevant when considering the forms of legal action that may result from a Title IX violation. A school's decision to favor a men's team at the expense of a women's team may be viewed as an intentional act of discrimination, creating the potential for a private right of action.[84] The plaintiffs in *Cohen* filed a class action based on a similar theory.[85] In the academic context, such arguments will be limited to situations where a complainant can show that the scarcity of female students is the result of intentional exclusion or gender favoritism.[86]

Third, the legal framework that has developed around Title IX

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79. 991 F.2d 888 (1st Cir. 1993).

80. *See* 34 C.F.R. § 106.41(c)(1); Title IX and Intercollegiate Athletics, 44 Fed. Reg. 71,418 (Dec. 11, 1979) (to be codified at 45 C.F.R. pt. 86) (allowing for consideration of whether "participation opportunities for male and female students are provided in numbers substantially proportionate to their respective enrollments").

81. *See* 20 U.S.C. § 1687 (2006).

82. 44 Fed. Reg. at 71418 (emphasis added).

83. Pieronek, *supra* note 8, at 305-06.

84. *See infra* Part IV.B.i (discussing how schools are privately liable under Title IX only for *intentional* acts of discrimination).

85. *See Cohen II*, 991 F.2d 888, 893 (1st Cir. 1993) ("The plaintiffs charged that Brown's athletic arrangements violated Title IX's ban on gender-based discrimination, a violation that was allegedly exacerbated by Brown's decision to devalue the two women's programs without first making sufficient reductions in men's activities or, in the alternative, adding other women's teams to compensate for the loss.").

86. *See, e.g.*, Johnson v. Bd. of Regents of the Univ. Sys. Of Ga., 106 F. Supp. 2d 1362 (S.D. Ga. 2000) (challenging point-based admissions system that favored male applicants). Within the STEM context, such complaints may also potentially address unequal allocations of laboratory time and access to equipment based on gender.

athletics cases anticipates an environment where men's and women's programs are separately funded. In academia, both sexes are integrated into the same programs and share equally in their resources. A female student seeking to join an engineering program will be limited to the extent that the school's practices, policies, or procedures discriminate based on gender.

In athletics, however, the competition between men and women "involves a broader battle for properly allocated resources."[87] While any student can choose to major in physics, a female student's interest in playing tennis or field hockey will be limited by a school's willingness to provide support for such activities. Schools ultimately choose how to distribute funding, facilities, and scheduling between men's and women's programs, and the allocation of resources may be driven by gender favoritism. This form of discrimination is more easily quantifiable. As such, statistical gender disparities in athletics, while not dispositive of a Title IX violation, can be incredibly probative.

The fact that sports programs are segregated by gender makes it possible to "focus on the *actual results* of attempts to achieve equity," namely, whether men and women receive a quantifiable level of equivalent funding, benefits, facilities, and athletic opportunities.[88] Because students can be precluded from participation in sports based on inequitable distribution of scarce resources, the discrepancy between student interest and participation by gender becomes more relevant. Lack of female participation may be due to lack of accommodation rather than lack of interest. In academics, however, where resources are equally shared and open to all, Title IX compliance deals less "with the number of women who study in or graduate from a particular program" and more with whether a program provides an equitable environment in which both sexes can fairly participate.[89]

Because the facts and circumstances surrounding Title IX athletics case law are unique to that context, such decisions are distinguishable and have little bearing on matters regarding Title IX as it applies to STEM studies.

### *B. Current Application of Title IX in Academics*

Given that the legal framework for Title IX in athletics is inapplicable, it is necessary to look at the current limits of Title IX

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87. Pieronek, *supra* note 8, at 305.

88. *Id.* at 304.

89. *Id.*; *see also* Glenn George, *Forfeit: Opportunity, Choice, and Discrimination Theory Under Title IX*, 22 YALE J.L. & FEMINISM 1, 21 (2010) ("[T]o construe the failure to use proportional representation as an act of unlawful discrimination would surely go too far [in the academic context].").

within the academic setting. There are two main avenues for Title IX enforcement: private actions in civil court and administrative actions by the U.S. government.

1. Private Title IX Action

Although the Title IX statute does not explicitly provide a remedy for private plaintiffs, the Supreme Court has held that Title IX contains an implied right of action for civil litigants.[90] Such litigation can entail injunctive relief[91] or monetary damages[92] and is applicable to all school programs, not only those which receive federal aid.[93]

Private action requires a high burden of proof for a plaintiff to successfully claim a violation of Title IX. Namely, the plaintiff must show *intentional* discrimination on the part of the educational institution.[94] This often includes an intentional failure to act in the face of a known discriminatory practice. In the sexual harassment context, for example, an educational institution can only be liable if it is deliberately indifferent to known acts of harassment.[95]

This differs from "disparate impact" litigation, which concerns practices that, although not expressly prohibited by statute, tend to have a discriminatory impact on certain groups.[96] Such practices place defendants in opposition to administrative regulations that address such forms of "subtle or underlying" discrimination.[97]

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90. Cannon v. Univ. of Chi., 441 U.S. 677, 717 (1979).

91. *See, e.g.*, *id.* at 705; N. Haven Bd. of Educ. v. Bell, 456 U.S. 512, 518 (1982).

92. *See, e.g.*, Franklin v. Gwinnett Cnty. Pub. Sch., 503 U.S. 60, 75-76 (1992).

93. *See* Civil Rights Restoration Act of 1987, Pub. L. No. 100-259, 102 Stat. 28 (1988) (codified as amended at 20 U.S.C. § 1687 (2006)) ("program" refers to "all the operations of" an educational institution).

94. *See* Lucy M. Stark, *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*, 31 HARV. J.L. & GENDER 101, 124-27 (2008).

