

Positioning Women in the STEM Workforce: The Triumvirate of U.S. Anti-Discrimination Law in Context and Effect

Julie Walters, Department of Political Science, Oakland University
Connie L. McNeely, School of Public Policy, George Mason University
Sorina Vlaicu, School of Public Policy, George Mason University

Questions about women in the science, technology, engineering, and mathematics (STEM) workforce have become central issues on research and policy agendas around the world today. In the United States (U.S.), as elsewhere, gender inequities are recognised as critical factors for explaining patterns of occupational and sector disparities among STEM workers and, more, as reflections of basic societal dynamics and relations. Focusing on women in the STEM workforce, we look to the U.S. policy environment to determine analytical dimensions for examining legislative approaches to problems of gender representation and inequity relative to the changing social and political landscape. In particular, we provide an analysis of the 'triumvirate of U.S. anti-discrimination law' -- the Equal Pay Act of 1963, Title VII of the Civil Rights Act of 1964, and Title IX of the Education Amendments of 1972 -- as a discursive strategy for delineating relevant legislative antecedents and workforce consequences at different levels of analysis and aggregation. In doing so, we offer a fresh perspective on affective factors and relations that determine related trends and patterns among STEM women in the U.S. workforce.

The cultivation of a strong science and technology workforce is a key issue on public policy agendas around the world today. Questions of development and economic competitiveness in the intensified global environment, for example, have centered on the quality of the workforce in fields of science, technology, engineering, and mathematics (STEM), and related concerns within various countries have led to increasing attention to internal dynamics and relations that determine the nature of that workforce. A prominent policy issue in this regard has been that of workforce equity, which has also been linked to calls for social justice, rights, and participation, in addition to basic labour market needs. This point has been raised in particular application to women in STEM fields, and we look especially to related problems identified in the United States (U.S.). In the U.S., as elsewhere, gender inequities are recognised as critical factors for explaining patterns of occupational and sector variability among STEM workers, and gender representation and inequality are fundamental determinants of related workforce -- and societal --

conditions. Indeed, as it is in other fields, the STEM workforce character and environment are important considerations in worker recruitment and retention, and equity considerations are particularly critical to the employment and presence of women in STEM fields. For example, if threats of discrimination and bias are present, otherwise qualified job candidates might often simply pursue other employment opportunities that do not present a hostile work environment or will at least provide greater benefits, typically financial, to mitigate that environment (CPST, 2007; NAS, 2007a). Accordingly, related policy efforts aimed at ending or diminishing inequities in the workforce are linked with national capacities to tap into and maintain its talent base.

With this in mind, focusing on women in the STEM workforce, we draw upon the broader U.S. policy environment to determine analytical dimensions for understanding and examining legislative approaches to problems of gender representation and inequities. In particular, we provide an analysis of what we deem 'the triumvirate of U.S. anti-discrimination legislation' -- the Equal Pay Act of 1963, Title VII of the Civil Rights Act of 1964, and Title IX of the Education Amendments of 1972 -- as the primary national level legislative strategies for addressing related issues at different levels of analysis and aggregation. These legislative acts play a central role in the changing social and political arena in which policy affecting the U.S. STEM workforce is developed. At the core of our analysis is a conceptualisation of workforce inequality and inequity in terms of *discursive dimensions* and *associated manifestations* linked with policy applications within the legislative triumvirate. More specifically, we examine the triumvirate as products of specific policy streams (Kingdon, 2002), discussing how these legislative acts, in conjunction with case law and bridging precedents, constitute an etiological script that provides a mandate for institutional change in U.S. society.

Discursive Dimensions and Associated Manifestations

For understanding the anti-discrimination legislative triumvirate, we note general discursive dimensions, including terms such as *bias*, *discrimination*, *inequality*, and *inequity*, which are typically used in social and policy discourse surrounding debates on the status of women in the U.S. vis-à-vis myriad

contexts, including employment. The manifestations of these discursive dimensions include the specific behaviours associated with inequity such as sexual harassment, pay differentials, gender harassment, hiring preferences, career advancement differentials, and retaliation against those who challenge such treatment.

Discursive Dimensions

Although within both social and policy discourse, the terms *bias*, *discrimination*, *inequity*, *inequality*, and *prejudice* are often used interchangeably, in the context of the legislative triumvirate and its associated judicial interpretation, *discrimination* is the overarching term through which various manifestations — behaviours — are viewed. The judicial system interprets various actions by employers in terms of 'illegal discrimination', hence the dominant discursive dimension within the triumvirate is 'discrimination'. Note also that terms that might be treated as synonymous outside of the courtroom can reflect different meanings and applications in the legal context. Thus, the courts are generally more exacting in terminological reference.¹ For example, a court may dismiss a civil case 'with prejudice' or 'without prejudice.' These are procedural terms that refer to whether a litigant is barred from bringing a new lawsuit relating to the same claim (cf. Garner, 2009). Although judges and parties to workplace discrimination may occasionally describe certain behaviours and motives in terms of 'bias' or 'prejudice,' the final analysis comes down to whether actions that treat people differently are discriminatory within the definition of the laws within the triumvirate (cf. Lilly Ledbetter v. Goodyear Tire Company, 2007). In general, 'illegal discrimination' in terms of these laws generally refers to differential treatment by employers of individuals within certain specified categories determined by, for example, gender, race, ethnicity, or religion based on non-legitimate reasons. A legitimate reason, for example, would be related to seniority. Further descriptions of illegal behaviours under each element of the triumvirate are discussed in the following sections.

¹ Note that discursive dimensions, as discussed here, can reflect illegal behaviours on the part of certain defendants, not similar procedural terms used by courts in resolution of certain cases.

