THE NSF CAREER-LIFE BALANCE INITIATIVE:
A CRITICAL EXAMINATION

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ABSTRACT

The 2011 National Science Foundation (NSF) Career-Life Balance Initiative purports to assist women to more successfully combine career and domestic responsibilities, leading to increased retention of women in the STEM (natural and social sciences, technology, engineering, and mathematics) fields. This policy is a major step toward integrating a work/home balance, but, although the policy addresses all researchers in the STEM fields, women are singled out as needing such a policy to increase their retention in these fields. However, this article argues that instead of increasing women's acceptance, such a policy will more deeply entrench the gendered expectations that hold women more than men responsible for family care, and will not lead to an overall change in sex-typed work/home expectations. Reviewing the essentialist arguments underlying these expectations, the article suggests a more sweeping reform of the interrelationship of STEM stakeholders in universities and grant-giving agencies, a reform that would integrate women more fully into the STEM disciplines while also giving men a more acceptable path to balancing home/work integration.

In 2011, the National Science Foundation announced its Career-Life Balance Initiative, declaring that "family formation, notably marriage and childbirth, is a key factor for the departure from the STEM workforce between Ph.D. receipt and achieving tenure for women in the sciences" (National Science Foundation, 2011) and offering to postpone or suspend an NSF grant for up to one year, to enable an

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individual to care for a newborn or a newly adopted child, or meet another family obligation. Ostensibly, this policy applies to all grant recipients, female and male, but women are singled out in the announcement as departing from the STEM fields for reasons of marriage and childbirth.

The NSF (National Science Foundation) is an independent federal agency that has been the funding source for about 20% of basic research in American universities since 1950. Specifically for the STEM fields (natural and social sciences, technology, engineering, and mathematics), the NSF is the major source of federal funding. This preeminence means that the funding decisions made by the NSF directly impact the direction of scientific research and, indirectly, who gets to "do" science. Additionally, as a federal agency, the NSF must follow federal law and guidelines, including those regulations that prohibit discrimination. At the founding of the agency in 1950, neither women nor people of color were protected from discrimination, either active (supporting only white men) or passive (accepting the lack of women and nonwhite men without critique). The passage of the Civil Rights Act of 1964 would change that by beginning to make discrimination by race and sex illegal. Over the next decades, this and subsequent legislation led not only to a decrease in active discrimination (although not completely eradicated) but also to an increasingly critical examination of passive discrimination, best expressed by the basic question, "Where are the women?" (and men of color). Given an increase in girls' participation in mathematics and natural sciences at the secondary level (junior or middle schools and high schools), a subsequent increase in young women's enrollment in such fields at university and an increase in women's presence among the professoriate seemed merely a matter of time.

Surprisingly, the STEM fields continue to show considerable underrepresentation of women, especially in engineering. The NSF's report, "Women, minorities, and persons with disabilities in science and engineering," shows that in 2009, women held 50.6% of doctorates in all fields and 47.2% in science, but only 21.6% in engineering (National Science Foundation, 2012). In addition, women held only 10.8% of tenured or tenure-track positions and 5% of full professorships in 2006 (Burrelli, 2008). In addition to questions about university recruitment and retention of female faculty, the funding agency mostly responsible for supporting STEM research, the NSF, also came under scrutiny, and the 2011 policy seems to have been crafted in response. In this policy, it is the expressed hope that making STEM careers more family-friendly would increase the participation and decrease the loss of women especially in research fields that are grant-dependent. This is a major improvement over previous treatments of the skewed sex ratio in STEM; too often, girls and women have been held responsible for their underrepresentation through gender essentialist presumptions of mental incompetence (what Hatchell & Aveling, 2008: 372, call "the deficit model"), while the loss of women faculty in the STEM fields has been explained by the presumption of women's true interest in home and hearth, rather than lab and field. As the first presumption could not be maintained once data were analyzed objectively, the "either/or" life choice that

educated women aspiring to academic and research careers supposedly have to make surged to the forefront.