95. Gebser v. Lago Vista Indep. Sch. Dist., 524 U.S. 274, 290 (1998) (finding school district not privately liable under Title IX because it lacked knowledge of teacher-on-student harassment); Davis v. Monroe Cnty. Bd. of Educ., 526 U.S. 629, 643 (1999) (extending deliberate indifference standard to instances of student-on-student sexual harassment).

96. *See* Alexander v. Sandoval, 532 U.S. 275, 281 (2001) (within context of racial discrimination under Title VI). Some legal scholars have referred to intentional discrimination as "disparate treatment," as distinguishable from "disparate impact." *See* Christine Jolls, *Antidiscrimination and Accommodation*, 115 HARV. L. REV. 642, 647 (2001) (noting that "the presence or absence of demonstrated intent is what distinguishes" the two forms of discrimination).

97. Jolls, *supra* note 96, at 652. *See, e.g.*, *Gebser*, 524 U.S. at 291 (quoting Department of Education regulation 34 C.F.R. § 106.8(b) (1997), which requires schools "to 'adopt and publish grievance procedures providing for prompt and equitable resolution' of discrimination complaints").

Although private disparate impact claims are available under Title VII[98] in cases of workplace discrimination,[99] they are not recognized under Title IX.[100]

The basis for Title IX's high standard of intentional discrimination derives from constitutional limitations.[101] Unlike Title VII, which is rooted in the Commerce Clause[102] and the 14th Amendment,[103] Title IX draws upon Congress' power under the Spending Clause.[104] Instead of establishing "an outright prohibition" against discrimination as in Title VII, Title IX operates as more of a conditional prohibition.[105] The statute "amounts essentially to a contract between the Government and the recipient of funds," which "condition[s] an offer of federal funding on a promise by the recipient not to discriminate."[106] As a result, it is critical that the recipient either intentionally discriminate or fail to remedy discriminatory practices of which it is made aware.[107]

Regarding the subject of this Note, calls for systematic change in STEM fields in order to increase the ranks of women[108] are unlikely to be answered by private Title IX action.[109] More importantly, if intentional discrimination is the yardstick courts use to determine private liability, schools cannot be privately liable for failing to

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98. 42 U.S.C. § 2000e to 2000e-17 (2006).

99. *See, e.g.*, Dothard v. Rawlinson, 433 U.S. 321, 332 (1977); Stark, *supra* note 94, at 125-26.

100. *Cf. Alexander*, 532 U.S. at 293 (holding that private action under Title VI cannot be based on administrative disparate impact regulations). Although the Supreme Court has never expressly extended the *Alexander* holding to Title IX, the similarities between the two statutes suggest that they would be treated similarly. *See supra* notes 40-41 and accompanying text. *But see* Stark, *supra* note 94, at 159-67 (arguing for extension of Title VII disparate impact analysis to Title IX cases involving graduate programs).

101. *See* Stark, *supra* note 94, at 126.

102. U.S. CONST., art. I, § 8, cl. 3; 42 U.S.C. § 2000e (defining "employer," in part, as an "industry affecting commerce").

103. U.S. CONST. amend. XIV, § 5. *See* Jolls, *supra* note 96, at 672-84 (arguing that disparate impact is related to Congress' power to enact legislation under the 14th Amendment). *But see* Stark, *supra* note 94, at 126 n.107.

104. U.S. CONST., art. I, § 8, cl. 1; *see* Gebser v. Lago Vista Indep. Sch. Dist., 524 U.S. 274, 287 (1998).

105. *Gebser*, 524 U.S. at 286.

106. *Id.*

107. *See id.* at 287; Franklin v. Gwinnett Cnty. Pub. Sch., 503 U.S. 60, 74 (1992).

108. *See, e.g.*, Rolison, *Academic Chemistry, supra* note 19, at 85 ("The environment is the problem, and the environment is populated by men.").

109. *See, e.g.*, Stark, *supra* note 94, at 128 ("When people talk about gender discrimination in the sciences, it is often in the form of nebulous, amorphous claims of 'hostility,' 'isolation,' and 'marginalization.'"). As mentioned *supra*, STEM programs must effectuate an environment of *intentional* harassment or discrimination in order to create liability for private Title IX action.

achieve a set ratio of men to women in the STEM context.[110]

While private Title IX action may be ill-suited to reach the goal of gender parity in STEM fields, the possibility of administrative action by the U.S. government is more likely. This is particularly true given the enduring potential for agencies to pass new Title IX regulations.

2. Title IX Compliance Reviews

While disparate impact discrimination cannot form the basis of a private Title IX suit, it can result in administrative action by the federal government.[111] One common approach is for the OCR to conduct an audit of a federally funded educational institution—either in response to a private complaint or of its own volition.[112] Educational institutions that have been given notice of a Title IX violation have an opportunity to comply with administrative regulations.[113] If these schools fail to do so, they risk having their federal funding suspended.[114]

Although federal agencies have promulgated numerous Title IX regulations, federally funded schools are generally subject to four main obligations.[115] First, a school must assure agencies that "education program[s] or activit[ies] . . . will be operated in compliance with" Title IX.[116] Second, a school must "designate at least one employee to coordinate its efforts to comply with and carry out its responsibilities under [Title IX]."[117] Third, a school must "adopt and publish grievance procedures providing for prompt and equitable resolution of" Title IX complaints.[118] Finally, a school must adequately disseminate information about its Title IX

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110. As discussed *supra*, Part IV.A, this is distinguishable from the athletics context, in which differing treatment of men's and women's teams, as evidenced by the proportion of students involved, may be viewed as an intentional act.

111. *See, e.g.*, Connolly & Adelman, *supra* note 6, at 854-55; Katie Thomas, *Women's Group Cites 12 Districts in Title IX Complaint*, N.Y. TIMES, Nov. 10, 2010, at B18 (illustrating complaints filed with OCR regarding gender disparities in high school athletics).