Historically, although terms such as bias, discrimination, inequality, and inequity became a part of common social and policy discourse in the United States during the second half of the 20th century in conjunction with the civil rights movement, only the term *equality* served as a key element of discourse in the founding of the country during the 18th century and again in the mid to late 19th century in the context of the anti-slavery movement and the smaller women's movement. Reflecting Enlightenment-era debates over natural rights and the role of government vis-à-vis citizens, discussions concerning inequality in the 18th century American colonies reflected frustration among colonists, particularly property-owning white males, with various colonial governance policies emanating from Great Britain's King George III and Parliament. Concerns over taxation without representation and other issues of self-governance reflecting unequal treatment were prominent in documents such as the Declaration of Independence of 1776: "We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain inalienable rights, that among these are life, liberty, and the pursuit of happiness". While a few of the founders contemplated the relationship between equality and government as applied to 'others', such as women,² the broad notion that "all men are created equal" was not a generic reference to all human beings as defined today, but rather a discussion of men as men, explicitly excluding women (Harrison, 2003).

Nevertheless, mid-19th century efforts in the United States among men and women to abolish slavery also gave rise to a movement seeking equality for women. In conjunction with the first women's rights convention in the country, 68 women and 32 men signed the Declaration of Sentiments (1848), a document mirroring the Declaration of Independence from 1776 but calling for equal opportunity for women in education, employment, and religious leadership. The Declaration of Sentiments did not use words such as 'bias', 'discrimination', or 'inequity', but the litany of abuses against women described in the document reflected terms that would later form a civil rights lexicon in the 20th century, including behaviours that would be considered discrimination under the law, such as denying women suffrage because of their sex, excluding them from educational opportunities afforded males, and denying them various property rights simply on the basis of gender.

² Abigail Adams, in correspondence with her husband John Adams, then representative from the state of Massachusetts to the Continental Congress (governing body during the American Revolutionary War), admonished him to "remember the Ladies, and be more generous and favourable to them than your ancestors" (31 March 1776).

Manifestations

Manifestations of discrimination are those elements in the legislative triumvirate that constitute illegal behaviours on the part of employers as defined and interpreted through the formal actions of the executive, legislative, and judicial branches of U.S. government. Sexual harassment, compensation differentials based on sex, gender harassment (harassment based on negative attitudes and presumptions about members of a protected class), hiring and firing preferences based on sex, retaliation for reporting discrimination or for filing a complaint, and advancement or job opportunity preferences based on sex are among such manifestations articulated throughout the triumvirate. Each member of the triumvirate contributes its own collection of protections concerning these areas so that, in concert, the triumvirate acts as the core legal initiatives overseeing workplace equity policy.

The Legislative Triumvirate

The words 'Equal Justice Under Law', inscribed above the portal of the U.S. Supreme Court building, reflect the basis for the modern instauration of notions of law that address issues of bias and discrimination in U.S. institutions. Laws reflect not only the cultural norms and constraints of society, but also its conceptualisations of rights and obligations, contracts and fair dealings, and alliances and treaties that collectively define its transactional foundations. Indeed, this notion of the preeminence of law as the ultimate mediator in social, commercial, and political relations provides the foundation for claims to equitable treatment based on inherent civil rights, in both individual and collective applications. In the area of workforce equity, three pieces of federal legislation -- the Equal Pay Act of 1963 (EPA), Title VII of the Civil Rights Act of 1964, and Title IX of the Education Amendments of 1972 -- provide the interpretive foundation for determining the scope of legal protections afforded individuals and groups experiencing workforce inequity. The EPA codified as law congressional intent to address workplace wage inequities; it prohibits sex-based discrimination in compensation for employees in the same establishment for equal

work, "the performance of which requires equal skill, effort, and responsibility," and is "performed under similar working conditions" (sec. 206). Title VII prohibits discrimination in the hiring, firing, and promotion

of an employee based on the employee's sex. Title IX provides that "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" (preamble, emphasis added).

Although legislative bodies create the originating laws that enforce policy preferences, the judiciary interprets the scope and content of associated legislation within the context of individual cases. The case law that develops from this judicial interpretation informs individual and collective behaviour in society. Over time, the body of case law that develops as precedent, in conjunction with the relevant legislation, shapes the prevailing policy environment. In this context, the Equal Pay Act, Title VII, and Title IX reflect a doctrinal evolution of more than four decades of addressing diversity and gender equality in terms of access to education and employment, wages and promotions, and respect in the classroom, the workplace, and the laboratory. While not specifically or only applied to issues in STEM fields, the EPA, Title VII, and Title IX comprise the legislative and policy terrain on which claims for equitable treatment and rights are made. As such, these laws reflect a cultural, social, and legal foundation for analyzing gender-based disparities in STEM employment.

Moreover, as early as 1941, official government policy had prohibited racial discrimination by federal contractors. A series of presidential executive orders created the Office of Federal Contract Compliance, with the express mandate to oversee employment practices of government contractors. In particular, Executive Order 11246 extends this protection to gender, religion, and national origin, prohibits discrimination in hiring and promotion, and requires federal contractors to take affirmative action steps to increase the workforce representation of specified categories of persons.

In addition to federal statutory language, more than 40 U.S. states have enacted legislation prohibiting gender discrimination in wages modeled after the federal Equal Pay Act of 1963. Some states have additional legislation officially banning employment discriminatory practices against specified groups (state fair employment laws). Since some of these statutes may provide needed relief when federal laws

do not apply, often plaintiffs file concomitant federal and state charges. State courts have used legal analysis from federal decisions, particularly under Title VII, to aid litigation under state fair employment laws (cf. *Albertson's, Inc. v. Washington State Human Rights Commission*, 1976).