This article discusses the connection between that latter presumption and our suspicion that it lies at the root of the NSF and other initiatives. After a cursory glance at women's academic careers over the past hundred years, which is necessary to invalidate current illusions about the newness of women's academic and research work in the STEM fields, we will turn to gender schemas and the artificial, media-created "mommy wars" to enable us to begin to understand that the aforementioned initiatives are not as progressive as they may appear but may in fact support and strengthen conservative gender segregation. The final section of the article proposes strategies that move beyond the NSF initiative and propose a fundamentally changed framework for "doing" science and engineering research and scholarship.

IT HASN'T ALWAYS BEEN THIS WAY

The narrative has acquired the soporific effect of a well-known fairytale: once upon a time, the traditional woman, being solely focused on getting her man, the babies, and the ranch house in the suburbs, showed no ability or even interest in any of the sciences or mathematics. Academic work was a man's world, where Y-chromosomes destined men to intellectual greatness, while their wives raised the children, cleaned house and clothes, and occasionally had tea with the other faculty wives. (An invitation to such a gathering was extended to me in 1989; the hostesses were appalled that, while being married to a male faculty member, I was also a doctoral student and preferred that identity.) The disruptive feminists of the last decades pushed women into the sacred STEM fields where their continuously low numbers, especially in engineering, are proof positive that women just aren't interested or even capable. And it has always been this way.

Support for this narrative comes from publicized data that began to count women in the STEM fields in the mid-1950s or even later; for example, the U.S. census began to list science and engineering degrees by sex in 1966. Quite clearly, women's acquisition of degrees shows a steep increase over the almost 40 years since then, so steep, in fact, that many have become concerned about the slight lead shown by female earners of a bachelor's degree. But starting such lists in the 1960s is misleading, since it could create the impression that women's participation in the academy began at the indicated low points, while men had a constant presence in the intellectual ranks.

It was not until the middle of the 19th century that American universities began to "refashion themselves as research institutions on the German model" (Murray, 2000: 2) and not until July 25, 1861, that Yale University awarded the first doctoral degrees in the United States. (Rosenberg, 1962). About 20 years later, in 1882, Christine Ladd (later Ladd-Franklin) finished her dissertation at Johns Hopkins University in mathematics, but the school refused to grant her the degree

because she was a woman. She did receive her doctorate in 1926 (Murray, 2000). Winifred Edgerton Merrill was the first white American woman to be granted a mathematics doctorate, in 1886 from Columbia University, and Martha Euphemia Lofton Haynes was the first black American woman to be granted a mathematics doctorate, in 1943 from Catholic University.

In 1929, Emilie Hutchinson, an associate professor of economics at Barnard College, published a survey of 1,025 women who had earned doctoral degrees from American universities between 1877 and 1924 (Hutchinson, 1929). To our contemporary eyes, Hutchinson's numbers are astonishing; earning their degrees in 48 different fields, these women fell into three main divisions: 313 had earned their PhD in languages, literature, and other arts; 341 in the social sciences; and 371 in the natural sciences and mathematics. Their occupational distribution after the degree shows that especially those employed as researchers had earned their degrees in the natural sciences and mathematics. Overall, women had made impressive strides in entering the academy, especially in mathematics, even being "on the verge of attaining 'critical mass'" (Murray, 2000: 5). But voices were already beginning to complain: "The New Woman was usually college educated, and she married late, if at all. She had fewer children than her counterparts. If employed, she worked in business or the professions, or she volunteered for a myriad of charitable and civic activities. . . . Could men be true men if women were no longer true women?" (DeBerg, 2000: 27). World War II put an end to such complaints, allowing women and men to ignore some of the more limiting gender expectations, and women reached 40% of college enrollment, only to be pushed aside in favor of an increased enrollment of veterans (mostly men) through restrictions placed on women's graduate enrollment and pressures that pushed them into domesticity (Graves, 1998). A repeat of the Cult of Domesticity in the 1950s forced women (especially middle-class white women) to live out a male fantasy of the dependent homemaker and child bearer that became the stuff of television images and many pleas for a return to "traditional roles." And the numbers dropped to those supposed starting points we see in today's figures about women's entry into the STEM fields.