112. *See* 34 C.F.R. §§ 100.6-100.11 (2011) (adopted into 34 C.F.R. § 106.71 (2011)).

113. *See* 18 U.S.C. § 1682 (2006) ("[N]o such action shall be taken until the department or agency concerned has advised the appropriate person or persons of the failure to comply with the requirement and has determined that compliance cannot be secured by voluntary means."). Schools also have the right to challenge allegations through established procedures such as a formal hearing. *See* 34 C.F.R. §§ 100.6-100.11 (adopted into 34 C.F.R. § 106.71).

114. *See* 18 U.S.C. § 1682 (providing that compliance may be enforced "by the termination of . . . assistance" or "by any other means authorized by law").

115. *See* Pieronek, *supra* note 8, at 311.

116. 34 C.F.R. § 106.4.

117. *Id.* § 106.8(a).

118. *Id.* § 106.8(b).

nondiscrimination policy.[119] While agencies conduct compliance reviews, in part, to ensure that schools meet these criteria, they also use them to determine whether schools engage in gender discrimination. A finding of discrimination may result in mandatory "remedial action" as "necessary to overcome the effects of such discrimination."[120]

At present, Title IX advocates could seek stricter enforcement of these existing regulations in hopes of reducing systematic discrimination and thereby raising the proportion of women in STEM indirectly. There is some evidence that Title IX awareness is low among members of STEM programs, whose faculty and students often do not understand that Title IX regulations apply to academic disciplines as well as athletics.[121] Some schools have not established proper complaint procedures or kept adequate records of complaint data.[122] In light of these and other findings, agencies can conduct more stringent compliance reviews and increase the number of reviews themselves in order to prompt schools to take greater action.[123]

However, there is no evidence that the current compliance regime will have any controversial or dramatic effect on STEM fields, as critics fear. In fact, some scholars are myopic about the effectiveness of compliance reviews in their current form to begin with, suggesting that federal agencies lack "complete understanding of the environments they are investigating."[124] Accordingly, Title IX advocates may feel that current regulations do not go far enough and could seek the passage of new disparate impact regulations and legislation specific to gender discrimination in STEM. Such efforts would give Title IX compliance reviews sharper teeth.

At present there are few Title IX regulations that specifically address STEM disciplines.[125] However, there is little to prevent government agencies from passing new STEM-specific regulations in order to coax those fields into gender parity.[126] Such regulations may

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119. *Id.* § 106.9.

120. *Id.* § 106.3(a).

121. *See* GAO REPORT, *supra* note 4, at 10-11 (noting that the Department of Education conducts compliance reviews based, in part, by "issues raised by Congress or interest groups").

122. *Id.* at 10.

123. *Id.* at 11-12.

124. *See, e.g.*, Stark, *supra* note 94, at 152-53.

125. Nor is there any Title IX legislation specific to STEM. The most recent congressional bill addressing this issue was sent to committee and did not become law. *See* Fulfilling the Potential of Women in Academic Science and Engineering Act, H.R. 1144, 111th Cong. (1st Sess. 2009).

126. *See, e.g.*, Lukas, *supra* note 14, at 26 ("If Title IX is aggressively applied to academia, schools may begin seeking ways to steer students to and away from

be designed to indirectly address the gender composition of STEM programs by fashioning new categories of disparate impact discrimination. Regulations may also be tailored to punish schools directly for inadequate gender ratios in STEM programs, establishing guidelines that make schools as vulnerable for gender gaps within academic fields as they are for athletics.[127]

## V. POLICY CONSIDERATIONS

This Note will proceed by presenting some policy considerations to guide future congressional and regulatory action in this area. First, using Title IX to address gender ratios in academic disciplines would contradict the original intent behind the statute. Second, the urgency and necessity of rectifying gender imbalances in STEM is questionable given the recent trend of female ascendency over men in academics. Finally, gender disparities in STEM might be due to a lack of female interest rather than hidden gender bias.

### *A. Congressional Intent and the Use of Title IX as a Balancing Mechanism*

In discerning the scope of a federal statute such as Title IX, "the U.S. Supreme Court has recognized the importance of analyzing the legislative history to derive the intent of Congress as it applies to particular . . . situations."[128] Section 1681(b) of Title IX explicitly states that the statute is not to be used for the purpose of gender balancing in schools.[129] Representative Albert Quie asserted that this provision was enacted "[t]o make it absolutely certain there [would] not be a requirement of quotas in the graduate institutions and employment in institutions of higher education similar to the prohibition against preferential treatment for minorities under the Civil Rights Act."[130] The House Committee on Education and Labor voted overwhelmingly for its ratification, 90 to 1.[131]

Other statements by members of Congress further evidence that

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disciplines in order to achieve a [balanced] classroom mix.").

127. However, the form of legal liability would still differ from the athletics context. *See supra* Part IV.A.

128. Mahoney, *supra* note 49, at 945; *see also* N. Haven Bd. of Educ. v. Bell, 456 U.S. 512, 523-530 (1982) (examining congressional intent behind passage of Title IX); Greyhound Corp. v. Mt. Hood Stages, Inc., 437 U.S. 322, 332-36 (1978) (concerning intent behind the Clayton Act, 15 U.S.C. § 16(i) (1976)).

129. *See* 20 U.S.C. § 1681(b) (2006); *Bell*, 456 U.S. at 520 ("Our starting point in determining the scope of Title IX is, of course, the statutory language.").

130. 117 CONG. REC. 39,261-62 (1971). As the House sponsor of the bill, Representative Quie's "explanation deserves to be accorded substantial weight in interpreting the statute." FEA v. Algonquin SNG, Inc., 426 U.S. 548, 564 (1976) (internal citations omitted).