Sex Discrimination under the Equal Pay Act

The Equal Pay Act (EPA) is an integral part of the U.S. Fair Labor Standards Act (FLSA) of 1938.³ In conjunction with extensive hearings and investigations related to EPA development, Congress recognised that discrimination in employment based on sex, such as gender-based pay differentials, operates to depress wages and living standards for employees, prevent the maximum utilisation of the available labor resources, and cause labour disputes (U.S. Public Law 88-38, 1963). Accordingly, Congress provided an unequivocal statement of the legislative intent of the EPA, positing its purpose to correct conditions in employment created by gender discrimination. The EPA was further refined in 1972 and 1974 to cover educational institutions and public employees explicitly.⁴

Litigation under the EPA has evolved along two major legal directions: cases analyzing the employer-employee relationship without discussing pay differentials, and cases where the employer-employee relationship has been established and litigation focuses on the substantive analysis of job requirements and responsibilities. All but one of the available U.S. Supreme Court cases fall into the first category, while the later has been developed mainly on federal appellate litigation. Decided in 1974, *Corning Glass Works v. Brennan* (Corning) is important for addressing gender inequities in the work place because it cuts across these two directions of litigation and addressed both the employer-employee relationship and the burden of proof necessary to demonstrate pay differentials. In the case, the Court established that the plaintiff only needs to demonstrate that there is an employee receiving higher pay for similar work within the same work enterprise. In addition, after establishing a *prima facie* case under EPA, the burden of proof is shifted from the plaintiff to the employer to demonstrate that the gender-based pay differential in question can be explained by factors other than gender. This approach for bringing a sex discrimination

³ Thus, businesses that are exempt from FLSA are also exempt from EPA.

⁴ Religious schools remain excluded.

case under the EPA is also applied to cases brought under Title VII and Title IX. As summarised in Figure 1, legislative development surrounding equal pay as a policy issue was accompanied by judicial interpretation addressing the nature and scope of both employee and employer responsibilities in associated litigation.

Figure 1. Scope of Equal Pay Act Legislative and Judicial Interpretation in the Context of Gender Discrimination



A rich body of case law has developed defining different aspects of the employer-employee relationship, such as who can be considered an employer and the degree of independence that could be retained by an employee as opposed to, for example, an independent contractor (cf. *Corning v. Brennan*,

Falk v. Brennan, 1973). As a general rule, because the EPA is part of the FLSA, all businesses subject to minimum wage requirements should also be considered employers for EPA purposes. For litigation under EPA, the plaintiff has to have actually worked for the employer and received payment (i.e., potential employees who are offered lower salaries as part of the job offer cannot sue if they are not eventually hired).

Once the employer-employee relationship has been established, the case advances to the substantive analysis of pay differentials and proving that a female employee is paid less than her male co-workers, despite doing equal work. The burden usually falls on the plaintiff to prove that the two employees of opposite sex work in the same organisation have the same or very similar job responsibilities and receive unequal pay (salary, bonuses, or annual increases). The employer is then called on to explain if there are other reasons rather than gender for these pay differentials. The statute allows variations in pay based on seniority or merit systems, or measures of quality and quantity of work output. Thus, discriminatory actions are more difficult to uncover if they are disguised as 'objective' measures of work output with biases built into how these measures are developed and applied.

Note that that many landmark EPA cases have involved institutions of higher education (cf. Pollis v. New School for Social Research, 1997; Fisher v. Vassar College, 1994). Female coaches who brought claims under EPA were mostly unsuccessful. The courts frequently found, under EPA, that differences in pay were based on factors other than gender. Litigation under EPA involving female faculty also led to mixed outcomes. For example, in assessing a claim of unequal pay brought by a faculty member in Hein v. Oregon College of Education (1983), the 9th Circuit Court of Appeals found that, since the plaintiff's salary was higher than that of one of her male colleagues, her claim of unequal payment could be dismissed because a plaintiff's salary should be compared to the *average* salary of employees of the opposite gender in similar positions, rather than to the one employee who makes more. However, other appellate courts rejected the test proposed by Hein for professional employees and maintained the one-to-one comparison of salaries employed by previous litigation, arguing that, if not, employers would feel free to discriminate against a particular employee as long as, on the average, wages were similar. This type of outcome was clearly contrary to the legislative intent of the EPA.

In analyzing work duties, U.S. courts have ruled that jobs need not be absolutely identical; rather they need only be similar. Also, following the same logic, job titles and descriptions have proven less important than the actual duties performed (type and amount of work). Duties and pay can be compared for similar jobs held by employees of opposite genders. Courts have also compared predominantly female jobs with predominantly male jobs and, based on similar duties, found pay differentials discriminatory.

However, the complex structure of institutions of higher education, decentralisation of hiring practices with departmental leadership on hiring and promotion decisions, and differences between tenure and non-tenure track lines of employment have made gender-based pay comparisons more difficult than in more homogenous work environments. Indeed, not surprisingly, the majority of the EPA case law involving institutions of higher education revolves around finding the most appropriate 'comparator'.

Also, there is a private right of action under the EPA that allows an employee to sue the employer directly, within two to three years since the discriminatory event took place. Remedies available in such cases include back wages, damages, and costs. The U.S. Equal Employment Opportunity Commission (EEOC) can investigate complaints and bring a public suit on behalf of one or more employees. When public action follows private lawsuit, the individual action is terminated.