Similar stories could be told about fields other than mathematics: the first female American physics and astronomy professor, Sarah Frances Whiting, established the second undergraduate physics laboratory in the United States, at Wellesley in 1876, after visiting the first at MIT (Glasscock & Balderston, 1975). In 1965, women received 2.2% of doctorates in physics, and they received 18.5% by 2009 (American Physical Society, 2011)—in 1920, they had been around 20% of PhD recipients in that field (Ivie & Ray, 2005). And while the story of women in computer science could have been different (after all, Lady Ada Lovelace is given credit for being the first computer programmer in the 1830s and the first computer science program was not established until 1962 at Purdue University), a by now familiar upswing of women to about 35% of bachelor's degrees in computer science, followed by a subsequent downswing in the mid-1980s (Taylor, 2005).

Considering these historical changes, it is obvious that we must look to other reasons than "tradition" for women's underrepresentation, and the NSF policy laudably veers away from determinism and "just give it time" arguments by pointing to an environmental culprit. But this culprit has strong overtones of patriarchal gender-segregated imaginations of a work/home divide.

WHO IS A MAN?

Bem (1981: 355) suggested that a "schema is a cognitive structure, a network of associations that organizes and guides an individual's perception." Consequently, as we associate the STEM fields with men (specifically white), they become male and masculine fields for which women are unfit; as with any successful stereotype, we overlook the presence of women where women are not supposed to exist. Our gender schema also associates support work (domestic work, sex work, and reproductive work) with women whose femininity ought to be expressed in the nurturing care of one man and his children. And we are baffled by the question of how a woman can combine masculine STEM fields with feminine care obligations, a question often encountered and subsequently appropriated by female STEM undergraduates who observe female faculty members balancing work and home life, while male undergraduates see male faculty models whose wives are either wholly active as domestic support workers or have interruptible jobs, but no careers. A priori assumptions of female "mothering" as opposed to male "providing" are thus observed and given a posteriori relevance, and the "gender-based separation of the public from the private domain [which] provides males with a stronger power base that is resistant to change" (Hatchell & Aveling, 2008: 360) is maintained in the academy. Such relevance becomes even more visible when we consider that "married men and women [have] parity in tenure and promotion decisions—unless the women [have] children" (Baker, 2011: 431).

Fundamentally, the problem becomes one of numbers and culture: current low numbers in selected STEM fields could serve the argument that women just cannot participate in such fields or are not interested in them. Beginning to track women in the STEM fields in the 1950s allows us to claim quite successfully that, "traditionally," women had never participated in such fields—this should not be criticized as a particular person's stereotype, since "we have the numbers" and our schema acquires a supposedly objective foundation. The few historical women we are forced to encounter (e.g., Hypatia) can easily be dismissed as "extraordinary," and the myth that such endeavors are not for "ordinary" women can be maintained. However, this act of cognitive blindness requires more justification than just low numbers; after all, compared to the total numbers of men, very few of them are actually in the STEM fields, and among them, there are discrepancies due to racism and class differences. The maintenance of our schema requires a justification that must lie with the victim; that women are not too numerous in certain fields must be rooted in their sex—after all, they are not men. But our previous

look at historical data pre-1950s invalidates that argument. One then has to grasp at essentialism, claiming that women, as a class of humanity, just cannot participate, of course again an argument belied by the numbers, even those small numbers of today, and, as extraordinary as the women who are feted during women's history month are made out to be, their very existence belies the essentialist argument of genetic fate and insurmountable cerebral differences. And Hutchinson assured us as early as 1929 that "the exacting demands of the work for the Ph.D. degree did not act as a sufficiently strong selective force in eliminating those for whom such a degree was never intended" (Hutchinson, 1929: 18).

But relying on "a model that posits the masculine as normative" (Hatchell & Aveling, 2008: 372) and constructing masculine characteristics that, mystically, are then those characteristics required to work in the STEM fields, has been quite successful. As Bart (2000: 212–213) explains,

> Rationality, a tough, rigorous, impersonal, competitive, unemotional, objectifying stance, is said to be "inextricably intertwined with issues of men's gender identities," such as obsession with separation and individuation. Evidence from many areas, most notably biology, anthropology, and sociology, is often used to reinforce the stereotype of "male" as active, rational, superior, and of "female" as passive, emotional, inferior. Paradoxically, these stereotypes are adduced from animal behaviors onto which are falsely projected human sex roles. This research is then used as evidence for the claim that these roles are biologically determined.