131. 117 CONG. REC. 39,262 (1971).

Title IX was never meant to take into account any quotas or ratios between males and females. Senator Evan Bayh stated that Title IX was "not designed to require specific quotas," but rather, "to do away with every quota."[132] In expressing his desire to end sex discrimination in education, Senator John Beall cautioned, "[a]s we eliminate [sex discrimination], I hope that we are not establishing still another form of bias."[133] Senator Claiborne Pell warned, "we must be sure that this type of amendment is not used to establish quotas for sex."[134] Current statements by these very members of Congress do not suggest any contrary intent.[135]

The record overwhelmingly shows that Congress condemned any attempts to use Title IX to create a proportionate gender balance.[136] Rather, the purpose of the statute was to end the practice of sex discrimination in educational institutions. As a result, future government action concerning Title IX in STEM should not focus on the number of women in a given field, either as a basis for Title IX violation or as proof of compliance.

### *B. The Impact on Men in STEM*

In imagining the contours of Title IX's future impact within STEM, it is also important to consider that much of the discourse over Title IX proceeds from an assumption that what was true in 1972 is still true today. Specifically, there is still a conception that women are the disadvantaged gender within academia, and that the educational context unfairly favors men. Much has changed since 1972.

Contrary to popular belief, women no longer "remain clustered in 'traditionally female' programs . . . that prepare them for low-wage careers."[137] In fact, women now earn 57% of undergraduate degrees,

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132. 117 CONG. REC. 30,409 (1971). In response to a question regarding a hypothetical graduate program with a 90:10 ratio of men to women, Senator Bayh noted, "I do not see how a 90[:]10 ratio has any relevance. The basis for determining compliance would not be an arbitrary ratio but the qualifications of the students who have made [the] application." *Id.*

133. 118 CONG. REC. 5813 (1972).

134. 118 CONG. REC. 18,438 (1972).

135. Although Senator Bayh recently called for greater Title IX compliance in STEM fields, he has still not endorsed the consideration of ratios or gender quotas. *See Title IX and Science Before S. Subcomm. on Sci., Tech., and Space of S. Comm. on Commerce, Sci., and Transp.*, 107th Cong. 3-8 (2002) (statement of Sen. Evan Bayh).

136. Some scholars have also argued that the proportionality standard in Title IX athletics cases is unconstitutional. However, this may be a result of judicial interpretation rather than the actual text of statutory and regulatory provisions. *See, e.g.*, Reuscher, *supra* note 41, at 148-50; Jennifer R. Capasso, Note, *Structure Versus Effect: Revealing the Unconstitutional Operation of Title IX's Athletics Provisions*, 46 B.C. L. REV. 825, 857-60 (2005).

137. Greenberger & Chaudhry, *supra* note 2, at 491.

and projections indicate that this number will rise over the next decade.[138] Women constitute an overwhelming majority in undergraduate fields such as education, psychology, and health-related sciences, and they constitute a clear majority in other fields such as nontechnical communications, liberal arts, languages, and literature.[139] High school girls are now more actively involved in extracurricular activities and leadership roles than their male counterparts,[140] and they boast higher rates of reading and writing proficiency at all grade levels.[141] In a dramatic turnaround from previous decades, it seems that women are now a force to be reckoned with in most aspects of student life.[142]

At the same time, the number of men relative to women in colleges and graduate programs has declined considerably.[143] Some

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138. *Degrees by Level of Degree*, *supra* note 9.

139. *Bachelor's Degrees by Field of Study*, *supra* note 18. Earlier data suggest that women constitute a majority in other specific fields, such as biology and accounting. *See* CATHERINE E. FREEMAN, U.S. DEPT. OF EDUC., NAT'L CTR. FOR EDUC. STATISTICS, NCES 2005-016, TRENDS IN EDUCATIONAL EQUITY OF GIRLS & WOMEN 78 tbl.29 (2004).

140. *See* FREEMAN, *supra* note 140, at 9 fig. G.

141. *Average Reading Scale Scores, 1992 Through 2009*, NAT'L CTR. FOR EDUC. STATISTICS, http://nces.ed.gov/programs/digest/d10/tables/dt10_125.asp (last visited Mar. 30, 2012). *But cf., e.g.*, Krista Kafer, *Taking the Boy Crisis in Education Seriously: How School Choice Can Boost Achievement Among Boys and Girls*, INDEP. WOMEN'S F. 6 (April 2007) (highlighting that in 2006 males scored slightly higher than females on the reading portion of the SAT).

142. However, it is worth noting that, despite women's advances over the last decades, men still predominate in the area of athletics and enjoy greater recognition for their talents than their female athletic counterparts. *See, e.g.*, Carrie Lukas, *Title IX A Losing Game for Men*, CBS NEWS (Jan. 31, 2011, 9:05 AM), http://www.cbsnews.com/stories/2007/03/30/opinion/main2629083.shtml (noting, for example, that "the men's NCAA basketball tournament continues to overshadow the women's"). The fact that this disparity in participation and appreciation still exists, given the myriad of Title IX regulations, might suggest that discrimination and "engrained sexism" are not to blame. *Id.* (positing other explanations). This may arguably apply within the STEM context as well. *See infra* Part V.C.