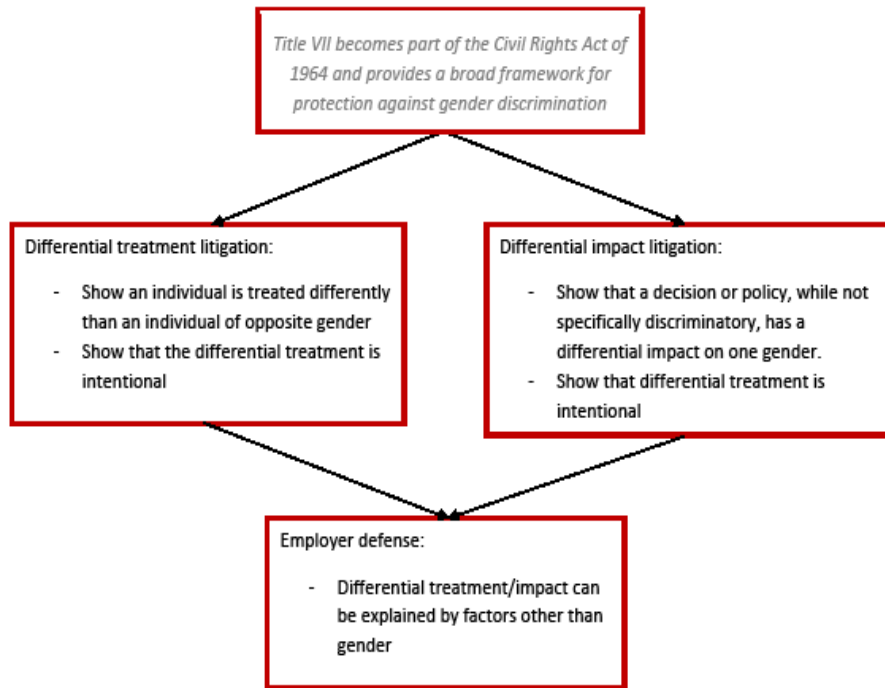
The EPA incorporates somewhat similar protections against gender discrimination as Title VII of the Civil Rights Act of 1964. However, the EPA provides several advantages for litigation of sex-discrimination cases. First, the definition of employer is broader -- at least two employees of opposite sex, as opposed to 15 employees for Title VII. Moreover, unlike Title VII, there is no need to establish the employer's intent to discriminate under the EPA. In addition, since the EPA follows the enforcement mechanism of FLSA, it does not require administrative remedies to be exhausted prior to court action, one of the major barriers to obtaining relief under Title VII (*Washington County v. Gunther*, 1981). Also, until the Civil Rights Act of 1991, the EPA was the only statute allowing jury trials for gender discrimination in U.S. federal courts.

Sex Discrimination under Title VII

Title VII of the Civil Rights Act of 1964 provides the most comprehensive federal protections against discrimination in employment based on race, color, national origin, sex and religion. Specifically considering gender-based discrimination in employment, Title VII has been broadly applied to discriminatory actions in all aspects of employment, from recruitment to job advertising and hiring, promotion, transfer, and termination, to assignment of wages, fringe benefits, and most other aspects of the employment relationship. In addition, equally relevant for this analysis, Title VII extends its umbrella of employment protections to claims of sexual harassment and pregnancy discrimination. Moreover, the statute refers to discrimination against an 'individual' rather than specifying an 'employee', reflecting the point that, unlike EPA claims, the plaintiff does not need to be hired to raise a claim of discrimination. This important provision allows for protections against sex discrimination in recruitment and hiring and against discrimination of former employees. The statute's reach is quite broad; for example, it also extends beyond the traditional employer-employee relationship to address claims of discrimination in partnership offers in law firms (*Sibley Memorial Hospital v. Wilson*, 1973).

The Civil Rights Act of 1991 further extends the applicability of Title VII by specifying that even if a discriminatory action, such as based on sex, is only a part of the employer's decision, the existence of concomitant reasons for that decisions does not shield the employer from liability. The core of sex discrimination in employment is the differential treatment of individuals based on gender, on stereotypical beliefs in differences in ability and characteristics between men and women. This stereotypic basis for discrimination is especially intolerable when applied only to a subcategory of a group rather than the entire group. Examples of such practices include the employer who does not hire women with preschool children but does hire men with same-age children (*Phillips v. Martin Marietta Corporation*, 1971), or the employer who will not hire married women but will hire married men on no other basis than gender (*Sprogis v. United Air Lines, Inc*, 1971). As can be seen in Figure 2, while the EPA addressed concerns about discrimination limited to pay differentials, Title VII reflected a much broader policy scope.

Figure 2. Scope of Title VII Legislative Language and Judicial Interpretation in the Context of Gender Discrimination



Originally intended to outlaw racial discrimination, Title VII was extended to cover sex as a protected category during congressional floor debates, thus providing little opportunity to assess congressional intent related to the extent of its protections and interaction with similar statutes, such as the Equal Pay Act. The limited availability of congressional history to determine congressional intent in the early attempts to adjudicate claims of sexual harassment, as well as issues such as pregnancy, which affect only one gender, led to decisions such as *Gilbert v. General Electric Company* (1976). In this case, the U.S. Supreme Court concluded that discrimination based on pregnancy was not sex discrimination under Title VII because men cannot get pregnant and there was no other available reference group; in addition, pregnancy is often a desired result that is undertaken voluntarily. Congress, however, disagreed with the line of reasoning used by the judiciary in the *Gilbert* case and similar court decisions, subsequently stepping in and passing the Pregnancy Discrimination Act of 1978 (PDA). The PDA clarifies that pregnancy constitutes sex discrimination under Title VII, even though it affects only one gender.

With *Meritor Savings Bank v. Vinson* (1986), the U.S. Supreme Court found that sexual harassment in the workplace could be considered sex discrimination under Title VII because this type of discrimination represents differential treatment based on gender. In essence, the Court recognised that behaviours in the workplace that were pervasive or severe unwelcome, and based on the plaintiff's gender, and that created a hostile or abusive environment were within the meaning of discrimination under Title VII.

In the analysis of claims of sex discrimination based on differential treatment, the Supreme Court has held that the plaintiff bears the burden of proving that there is a case evincing likely discriminatory action taken by an employer (*McDonnell Douglas Corp. v. Green*, 1973; *Texas Department of Community Affairs v. Burdine*, 1981). In a manner similar to the analysis in EPA cases, the burden of proof in Title VII cases shifts to the employer to explain if there are other, non-discriminatory explanations for the action taken. Under the EPA, establishing that two employees of opposite sex receive different pay for the same work is sufficient. However, in litigation under Title VII, intentionality is a key determinant; i.e., the plaintiff must prove that the alleged gender-based discrimination is intentional (*St. Mary's Honor Center v. Hicks*, 1993).