In the academy, specifically, women are constructed as not fitting the "hard" sciences, being presumed to be "'less career oriented'; . . . less diligent in applying for funding; or 'less productive'" Hatchell & Aveling, 2008: 359).

In fact, these cherished stereotypes are even used as the foundation for today's solutions, most notable among them a slew of workshops and self-help books targeted at women to teach them how to speak and act "like men." From teaching women how to survive in the male world of business and politics, to the provision of sex-segregated gyms and the re-segregating of public education (see, for example, Eschrich, 2011), and even the provision of weight-lifting classes just for women, women (and men) are given the message that women need special treatment to overcome their innate and essentialist shortcomings. In the business world and, increasingly, in the academy, especially in the testosterone-laden STEM fields, the mentoring of women mostly by other women (and sometimes by men) has been hailed as the panacea to cure the retention problems that STEM departments face in regard to their female faculty members.

Undoubtedly, mentoring is a necessary part of becoming integrated into the research and scholarly world of academia. Mentoring can increase success (Bernstein, Jacobson, & Russo, 2010), and both female and male junior faculty have profited from a mentoring program at my institution, reporting an increase in both collegial satisfaction and professional support. But mentors who are not

conversant with the realities of sexism, racism, and other forms of discrimination may not be able to empathize with female academics and sometimes cannot understand that "women's lives and circumstances do not conform to the masculine script in which a successful life is envisioned as linear, singularly purposeful, and narrowly focused on career advancement" (Bernstein et al., 2010: 52). Conversely, emphasizing that women, as a generic category, experience a different life path than men, again as a generic category, may lead to normative expectations that a specific woman must balance work and home life, while no specific man has to do so. Men who wish to lead a complete life may experience discrimination, while women who wish to focus on work may be seen as too masculine and as "violating female gender stereotypes" (Bernstein et al., 2010: 54).

Unfortunately, a focus on mentoring seems to imply that overcoming the "chilly climate," that is, the climate created by open discrimination by male colleagues and students and public misinformation campaigns by right-wing organizations (such as the Independent Women's Forum; see, for example, Lukas, 2008a, 2008b), is the responsibility of the victim. Such a strategy seems designed to leave structural inequalities in place, to leave male colleagues (or even masculinized female colleagues) free to abdicate responsibility, and it trivializes collegial support structures as "girl talk" (successfully hiding the fact that male junior faculty are also mentored). Such inequalities may even be in the interest of some female colleagues who either "have been successful at adapting to the masculinized norms" (Fassinger & Asay, 2006: 439) or have successfully parlayed submissive femininity into male-granted promotions. This serves to remind us that structural inequalities will not be solved by counting bodies; antiwomen attitudes may be held by women and men alike, the solutions must come from both men and women, and, since "individual solutions are wholly inadequate for addressing the structural barriers" (Fassinger & Asay, 2006: 450), the larger societal impact on women's lives must be considered.

WHO IS A WOMAN?

Over one-fifth of Hutchinson's respondents in 1929 were married (at a time when it was not illegal to reject a woman for employment on the grounds of her marital status) and most of them had children. Although mother-only childcare is touted today as "traditional," this is a very new development, especially for women of any class but the very poor (whose children worked alongside their mothers). The mommy wars of the 1980s still rage, with "manic motherhood" (Quindlen, 2011) now the baseline for the "good" maternal woman, and academic women, especially those in the STEM disciplines, are still required to consider themselves as either professionals or mothers, while their male counterparts can still easily be both and no media outcry has ever posed the question of who is the better father, the stay-at-home or the working father.