143. Ironically, the lower percentage of men in undergraduate programs has made it even harder for schools to meet Title IX's athletic proportionality requirements. This has been especially true when sports programs are required to mirror a student body that is more than 60% female. *See, e.g.*, *Quinnipiac University: Student Life*, U.S. NEWS & WORLD REPORT, http://colleges.usnews.rankingsandreviews.com/best-colleges/quinnipiac-university-1402/student-life (last visited May 28, 2012) (listing Quinnipiac University's undergraduate body as comprising 63.1% women in 2010). The declining number of men at colleges, when combined with proportionality requirements in athletics, may actually have the unintended effect of compelling universities to favor men in their admissions processes. *See* James Monks, *Title IX Compliance and Preference for Men in College Admissions* 27 (Cornell Higher Educ. Research Inst., Working Paper No. 80, 2005), *available at* http://digitalcommons.ilr.cornell.edu/cheri/30/. Admitting men who are less qualified than their female counterparts is no more fair than efforts that favor female STEM applicants regardless of their ability or interest.

have warned of a "Boy Crisis" in American education, citing a recent trend of poor test scores and higher rates of academic failure.[144] Boys comprise two-thirds of all students receiving special education services,[145] and a greater percentage of male students have reported drug and alcohol use.[146] Boys, as in decades past, still comprise a smaller number of high school graduates and a larger percentage of high school drop-outs.[147] In 2006, the California Postsecondary Education Commission released a report that highlighted how "[m]ales in every major ethnic group are underrepresented in relation to their representation in the state's population" at California colleges and universities.[148]

Lack of female participation in STEM, rather than part of a larger norm, is more of an aberration—an island in a sea of academic successes. This is not to suggest that the scarcity of women in STEM fields is not a valid concern. It does, however, raise questions of how urgent or necessary such concerns are in relation to women's overall success relative to men within the current academic climate, and in light of the fact that women now outnumber men in many important fields of study. In this regard, outrage over the lack of women in STEM seems somewhat one-sided. When considering calls to devote limited government resources to correcting the gender balance in male-heavy STEM fields, one has to wonder whether there will be any aggressive effort to rectify imbalances in female-dominated fields such as education, nursing, and psychology.[149]

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144. *See* Peg Tyre et al., *The Trouble with Boys; They are Kinetic, Maddening and Failing at School: Now Educators are Trying New Ways to Help Them Succeed*, NEWSWEEK, Jan. 30, 2006, at 44; *Educational Achievement*, THE BOYS INITIATIVE, http://theboysinitiative.org/factsfigures/educationalachievement.html (last visited May 28, 2012). *See generally* RICHARD WHITMIRE, WHY BOYS FAIL: SAVING OUR SONS FROM AN EDUCATIONAL SYSTEM THAT'S LEAVING THEM BEHIND (2010) (exploring the recent trend of male underperformance in American schools); Kafer, *supra* note 141 (similar premise).

145. Jennifer Tschantz & Joy Markowitz, *Gender and Special Education: Current State Data Collection*, PROJECT F., 1 (Jan. 2003), http://www.projectforum.org/docs/gender.pdf.

146. FREEMAN, *supra* note 139, at 54 tbl.18.

147. *High School Graduates*, NAT'L CTR. FOR EDUC. STATISTICS, http://nces.ed.gov/programs/digest/d10/tables/dt10_110.asp (last visited May 28, 2012); *Percentage of High School Dropouts*, NAT'L CTR. FOR EDUC. STATISTICS, http://nces.ed.gov/programs/digest/d10/tables/dt10_115.asp (last visited May 28, 2012).

148. CAL. POSTSECONDARY EDUC. COMM'N, THE GENDER GAP IN CALIFORNIA HIGHER EDUCATION 1 (2006).

149. *See* Lukas, *supra* note 14, at 26 ("At what point will it become untenable to invest solely in efforts to change the gender makeup of STEM fields while ignoring equally lopsided fields that favor women?"). Although some may argue that STEM fields offer a higher career salary potential, such considerations are beyond the scope of this Note, which is limited gender discrimination within the educational environment itself. Moreover, this Note seeks to avoid the risky endeavor of valuing

Matters of fairness are also more pronounced given the relative difficulties young males have been encountering in education.[150] Among those with the greatest difficulty have been young minority males,[151] and efforts at gender balancing in STEM may actually exacerbate their plight. For example, high school vocational programs, historically an avenue of advancement for young inner-city boys, may come under attack for not attaining gender equity. A 2008 report from the Office of the Public Advocate for the City of New York criticized public vocational (Career and Technical Education) schools for their severe underrepresentation of girls.[152] Among other suggestions, the report called for the Department of Education to "[m]eet and [e]xceed Title IX [r]equirements" in order to "achieve gender balance" in such schools.[153] However, the rationale for addressing gender quotas in these schools is tenuous since other New York City vocational schools, such as Manhattan's High School of Fashion Industries, enjoy an overwhelming majority of female students.[154] It is notable that these comparably male-deficient institutions have not been subject to the same potential criticism as other institutions, such as Queens's Aviation Career & Technical Education High School.[155] Such considerations are not unique to New York City schools and should guide the discourse over the scope and aims of new Title IX compliance efforts.[156]

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certain educational programs over others based on their potential for greater earnings.

150. In athletics, by contrast, while Title IX jurisprudence has led to the elimination of some men's teams, it is also true that athletics continues to be a largely male dominated field. *See supra* note 142.

151. *See, e.g.*, Kafer, *supra* note 141, at 5 (noting, in part, that the greatest discrepancy between boys' and girls' high school graduation rates occurs among minority students).

152. *See* BETSY GOTBAUM, OFFICE OF THE PUB. ADVOCATE FOR THE CITY OF N.Y., BLUE SCHOOL, PINK SCHOOL: GENDER IMBALANCE IN NEW YORK CITY CTE HIGH SCHOOLS (2008).

153. *Id.* at 11-12.

154. *See Register – The High School of Fashion Industries*, N.Y. CITY DEP'T OF EDUC., http://schools.nyc.gov/SchoolPortals/02/M600/AboutUs/Statistics/register.htm (last visited Mar. 30, 2012) (females accounted for 92.56% of the total student body as of March 2012).