In addition to gender discrimination based on the different treatment of groups, Title VII also offers protection against actions and policies that, although not specifically discriminatory in their language, have a differential impact on one of the two genders. This premise, initially used by the Supreme Court in the racial discrimination cases *Griggs v. Duke Power Co* (1971) and the *International Brotherhood of Teamsters v. U.S.* (1977), was extended to gender discrimination in *Dothard v. Rawlinson* (1977), where height and weight requirements were found a discriminatory condition of employment because they led to the exclusion of most women. This analysis of disparate impact applies to barriers in employment that are not job related or not necessarily required for the position or performance of job duties, and that, once applied, have the practical effect of excluding a specified group, such as women or minorities (*Connecticut v. Teal*, 1982). As further elaborated later in *Wards Cove Packing Company, Inc. v. Atonio* (1989), disparate impact on one group has to be established as serious beyond demonstrating that it resulted in a lack of workplace diversity. Also, any impact on workplace diversity has to take into account the representation of the specified group within the pool of potential employees (or applicants).

The main defense available to an employer against claims of sex discrimination is to offer proof that differential treatment or gender preference is essential for a specific position or for conducting the employer's business. Another defense is to explain differential impacts as due to the operations of seniority or merit systems, or, for promotion and termination cases, due to assessments of quality and quantity of work.

As is the case with Title IX, an individual can file a private case of discrimination under Title VII only after exhausting all administrative remedies. Also, anyone can file a complaint with the EEOC on behalf of an 'aggrieved individual'. The filing has to occur no later than 180 days after the discriminatory act, or 300 days if a state or other official entity has been notified first within the initial period. The EEOC then determines whether to pursue legal action against the offending employer. Finally, Title VII prohibits retaliation against an employee for filing a complaint of employer discrimination under Title VII.

Although not part of the initial legislative language, Title VII was amended to include all types of employees in educational institutions and public employees at both the state and federal levels. Title VII applies to all employees of institutions of higher education, from faculty to administrative and support staff. Indeed, due to its broad scope, Title VII is the cornerstone for litigating sex-based discrimination in higher education institutions, especially as regards claims of discrimination in the promotion and tenure process.

Early judicial decisions typically incorporated deferrals to the professional judgment of colleges and universities in claims of discrimination in tenure and promotion or in claims of differential compensation between male and female faculty members. For example, in *Faro v. New York University* (1974), the lower level 2nd Circuit Court of Appeals court ruled that such decisions should not be taken by the judiciary, but rather would be better decided at university level. This thinking was replicated by the Supreme Court in *Regents of University of Michigan v. Ewing* (1985) with its emphasis on and deference to faculty professional judgment in academic decisions.

However, later in *University of Pennsylvania v. Equal Employment Opportunity Commission* (1990), the Supreme Court, while still deferring to the faculty's professional judgment, declared that such decisions should be free of gender, racial, or other types of discrimination. Also, women faculty members have been able to bring successful Title VII claims of discrimination, mainly by providing statistical proof of

pay differentials and demonstrating they have been paid less than otherwise comparable men doing similar work (*Melani v. Board of Higher Education of City of New York*, 1983).

Sex Discrimination under Title IX

Title IX of the Education Amendments was enacted in 1972 to amend the Higher Education Act of 1965 by including gender in the list of prohibited discriminatory actions.⁵ The statute prohibits gender-based discrimination in educational institutions and programs that receive federal financial assistance. Unlike Title VII and the EPA, which cover most employers, Title IX is more narrowly focused on educational institutions receiving federal financial assistance. Otherwise, it reflects similar issues of gender-based discrimination and employs a similar regulatory framework. Gender-based discrimination under Title IX is not limited to differences in provision of programs, services, or application of policies. It also includes charges of a hostile educational environment as a result of sexual harassment within educational institutions.

While Title IX was clearly construed to ensure equal participation in educational programs and activities for students, it did not specifically prohibit sex-discrimination against employees of educational institutions. However, subsequent federal regulations issued by the U.S. Department of Health, Education, and Welfare in 1975,⁶ as well as substantive case law, have interpreted the statute to similarly allow employee protections, particularly when discriminatory action against the employee is interfering with enjoyment by primary beneficiaries (students) of programs and activities.

In *North Haven Board of Education v. Bell* (1982), the Supreme Court upheld the federal regulatory framework and extended Title IX protections to employees in educational institutions. Dissenting opinions argued that similar remedies are available through Title VII and Equal Pay Act, thus congressional intention could not have been to allow for more than one law to cover the same issue.

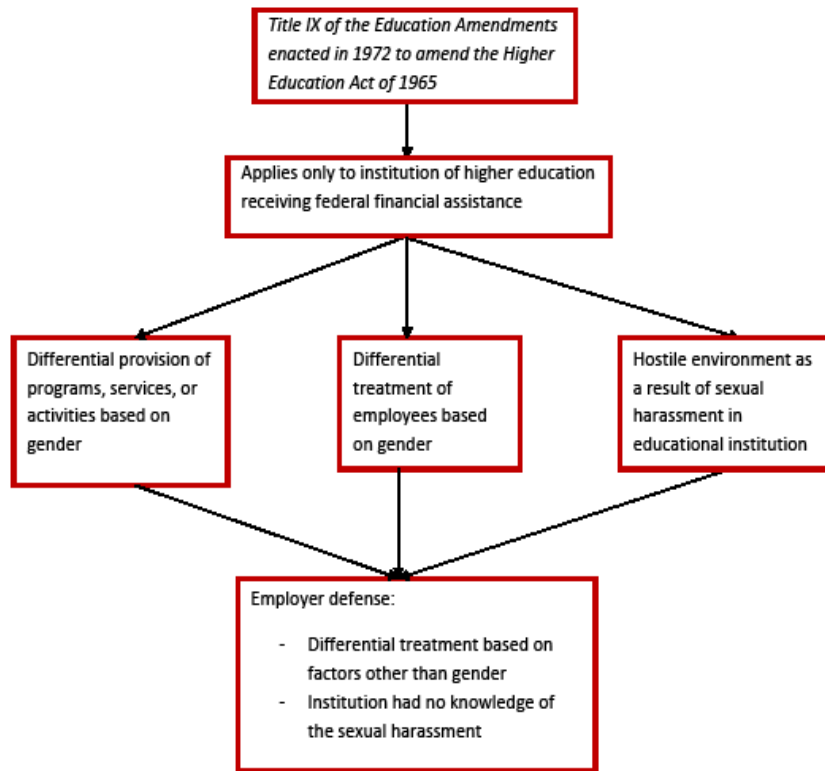
When the Supreme Court tried to narrow the applicability of the statute to programs rather than institutions in *Grove City College v. Bell* (1984), the U.S. Congress again stepped in and passed the Civil