Calling it the "motherhood mandate," Russo explained as early as 1976 that straight women experienced how "once a woman fulfills the motherhood mandate, the responsibility of a child further limits her access to options" (Russo, 1976: 146) and predicted that education alone would not change that, as long as "the woman-as-mother assumption is so closely connected to basic values and beliefs about the 'proper and normal' way of life" (Russo, 1976: 148). About 30 years later, Mottarella et al. (2009) reported that male undergraduate participants in a survey about female students returning to school after childbirth "perceived all the mothers as significantly less feminine and less nurturant than [did] the female participants [in the study]" (Mottarella et al., 2009: 229). The lack of change is not surprising, given that "the media portrays the average mother as white, affluent, and heterosexual . . . [and projects that] . . . these mothers are harming their children by not being at home full time and by using daycare" (Zimmerman et al., 2008: 208).

Gender role expectations may have changed, but not as much as we would hope, and the belief that "to be complete and successful in the female role, a woman must have children and must spend her time with them" (Shaw, 1994: 223) still holds sway, especially in those STEM fields that are imagined to embody masculine dominance and in which women who also nurture (their children) create a paradox. The solution seems to be to maintain and even strengthen gender role expectations; as already mentioned, in its 2011 Career-Life Balance Initiative, the NSF declared that "family formation, notably marriage and childbirth, is a key factor for the departure from the STEM workforce between Ph.D. receipt and achieving tenure for women in the sciences" (National Science Foundation, 2011) and generously offered to postpone or suspend a NSF grant for up to one year to enable an individual to care for a newborn or a newly adopted child, or to meet another family obligation. While the intent of the new policy is admirable (after all, life happens), it creates a subtext of special treatment for women (although the policy is for both female and male grantees, only women are named as the cause for the policy), who are still expected to deal with the messiness of life, while men, supposedly, are not. The "second shift" is maintained—women have to get time off from the first shift, to remain "the main caretakers of the young and, increasingly, of the elderly" (Dean & Fleckenstein, 2007: 34), but no real integration of all aspects of life for women and men is considered. Rather than creating an environment where both women and men (of all sexualities, for that matter) are seen as equally capable of having a work and a family life, such policy wording emphasizes that women are still responsible for that family life and we ought to just give them time off for it because "motherhood and career appear incongruent because motherhood constitutes disruptions in 'normal' (masculine) career courses, work, and time expenditures" (Marshall, 2007: 263). It bears stressing, again, that in a perfect world, both women and men ought to work in institutions, whether academic or not, that exhibit a "culture that encourages a healthy work-life balance for all employees" (Dean & Fleckenstein, 2007: 35; see also

Sengers, Shanahan, & Castillo, 2008), because "engaging in both family and work roles is beneficial to women and men, as reflected in indices of physical health, mental health, and relational health" (Gilbert & Kearney, 2006: 198), but a policy that appears to be designed to solve a "women's problem" will not achieve parity.

Such a policy may even worsen the problem. Women, much more than men, are held responsible for family well-being and are being pulled into "the gap," a break in career advancement that may be caused by pull factors including "outside pressures such as family concerns, social upbringing, difficulty finding a position, difficulty coordinating jobs with a family member's job" (Mavriplis et al., 2010: 142) or push factors, such as the "chilly climate" and other forms of discrimination. Pulling women away from work by overstating their responsibility for family concerns strengthens that factor even when a policy states that the intent is to minimize it.

WHO IS A PROFESSOR?

In the end, this becomes a matter of differentiation between practical and strategic gender needs, concepts introduced as early as 1986 (Moser & Levy, 1986). Practical gender needs are expressions of immediate need, often to perform a role assigned by societal expectations, while strategic gender needs are expressions of long-term planning and societal transformation. The former are expressed in policies that succumb to contemporary demands for women's free labor in households and are very supportive of women's immediate need to maintain a healthy balance between work and home (and may even support some men's desire to do the same). But strategically speaking, policies that strengthen the cultural presumption that women must make themselves available for home work, but that men still do not bear the same responsibility, only serve to more deeply entrench the unequal life paths of women and men. This is why it was important to introduce Hutchinson's work of a hundred years ago—current inequality is by no means a sign of progress over an imagined past, but a reinvention of an imagined past in support of present-day unequal access to some of the highest-paying careers. Any strategy must begin by understanding contemporary gender ideas as cultural artifacts that change as culture changes.