155. *See Register – Aviation Career & Technical Education High School*, N.Y. CITY DEP'T OF EDUC., http://schools.nyc.gov/SchoolPortals/24/Q610/AboutUs/Statistics/register.htm (last visited Feb. 6, 2012) (females accounted for 14.75% of the total student body as of November, 2010).

156. Some have also expressed concern over the increase in mandatory federally funded gender bias workshops in STEM fields, which include interactive skits and activities such as "Gender Bias Bingo." *See* Christina Hoff Sommers, *Against STEMinars*, NAT'L REV. ONLINE (May 27, 2010, 4:00 AM), http://www.nationalreview.com/articles/229844/against-steminars-christina-hoff-sommers (criticizing expenditures for two STEM workshops that cost $300,000 and $3.9 million respectively). While this trend may be a compelling budgetary concern for fiscal watchdogs, it does not seem to present any undue burden to institutions or

This is not to suggest that efforts to close the gender gap in STEM fields must always be at odds with the challenges men face in today's academic climate. The two issues are not always mutually exclusive, and it is possible that the underrepresentation of women in STEM can be addressed alongside the challenges faced by males in the educational system.[157] Efforts to increase the number of students involved in STEM fields can be a positive-sum game, in which a greater female participation is part of an overall expanding level of student interest.[158] However, attempts to change the gender composition of STEM fields can also have the effect of bolstering the ranks of one gender at the expense of the other. In light of the new academic climate in which young males seem to be falling behind, policymakers should proceed with caution.

### *C. Gender Disparities in STEM Might Be Due to Differences in Interest Rather than Discrimination*

The argument for a vigorous application of Title IX in STEM presumes that discrimination is the root cause of the gender disparity in these fields. Although discrimination may be part of the problem,[159] the suggestion that discrimination is entirely—or even mostly—responsible for the dearth of women in STEM fields diminishes all other possible factors that might influence a student's decision to choose other fields of study. This Note rejects any notion that there are innate biological differences between men and women that cause differing aptitude in math and sciences.[160] Rather, widely divergent ratios between males and females in STEM may be the result of differing *interest* in STEM-related fields.[161]

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violate any principles of fairness.

157. *See, e.g.*, Christopher Drew, *Why Science Majors Change Their Minds (It's Just So Darn Hard)*, N.Y. TIMES, Nov. 6, 2011, at ED 16 (detailing systemic problems in STEM education that may affect all students).

158. *See infra* note 176 (discussing the changing perception of computer science programs and its effect on student interest).

159. *See infra* notes 177-79 and accompanying text (discussing early exposure to harassment).

160. Others, however, have made this argument. *See, e.g.*, David C. Geary, *An Evolutionary Twist on Sex, Mathematics, and the Sciences*, *in* THE SCIENCE ON WOMEN IN SCIENCE 170, 183-84 (Christina Hoff Sommers ed., 2009) (suggesting an evolutionary basis for gender differences in mathematical and scientific aptitude). *But see id.* at 184 ("The stakes are too high to attempt to institute policy and institutional change without a *full* understanding of sex differences in the development of scientific and mathematical talent and in the long-term progression of men and women in these fields.").

161. Developments within the Title IX athletics context may suggest that attempts to base compliance on levels of student interest might be unsuccessful. *See supra* Part II.B. However, this does not preclude the development of alternative and more acceptable methods of gauging student interest. *See* Woliver, *supra* note 75, at 480-82 (proposing a "quorum" mechanism by which interested students can petition their

Advocates of a strict proportionality standard have eschewed all factors besides pervasive negative gender stereotypes.[162] Such arguments, however, give no credence whatsoever to a lack of interest in STEM by women and are often as circular as arguments that solely blame women's lack of interest without acknowledging the role of discrimination.[163] These arguments might be valid in the STEM context if there were no plausible explanation to account for lack of interest in STEM other than gender bias at the school level. On the contrary, there are a myriad of factors at play, not simply "historic forms of discrimination."[164] Indeed, "[o]ne of the reasons that it is crucial to . . . explore more complete explanations for these disparities is because the choice of legal tools depends on an accurate identification of the problems at issue."[165]

Title IX compliance reviews are not intended to presume guilt on the part of educational institutions. Rather, they are meant to objectively ascertain the state of Title IX compliance in such institutions. Stricter compliance reviews should not be used as a proxy for the goal of establishing palatable gender ratios. Instead, lawmakers should be open to other possible causes of the gender imbalance and not be too quick to blame gender bias as the root cause preventing "efforts to recruit and retain women."[166]

There are many reasons for lawmakers to question the discrimination-as-cause hypothesis. For example, if graduate settings in STEM programs are uniquely suited to creating a hostile environment for women,[167] this does not explain why life sciences

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school for funding on a case-by-case basis).

162. *See, e.g.*, Buzuvis, *supra* note 77, at 845-46; KATHARINE T. BARTLETT & ANGELA P. HARRIS, GENDER AND LAW: THEORY, DOCTRINE, COMMENTARY 404-06 (2d. ed., 1998); 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, 1797-98 (1990).

163. The reasoning follows that stereotypes about women being less interested in certain pursuits leads to less female participation, which reinforces gender stereotypes about women's lack of interest.

164. STEPHEN J. CECI & WENDY M. WILLIAMS, UNDERSTANDING CURRENT CAUSES OF WOMEN'S UNDERREPRESENTATION IN SCIENCE 2 (Richard F. Thompson ed., 2011).

165. Stark, *supra* note 94, at 105.

166. *See* Schiebinger, *supra* note 7, at 378. Advocates of Title IX in STEM are sometimes guilty of reasoning through the problem deductively rather than inductively. Having already concluded that disparities in STEM are caused by discrimination, they may seek to use additional regulations as a means of ferreting out proof of this conclusion. *See, e.g.*, *id.* (calling for policymakers to require integrated gender analysis in federal science agencies in order to uncover proof of hidden gender bias). *But see* John Tierney, *A New Frontier for Title IX: Science*, N.Y. TIMES, July 15, 2008, at F1 ("The agencies that have been cutting financing for Fermilab and the Spirit rover on Mars are paying for investigations of a problem that may not even exist.").