⁵ Title IX is also known as the Patsy T. Mink Equal Opportunity in Education Act, in honor of its principal drafter and champion, the late congressional representative Patsy Takemoto Mink.

⁶ The Department of Health, Education, and Welfare was split into the Department of Education and the Department of Health and Human Services in 1979.

Rights Restoration Act of 1987. The new legislation refuted the Supreme Court's interpretation of Title IX in *Grove City*, in which it argued that only specific programs receiving federal assistance should be subject to Title IX requirement, not the entire institution. Through the Civil Rights Restoration Act, Congress clarified that the terms 'program' and 'activity' are to be broadly interpreted as any part or program of an educational institution that receives any type of federal assistance and that the institution as a whole is subject to title IX prohibitions on discrimination, rather than only those programs directly receiving federal assistance. As Figure 3 illustrates, Title IX also extended anti-discrimination protections to the educational workplace.

Figure 3. Scope of Title IX Legislative Language and Associated Judicial Interpretation in the Context of Gender Discrimination



When Title IX was found to apply to gender-based employment discrimination, the analysis of discriminatory practices closely followed Title VII concepts; even EEOC regulations mention that Title VII

cases should be taken into account when assessing Title IX complaints. Similar to Title VII, Title IX provides judicial and administrative remedies. The administrative enforcement is overseen by the Office of Civil Rights (OCR) within the U.S. Department of Education. OCR can go as far as withdrawing all federal funding to the educational institution found at fault, as well as bar it from receiving future funding. A complaint must be filed with the OCR within 180 days since the discriminatory event occurred. OCR is required to promptly investigate such claims, but traditionally would attempt to obtain voluntary compliance from the educational institution before pursuing a lawsuit or withdrawing federal funding.

In *Cannon v. University of Chicago* (1979), the Supreme Court established the availability of a private right of action under Title IX, thus allowing individuals to directly sue if gender discrimination resulted in loss of benefits in a program or activity receiving federal funding and all administrative remedies have been exhausted. Further clarifying remedies available to private plaintiffs under Title IX, in *Franklin v. Gwinnett County Public Schools* (1992), the Supreme Court reversed the decision of a lower federal court and found that monetary damages should be allowed for private action. In *Franklin v. Gwinnett*, a student complained of sexual harassment by a male coach, while the school, although notified, refused to take action. The Court found that damages could be awarded under Title IX although not specifically provided in the statute and no other remedies of a more prospective nature were available to the plaintiff, no longer a student at that school. The school's liability for sexual harassment complaints by the student was found to be comparable to an employer's liability arising from supervisor-employee harassment complaints, as regulated by Title VII.

The Court further analyzed school and district liability for the teacher's sexual harassment of a student in *Gebser v. Lago Vista Independent School District* (1998). In this case, because the school was much more proactive in acting on previous complaints about the teacher and, in fact, had dismissed the teacher as soon as the sexual relationship with the student was known, the Supreme Court found that, given the circumstances and also the limited federal funding received by the school district, no monetary damages were awardable to the plaintiff. The decision practically restricts the availability of monetary damages in a private action under Title IX unless the school or district had knowledge of the harassment and chose to disregard the teacher's misconduct. The Supreme Court applied the same test of prior knowledge and intentional disregard to another sexual harassment case, *Davis v. Monroe County Board*

of Education (1999). In *Davis*, the harassment was student on student rather than teacher on student, but the analysis of the Court was almost identical to the one in *Gebser v. Lago Vista* and found the school district liable due to severe harassment that interfered with the victim's access to educational benefits of which the school district had knowledge and intentionally disregarded.

Finally, in *Jackson v. Birmingham Board of Education* (2005), the Supreme Court extended Title IX protections to retaliation against those who raise sex discrimination complaints, regardless of their gender, and allowed for a private right of action in these cases. In *Jackson*, the male coach of a female basketball team complained about the disparate treatment of male and female teams and he was terminated soon after. The Court found that protecting complainants against retaliation is well within the purpose of Title IX, since full protections against sex discrimination cannot be achieved otherwise.

Based on the major cases presented above, it is clear that U.S. Supreme Court litigation under Title IX has been limited to broad questions about the extent of its coverage, applicability to discrimination in employment, available remedies, and liability of educational institutions for sexual harassment claims. However, it is worth noting that the majority of Title IX litigation in lower federal courts has focused on gender-based disparate provision of programs and services in educational institutions. Most of this body of jurisprudence has evolved around discrimination in athletics, and is credited for significantly increasing female participation and availability of athletics programs at both secondary and tertiary education levels. The dominance of athletics in judicial challenges under Title IX reflects a phenomenon that occurred within the first years of the law's passage. Indeed, the vast majority of public comments submitted in conjunction with the development Title IX's implementation regulations has concerned athletics, although the law itself encompasses discrimination in the larger arena of educational institutions and programs that receive federal funds, of which athletics is just one facet. In fact, this disproportionate attention to the potential impact of Title IX on athletics programs associated with federally funded educational institutions prompted the head of the agency charged with developing the regulations to muse that he had no idea that the most pressing issue in education was the preservation of football (Suggs, 2006).