Examining the NSF policy change through the lens of such needs, we see that the new policy satisfies practical gender needs. Female academics, especially in the STEM disciplines, struggle to satisfy cultural demands for maternal work (or their own desire for it) while also maintaining a professionally satisfying and successful life, and many male academics struggle to be recognized as responsible family members—and any policy that supports work-family integration into a whole life is desperately necessary and must be supported. The NSF, as the most important grant-giver in the United States, will create a major impact on the STEM fields with this policy. In universities alone, it has been difficult for women to, for example, "stop the tenure clock" because grant-giving agencies have not allowed

for pauses. Now, as a major grant-giving agency allows for such pauses, other agencies are sure to follow; in turn, this may persuade department chairs and university administrators to allow junior faculty more time to produce unhurried quality research. For academic women, then (and men, too), this policy may result in a better quality of life, with closer work/family integration.

But in the long term, a policy that is advertised as a women-focused double-shift assist may harm women's full integration into the academy. Strategically speaking, academics should be supported in crafting successful careers, and the tiresome pleas to maintain a cadre of women for household and childcare work ought to end with the recognition that some adults (female and male) focus on their careers and some adults (female and male) integrate a home and career life; the successful society will be supportive of this diversity and adapt to it. Satisfying practical gender needs must be recognized as a temporary solution and we must plan strategically. If we are to recruit and retain the best researchers and scholars, we need to broaden the pool of applicants. Such broadening, by necessity, has to start in primary and secondary education, encouraging children to learn and explore all areas of knowledge. If we continue to permit cultural images that overemphasize domestic work as the most likely "career" for girls and feature only (or mostly) men in the STEM professions, no amount of lip service to gender equality will convince the next generation that children (not boys or girls) could consider a career in the STEM fields. And while undergraduates observe that female scientists and scholars still have to wrestle with the double burden of home and work, while their male colleagues may see this as an individual option, it will remain difficult to convince young women to enter such an unfriendly environment, even if we assure them that we will allow them the time to engage in motherhood.

The NSF policy therefore ought to be seen as a first step, partially in the right direction, but not as a solution. If we wish to fully integrate any workplace, we must acknowledge that all individuals bring different talents and skills but also have different needs. But most importantly, we must recognize that adults have responsibilities outside the workplace, whether these take the form of children, elderly relatives, or an ailing spouse or partner. The male worker with a dependent wife to do the domestic work is not a functioning model (if it ever was) for the contemporary workplace, whether in the academy or elsewhere. Today's workplaces, especially those in the academy, must refashion themselves into a part of their workers' lives. For many of us, our professional identity is important, but for those among us with spouses/partners, with dependent children or elderly relatives, it is not the only one. We have been told to achieve that elusive "work-home" balance, but our workplaces must do the same to remain relevant spaces where intellectual work can flourish. No attempt to create a "mommy-track" for female academics will achieve equality, while strategic planning to integrate the needs of the academy with the needs of researchers and scholars (whatever their sex) will lead to a better overall quality of life.

SUGGESTIONS

The need to refashion the contemporary workplace offers the potential of unique leadership to the scientific community, using strategies already well documented in the social sciences, where we have documented and analyzed gender issues (as well as racism and other forms of discrimination) and offered solutions for many decades. It may be most important to the topic at hand that the NSF and other agencies should take note of gender equity strategies that have been very successful globally in the political representation of women. The use of quotas may be seen as politically risky in the United States, but many countries have successfully increased the participation of women in national politics by using a simple requirement: all political parties must nominate a minimum percentage of women to run in elections (see, for example, Baldez, 2004; Quota Project, 2010). In most cases, the requirements stipulate that 30% to 40% of candidates are women and, as women are presented, voters do, indeed, vote more women into office. Adapting this to STEM funding in the United States, we might consider that the NSF and other agencies should stipulate that a certain percentage of grant applications in the STEM fields from each university and research institute per year must have female PIs (primary investigators). Such a policy would, in fact, change the recruitment and retention strategies for female scientists and engineers, since the pool of scientists must then be broadened to allow for all to compete successfully for grant support.