167. *See, e.g.*, Rolison, *Academic Chemistry*, *supra* note 19, at 80-85; Stark, *supra*

enjoy a larger percentage of female students, as there is little evidence to suggest that life science programs are structured in a noticeably different way from STEM science programs.[168] Additionally, hostile environment claims are not unique to the STEM context. Fields such as medicine, for example, were still plagued by gender bias and implicit discriminatory practices even after the passage of Title IX in 1972.[169] Yet, since then, medical schools have experienced an explosive growth in their proportion of female students.[170] Implicit gender bias did not deter women from entering these fields, and in fact, the rapid influx of female talent helped ameliorate pervasive sexist attitudes.[171] Female interest in medicine remains consistent to this day despite evidence that some forms of gender bias still remain.[172] Discrimination cannot be the only explanation behind the lack of women in STEM.

When considering the proper approach to the issue of women in STEM studies, it is important to look at other factors that may shape young girls' interests in pursuing these fields. For example, young girls may avoid pursuing STEM studies because of fears of social alienation.[173] Interest in STEM subjects, such as mathematics, is often perceived as a social liability within youth culture—for both

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note 94, at 147-51.

168. In fact, the differences that do exist suggest that life science programs are less amenable to women's concerns than physical sciences. For example, biological sciences, which enjoy a greater percentage of women, usually require longer postdoctoral fellowships and more training prior to employment than female-deficient fields such as chemistry. Stark, *supra* note 94, at 121-22. The longer time spent in the academic "pipeline" delays entry into the workforce and often conflicts with family and childrearing responsibilities. *Id.*

169. *See, e.g.*, ELLEN S. MORE, RESTORING THE BALANCE: WOMEN PHYSICIANS AND THE PROFESSION OF MEDICINE, 1850-1995, at 219-35 (1999); ELIZA LO CHIN, THIS SIDE OF DOCTORING: REFLECTIONS FROM WOMEN IN MEDICINE 6-7 (2003).

170. While women constituted only 9.6% of enrolled medical students in 1970-71, that number reached 47.8% by 2009-10. *See* ASS'N OF AM. MED. COLLS., WOMEN IN U.S. ACADEMIC MEDICINE: STATISTICS AND BENCHMARKING REPORT 2009-10, at tbl.1 (2011).

171. *See, e.g.*, MORE, *supra* note 169, at 221-28.

172. *See, e.g.*, *id.* at 229-30.

173. *See, e.g.*, JANE MARGOLIS & ALLAN FISHER, UNLOCKING THE CLUBHOUSE: WOMEN IN COMPUTING 39 (2002) ("Friends . . . play a role in students' decisions about which courses to take."). Some earlier psychological studies suggest that school-age girls are more susceptible to peer pressure than boys. *See, e.g.*, Diane N. Ruble & Charles Y. Nakamura, *Task Orientation Versus Social Orientation in Young Children and Their Attention to Relevant Social Cues*, 43 CHILD DEV. 471 (1972) (arguing that young girls are more socially oriented and susceptible to social cues than young boys). However, more recent research has shown that the influence of gender on adolescent conformity can be complex and nuanced and often depends on specific circumstances. *See, e.g.*, Whitney A. Brechwald & Mitchell J. Prinstein, *Beyond Homophily: A Decade of Advances in Understanding Peer Influence Processes*, 21 J. RES. ADOLESCENCE 166, 172 (2011).

girls and boys—and this makes it especially difficult for girls to engage in such fields, even at a young age.[174] Addressing adolescent attitudes about STEM studies should be an important goal for educational institutions across the country,[175] and changing attitudes may actually help to increase overall interest in these fields regardless of gender.[176] However, young students' social perceptions should not be the basis for any form of institutional liability.

Girls might also be dissuaded from interest in STEM fields due to variables in their educational environments early on. Some girls, for example, may face early school environments that encourage harassment.[177] This is a problem that is certainly subject to Title IX enforcement at the secondary school level,[178] and efforts to root out discrimination and bias in childhood and adolescent environments should be encouraged. Even learning environments devoid of discriminatory influences can still have a subtle influence on young girls' interest in STEM. One study, for example, suggests that elementary school girls are more likely to be affected by a female teacher's math anxiety than the boys in their classroom.[179] However, these are issues that often discourage young women from entering STEM fields prior to the secondary school or undergraduate level. Educational institutions cannot, and should not, be held accountable for influences that may shape students' decisions before those students ever set foot on campus.

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174. *See, e.g.*, Sara Rimer, U.S. Failing to Promote *Math Skills, Study Finds*, N.Y. TIMES, Oct. 10, 2008, at A17; Wyden, *supra* note 26, at 8; MARGOLIS & FISHER, *supra* note 173, at 39.

175. *See, e.g.*, NERD GIRLS, http://www.nerdgirls.org/About.html (last visited May 28, 2012) (organization dedicated to "[b]reaking the stigmas and stereotypes of women in engineering"); John Davis, *Science: It's a Girl Thing*, TEX. TECH U., http://www.depts.ttu.edu/communications/news/stories/07-06-science-girls.php (last visited Mar. 30, 2012).

176. *See* Sapna Cheryan et al., *Ambient Belonging: How Stereotypical Cues Impact Gender Participation in Computer Science*, 97 J. PERSONALITY & SOC. PSYCHOL. 1045, 1058 (2009), www.ncbi.nlm.nih.gov/pubmed/19968418 (highlighting how studies show that both men and women preferred a non-stereotypical computer science environment). Changing social and cultural attitudes towards computer sciences have already had tangible effects on female enrollment. *See* Clair Cain Miller, *Computer Studies Made Cool, on Film and Now on Campus*, N.Y. TIMES, Jun. 11, 2011, at A1.