Changing Relational Trends

A review of the changing dynamics surrounding economic, social, and political agendas within recent years in the U.S. reveals a convergence of several policy strands that are likely to provide the landscape on which further workforce equity policy will evolve. These strands reflect a broad concern about the nation's competitiveness in the global economy and the cultivation and maintenance of a strong STEM workforce in conjunction with that objective (NAS, 2007b; USDL, 2007). They further involve continuing efforts among various policy actors and other stakeholders, including advocates for women's rights and social justice, to fight entrenched societal discrimination and to redress resulting disparities. Hence, notions of gender equity in the workforce are converging on various policy agendas as judicial and other legislative activities surrounding the triumvirate continue to evolve.

Employer retaliation against those who report actions that violate protections afforded under the legislative triumvirate is a particularly deep concern among workforce equity advocates. Fear of retaliation has a silencing effect on employees and, in reference to women in the STEM fields, there is a legitimate concern that reporting discrimination can end a career (Rolison, 2000). The triumvirate of anti-discrimination legislation has existed largely in an arena of workplace firings as retaliation for reporting gender discrimination. Recent U.S. Supreme Court rulings, as discussed above, have the potential to dramatically alter the policy landscape, with profound implications for the EPA, Title VII, and Title IX and their ability to affect workplace inequities and discrimination in general.

In a 2009 U.S. Supreme Court case arising under Title VII -- *Crawford v. Nashville and Davidson County, Tennessee* (2009) -- the anti-retaliation provision under Title VII received a unanimous ruling as applicable to employees who were fired for participating in internal investigations of sexual harassment. In the case, local government employee Vicky Crawford had been fired after reporting incidences of sexual harassment perpetrated by the employee relations director. She herself had not filed a complaint against the director but merely answered questions posed to her during an investigation concerning his behaviour. With the conclusion of the investigation, the employer fired her, alleging embezzlement and drug use. Crawford brought suit under Title VII, claiming that she was fired in retaliation for her testimony pursuant to the investigation of the director. At trial, she proved that the allegations of embezzlement and drug use

were untrue and charged discriminatory retaliation under Title VII. Title VII provides that it is an unlawful for an employer to discriminate against an employee because that employee has made a charge against the employer or testified, assisted, or participated in an investigation, proceeding, or hearing under the purview of the legislation. The Court interpreted Crawford's responses concerning the director's sexually harassing behaviour as being within the protection articulated under Title VII in the area of anti-retaliation. Hence, employees who 'oppose' sexually harassing behaviour by disclosing it, even if not initiating a formal complaint against it, also are protected from retaliatory action, such as job termination.

The Crawford case was one of two recent seminal Supreme Court cases addressing employer retaliation against employees. Referencing Title IX, the ruling in *Jackson v. Birmingham* (Jackson, 2005) also expanded protection for those fearful of retaliation, broadening the category of those protected in the education field. In *Jackson*, the U.S. Supreme Court ruled that individuals who protest sex discrimination can seek damages if their colleges or schools retaliate against them for invoking Title IX. Damages can include recompense for past and future economic losses, as well as emotional distress. Since the *Jackson* case, juries have returned multi-million dollar judgments in favour of women's athletic program administrators who showed evidence of retaliation for expressing concerns about discrimination against female athletes and programs within educational institutions receiving federal funds. For example, a California jury awarded Lindy Vivas, a former Fresno State University women's volleyball coach, \$5.8 million supporting her Title IX retaliation claim (*Vivas v. Fresno State*, 2007). The award, which included compensation for backpay, future lost wages, and emotional distress, was nearly \$2 million more than she had requested of the jury. Vivas had sued Fresno State over the institution's termination of her employment; she argued that her firing was in retaliation for her criticism of the university's unequal treatment of male and female athletes. In addition, another Fresno State coach and athletic administrator brought a similar retaliation suit and collected \$3.5 million as part of a settlement with the university. Although the Fresno State cases are among a small number reflecting multi-million dollar resolutions, even smaller verdicts and settlements in totality have cost universities -- and taxpayers -- countless millions (McNeely, et al., 2009).

While the Supreme Court has opened the door for greater legal protections for those fearing employer retaliation under the legislative triumvirate, the legislative and executive branches of government also have called for changes in anti-discrimination protections regarding equal pay. The recent Lilly Ledbetter Fair Pay Restoration Act, passed by Congress and signed by President Barack Obama in 2009, supersedes previous U.S. Supreme Court decisions in which plaintiffs bringing salary discrimination suits would have their lawsuits dismissed due to court interpretation of Title VII associated statute of limitations. However, Congress took up the proposal by Supreme Court Justice Ruth Bader Ginsburg, provided in her dissenting opinion, that the legislature could act to correct the interpretation of Title VII, which she argued did not synchronise with the realities of wage discrimination nor the broad remedial purpose of the law (*Ledbetter v. Goodyear Tire Company*, 2007). Under the new law, which amends Title VII, a victim of wage discrimination may file a complaint against their employer within 180 days of their last paycheck. Previously, victims were only allowed 180 days from the date of the first unfair paycheck, even if unaware of the inequity. Until the new law, if the plaintiff had been unable to detect the discrimination within the timeframe delineated by the statute of limitations, often due to the inaccessible nature of employer-controlled information evidencing illegal pay discrimination, the statute of limitations disallowed a lawsuit. The new law changed this situation to be more realistic in its application.