Obviously, this is not a set-aside quota system (specific pools of grant support for female applicants only), since that would imply that women could not compete with men; the proposed scheme is in line with the traditional affirmative action concepts that broaden the pool of applicants and increase the number of "nontraditional" applicants to the point where the sex (or also race) of the applicants cannot matter because there are too many qualified individuals. In Kanter's (1993) terms, once a pool reaches 40:60 or even 50:50, group membership becomes immaterial, and prejudices and stereotypes are replaced by recognition of individuality. A single woman in an applicant pool of men stands out as "the woman applicant"; a pool of 40% to 50% female applicants forces attention to be paid to each applicant as an individual.

In conjunction with a gender quota application system there must be a truly blind review of applications. Time and again, research has shown that those who think themselves objective evaluators of peoples' performance are quite severely affected by gendered expectations (Fidell, 1970; Goldin & Rouse, 2000; Madera, Hebl, & Martin, 2009). Such studies have shown that once an evaluator does not know the sex of an applicant for a male-dominated field, the acceptance of women applicants increases. Grant applications can be prescreened to include the prescribed percentage of female PIs, and sex-identifying characteristics (first names, predominantly) can be removed from application materials long before the applications are distributed to program directors, reviewers, and other decision

makers. This strategy would assure that all those involved in the decision-making process can be certain that any potential unrecognized bias does not intrude in the decision-making process.

Maybe the most impact would be felt if NSF and other agencies request that universities and research institutes provide information about their campus policies to improve work-family balance for their scholars and researchers. At this point, the quality of life of female and male faculty is mostly dependent on the strength of faculty governance and the generosity of administrations, but there is no system of accountability in place that makes the university responsive to an external authority. Female and male faculty, as mentioned above, must be treated as whole persons; if the major funding agency for the STEM fields were to inquire into quality of life policies, such as parental leave or stopping a tenure clock, universities would see an advantage in providing such measures to all.

None of these suggestions would privilege women (as opponents of gender equity often claim); in fact, women and men could be certain that all are treated on merit. For many men, the knowledge that their success might be based on discrimination against others is insulting and questions the strength of their work; as women and men compete on a more equal playing field, one's success becomes one's own. But in fact, such strategies will improve collaborative research and scholarship; when universities, research institutes, and funding agencies make a concerted effort to include both women and men in research, scholarship, and policies that improve the quality of life, the chances given to women (and men from underrepresented groups) will most likely translate quickly into expanded and more intellectually vibrant research and scholarship efforts, thereby satisfying strategic gender needs that will improve life for all.

As it stands now, the 2011 NSF Career-Life Balance Initiative may have the opposite effect from what it is intended to achieve. However, if we consider it in a larger framework of gender equity efforts in the STEM fields, it can become a powerful part of an overall strategy that must include faculty researchers and scholars, university administrators, and funding agencies, all contributing to and holding each other accountable for the aspiration to make the sciences and engineering human and humane endeavors. Such a fundamental change will have repercussions for future generations, as well; today, we need to encourage girls to remain interested in the STEM fields beyond their primary and secondary education, but we still model a lack of female role models while overemphasizing the domestic work expectations for women in families (and exactly the opposite for men). When all participants in research and scholarship emphasize that both women and men must be included, women's presence in the STEM fields moves from being a desired state to being a necessary state, while it becomes possible for men in the STEM disciplines to add a successful family life to their career.

Undoubtedly, such a change will in turn affect how we see family (and domestic) work. Rather than overburden women with the second shift, a change in how we perceive women and men at work will have positive effects on our views

of men in the domestic sphere. Undoubtedly, many men (in straight or same-sex relationships) still receive a privileged position as "providers" without domestic responsibilities, but there are also many who wish to live as whole persons or maybe even privilege domestic work in their own search for balance. Once we decouple STEM work from sex and gendered expectations, men, too, can be supported if they wish to emphasize home life over work life. As the NSF 2011 Initiative realizes that women's lives are integrated and consist of both work and family, so it should be recognized that men, too, should have integrated lives. But rather than featuring women as in special need of such integration, the NSF could become a major catalyst in how we change the work/family balance and undo stereotypes of STEM and home.

The privileged position NSF holds in regard to funding STEM research and scholarship offers it a unique influence on how science is "done" and who gets to do it. The changes suggested in this article would build on the steps already taken to improve the STEM fields, steps that are necessary, but not sufficient.

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