177. *See, e.g.,* NAT'L COAL. FOR WOMEN AND GIRLS IN EDUC., *supra* note 25, at 16, 23 (discussing influence of sexual harassment in deterring girls from pursuing computer science in high school); MARGOLIS & FISHER, *supra* note 173, at 34-37 (raising similar assertion).

178. *See supra* Part IV.b.i.

179. Sian L. Beilock et al., *Female Teachers' Math Anxiety Affects Girls' Math Achievement*, 107 PROC. NAT'L ACAD. SCI. 1860, 1861-62 (2010) (noting that "girls' math achievement is, at least in part, related to their confirmation of traditional academic gender beliefs—beliefs that are affected by the math anxiety levels of their female teachers").

## VI. POSSIBLE SOLUTIONS

Title IX may be appropriate to address certain systemic issues within STEM fields. Some have proposed that Title IX be used to facilitate a more suitable work-life balance in STEM fields in order to attract greater numbers of women seeking to raise families.[180] The tenure system in STEM graduate programs, for example, makes it more difficult for women to have children early in their careers.[181] Solutions might consist of an extended tenure clock or reduced teaching duties for faculty members that have children.[182] However, it should be noted that women face similar pressures in many fields.[183] Medical school is extremely demanding and time-consuming, and in spite of such difficulties, women now constitute close to half of all M.D. students.[184] Lawmakers should be cognizant of the difference between high-pressure environments in general and environments that have a disparate impact on women specifically.[185]

While Title IX may be appropriate in some circumstances, other solutions might be better implemented through general congressional resources and funding,[186] or by nongovernmental organizations. Such efforts might involve encouraging girls to pursue math and sciences at a young age,[187] providing career guidance and mentoring programs,[188] and reducing misconceptions and negative attitudes

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180. *See* GAO REPORT, *supra* note 4, at 22, 426-27.

181. CECI & WILLIAMS, *supra* note 164, at 5.

182. *See* GAO REPORT, *supra* note 4, at 25-26.

183. CECI & WILLIAMS, *supra* note 164, at 5.

184. *See* ASS'N OF AM. MED. COLLS., *supra* note 170. However, conflicts with family and childrearing responsibilities may be deterring women from entering careers in *academic* medicine. *See* MORE, *supra* note 169, at 249-50.

185. *See, e.g.*, Marina Angel et al., *Statistical Evidence on the Gender Gap in Law Firm Partner Compensation* (Temple University Legal Studies, Research Paper No. 2010-24, 2010), *available at* http://ssrn.com/abstract=1674630 (finding that the disparity in compensation between male and female partners at the 200 largest American law firms could be attributed to gender discrimination).

186. Although some have argued that taxpayers should not have to pay for efforts to boost female involvement in STEM studies, e.g., Lukas, *supra* note 14, at 30, the scope of this Note is limited to whether Title IX is an appropriate mechanism for doing so. Congress is well within its legal right to set aside funding for the advancement of women.

187. *See, e.g.*, *Wisconsin Girls Collaborative: Promoting Science, Technology, Engineering, Math & the Skilled Trades to Wisconsin Girls*, WIS. WOMEN'S COUNCIL, http://womenscouncil.wi.gov/section.asp?linkid=1644 (last visited May 28, 2012) (offering "[m]ini-grants of up to $1,000" for innovative programs or activities designed for "school-age girls focused on science, technology, engineering, math and/or the skilled trades").

188. *See, e.g.*, *Individual Awards*, SOC'Y WOMEN ENG'RS, http://societyofwomenengineers.swe.org/index.php?option=com_content&task=view&id=16&Itemid=43 (last visited May 28, 2012) (offering a yearly "Outstanding Faculty Advisor Award" for mentoring and developing women's leadership skills in the area of

about STEM studies.[189]

Regardless of the solutions proposed, lawmakers should be wary of efforts that punish schools for failing to achieve set gender ratios. Although the aforementioned efforts are aimed at encouraging more women to join the ranks of STEM practitioners, such efforts have no intrinsic guarantee of success. There may be a point at which differing levels of participation are entirely a matter of differing levels of interest. Lopsided gender distributions may be no more a result of discrimination in male-heavy STEM fields than in female-heavy fields such as psychology and education. Although schools should encourage greater female participation in STEM, they should not be held responsible for the choices students independently make for themselves.

## VII. CONCLUSION

Title IX was enacted with the intent to eliminate all forms of gender discrimination from academic institutions. Without a doubt, the rapid advancements of women in scholarly and athletic pursuits would not have been possible if not for such legislation. This is a development for which Congress and the courts should be proud. Additionally, lawmakers should welcome efforts to encourage greater participation in STEM fields. An influx of new female talent into science, technology, engineering, and mathematics would surely benefit these fields.

However, lawmakers must remember that Title IX was never intended to effectuate a gender balance among students. Title IX is certainly a viable mechanism to deal with specific instances of gender bias or discrimination and may play a role in alleviating some systemic factors that are detrimental to women. However, the deficit of women in STEM fields can be traced to a variety of factors besides discrimination, and Title IX should not be invoked reflexively as the default legal mechanism to address all aspects of the problem.

An inadequate ratio of women to men in STEM fields should not be the basis for Title IX liability, nor should equal gender proportions be viewed as the ultimate goal of compliance measures. This would do a disservice to the legacy of Title IX and undermine the steps that Congress and the courts have taken to create an equal playing field in American schools for both men and women.

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engineering).

189. *See supra* note 175.