Conclusion

We have looked to the U.S. policy environment to determine analytical dimensions for addressing legislative approaches to problems of gender representation and inequity relative to the changing social and political landscape. Focusing on the legislative triumvirate of the Equal Pay Act, Title VII, and Title IX, along with associated jurisprudence, we examined the policy foundations in discourse and practice for addressing questions of workforce inequity in the U.S. context, with particular emphasis on women working in high-skilled STEM fields. There is no doubt that, in the four decades since these three major statutes on gender discrimination in employment were enacted, the status of women in the workplace has changed dramatically. As our analysis demonstrates, the legal environment is continually evolving,

broadening the discursive dimensions and interpretation of discrimination and inequality, marked by new legislative strategies and policy approaches for addressing the manifestations of discrimination. Moreover, recent developments strengthening the protections provided under the legislative triumvirate -- e.g., against pay discrimination, employer retaliation, and other inequities -- are occurring in convergence with prominent policy initiatives concerning gender representation and diversity in general in the STEM workforce. The convergence of these policy strands heralds a new era in workforce equity as the U.S. attempts to address discrimination deemed by many as not only harmful to individual employees, but also to the economy and society as a whole.

However, while the overall environment is changing, providing more opportunities for women than ever before, and while there is, at the very least, anecdotal evidence that landmark court decisions have an impact on institutional policies, the STEM professions have continued to manifest disturbing patterns of gender disparities linked with workforce inequities and discrimination. Accordingly, the analysis presented here provides a useful starting point for future research, raising general questions for related inquiries into the dynamics surrounding gender discrimination in employment in the U.S. and elsewhere. This exploration of the triumvirate of U.S. anti-discrimination law suggests the utility of more in-depth investigations to gain a fuller understanding of how civil rights laws -- recognised as instruments of policy reflecting legislative intent -- can serve as catalysts for social and political change, specifically in redressing gender inequalities that remain inherent in the labour market processes and societal relations that determine workforce conditions. Thus, for example, more focused and expanded longitudinal analyses of legal codes, policy initiatives, and related implementation would provide fruitful avenues for developing deeper understanding and insights for affecting gender representation and trends in the STEM workforce.

References

- Commission on Professionals in Science and Technology (CPST) (2007), '*Is US. Science and Technology Adrift?*', Washington D.C.: Commission on Professionals in Science and Technology..
- Garner, Bryan A. (2009), *Black's Law Dictionary*. St Paul, Minnesota: West Publishing.
- Harrison, Brigid (2003), *Women in American Politics: An introduction*, Belmont, CA: Wadsworth Publishers.
- Kingdon, John (2002), *Agendas, Alternatives and Public Policies*. New York: Longman.
- McNeely, Connie L., Julie Walters, and Jong-on Hahm (2009), 'Renegotiating Title IX: Challenging gender bias in the scientific academic workforce.' Paper presented at the Annual Meeting of the Law and Society Association, Denver, Colorado.
- National Academies (NAS) (2007a), *Beyond Bias and Barriers: Fulfilling the potential of women in academic science and engineering*. Washington, DC: National Academies Press.
- National Academies (NAS) (2007b). *Rising above the gathering storm, Energizing and employing America for a brighter economic future*. Washington, DC: National Academies Press.
- Rolison, Debra (2000), 'Title IX for Women in Academic Chemistry: Isn't a millennium of affirmative action for white men sufficient?' in Chemical Sciences Roundtable, Board on Chemical Sciences and Technology, National Research Council (2000). *Women in the Chemical Workforce: A Workshop Report to the Chemical Sciences Roundtable*..74-88
- Suggs, Welch (2006), *A Place on the Team: the triumph and tragedy of Title IX*. Princeton, NJ: Princeton University Press.
- U.S. Department of Labor (USDOL) (2007), *The STEM Workforce Challenge*. Washington D.C.: Government Printing Office.

U.S. Legal Case References

- Albertson's, Inc. v. Washington State Human Rights Commission [1976] 14 Wash App 697
- Cannon v. University of Chicago [1979] 441 U.S. 677
- Connecticut v. Teal [1982] 457 U.S. 440
- Crawford v. Nashville and Davidson County, Tennessee [2009] 555 U.S.
- Dothard v. Rawlinson [1977] 433 U.S. 321
- Davis Next Friend LaShonda D. v. Monroe County Board of Education [1999] 526 U.S. 629
- Faro v. New York University [1974] 502 F.2d 1229
- Fisher v. Vassar College [1994] 852 F. Supp. 1193
- Franklin v. Gwinnett County Public Schools [1992] 502 U.S. 803
- Gebser v. Lago Vista Independent School District [1998] 524 U.S. 274
- Griggs v. Duke Power Co [1971] 401 U.S. 424
- Hein v. Oregon College of Education [1983] 718 F.2d 910
- General Elec. Co. v. Gilbert [1976] 429 U.S. 125
- Grove City College v. Bell [1984] 465 U.S. 555
- International Broth. of Teamsters v. U.S. [1977] 431 U.S. 324
- Jackson v. Birmingham Board. of Education [2005] 544 U.S. 167
- Koster v. Chase Manhattan Bank, 554 F Supp 285
- Ledbetter v. Goodyear Tire Company [2007] 550 U.S. 618
- McDonnell Douglas Corp. v. Green [1973] 411 U.S. 792
- Melani v. Board of Higher Education of City of New York [1983] 561 F. Supp. 769
- Meritor Savings Bank v. Vinson [1986] 477 U.S. 57
- North Haven Board of Education v. Bell (1985) 456 U.S. 512
- Phillips v. Martin Marietta Corp [1971] 400 U.S. 542

Pollis v. New School for Social Research [1997] 132 F.3d 115
Sibley Memorial Hospital v. Wilson [1973] 488 F.2d 1338
Sprogis v. United Air Lines, Inc. [1971] 444 F.2d 1194
St. Mary's Honor Center v. Hicks [1993] 509 U.S. 502
Texas Department of Community Affairs v. Burdine [1981] 450 U.S. 248
University of Pennsylvania v. Equal Employment Opportunity Commission [1990] 493 U.S. 182
Wards Cove Packing Co., Inc. v. Atonio [1989] 490 U.S. 642
Washington County v. Gunther [1981] 452 U.S. 161