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In Her Own Voice: Identity Centrality and Perceptions of Workplace Climate in Blogs by Women Scientists

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ABSTRACT

Social identity theory offers a useful perspective for understanding women scientists' perceptions of the gendered workplace cultures they encounter. This study of blogs written by women academic scientists, found that regardless of whether they exhibited work identity centrality or family identity centrality, women scientists experienced identity interference. This was related to workplace climate, perceptions of job opportunities, workload, research funding, resources/equipment, networking opportunities, professional recognition and respect, and work-family balance. Implications for policy, practice, and social change are discussed.

KEYWORDS

women in science; social identity theory; workplace climate; identity integration

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INTRODUCTION

Women in science, engineering, and technology (SET) professions in the United States have reported obstacles related to gendered practices and discrimination in their workplaces that threaten the success and continuation of their careers (Blickenstaff, 2005; Fouad & Singh, 2011; Rhoton, 2011). These obstacles include a lack of job opportunities, inequitable allocation of resources, imbalanced workloads, lower salaries, limited opportunities for professional development, exclusion from networking opportunities, sexual harassment and gender discrimination, and insufficient support for work and family balance (Bilimoria, Joy & Lang, 2008; Fouad & Singh, 2011; Gunter & Starnach, 2005; Rosser & Lane, 2002, p. 856; Rosser & Zieseniss, 2000; Settles, Cortina, Malley, & Stewart, 2006; Settles, Cortina, Stewart, and Malley, 2007; Vescio, Gervais, Snyder, & Hoover, 2005; Wachs & Nemiro, 2007). These obstacles create a "chilly climate" not reported by their male colleagues (Gunter & Starnach, 2005). Recent statistics reveal that while women are equally represented in some SET fields like biology and the social sciences, women are still significantly underrepresented in others like physics, engineering, and computer science (National Science Foundation, 2011). The underrepresentation of women in SET negatively affects academic institutions at a time when a critical need exists for greater participation of women to ensure a diverse future workforce with varied perspectives, questions, approaches, practices, and interpretations.

Obstacles to the success of women scientists and engineers often go unnoticed and unaddressed because they have long been embedded in the workplace culture. Additionally, these obstacles often stem from long-held gender schemas (perceptions and beliefs about gender) that include gender-stereotyped assumptions about women's aptitude (Bem, 1981; Valian, 1998, 2004, 2005). Gender-stereotyped assumptions often reinforce perceptions of men as being more competent than women and give men an "accumulation of advantage" that makes it easier for them to advance professionally (Valian, 2006). Gendered perceptions such as these underlie the "gendered institutional structure, cultures, and practices" (Rhoton, 2011, p. 696) of many scientific workplaces. Women scientists often report needing to work harder than their male colleagues to gain respect and credibility (Bilimoria et al., 2008). Even women scientists who succeed professionally often are perceived by male scientists as engaged in counter-normative behavior or in violation of gender-stereotypic norms (Heilman, Wallen, Daniella & Tampkins, 2004). Consequently, these successful women scientists are labeled as non-communal and lacking interpersonally and also are deprived of salary increases and job advancement opportunities (Heilman, 2004).

Social identity theory offers a useful perspective for understanding women scientists' perceptions and negotiation of the gendered workplace cultures they encounter and may help predict which women are most likely to succeed in

scientific workplaces. According to social identity theory, individuals hold multiple identities based on their connections with different social groups (Tajfel, 1982; Tajfel & Turner, 1979). Although individuals may hold multiple identities simultaneously, women scientists typically associate with at least two central identities: an identity as a woman and an identity as a scientist (Settles, 2004; Settles, Jellison, & Pratt-Hyatt, 2009). Holding these two identities simultaneously, however, may cause identity interference for some women scientists when the shared beliefs, values, and practices associated with each of these differ and are perceived as incongruous (Settles, 2004). Settles (2004) explains that "identity interference may result because movement from enacting one identity to another is difficult for some individuals" (Settles, 2004, p.488), requiring "a greater use of cognitive, emotional, or psychological resources" (Settles, 2004, 488). Consequently, women scientists may experience internal conflict or identity interference from these two identities when "the gender-role norms for women (e.g. warm, nurturing) and stereotype of women as poor in science is in stark contrast to the stereotype of a prototypical scientist as someone who is objective and rational" (Settles, et al., 2009, p.857).

This exploratory study examines women scientists' identity centrality related to their perceptions of workplace climate as described by experiences shared in their blogs. A relatively new form of online communication, blogs have been described as "individualistic, intimate forms of self-expression" (Herring, Scheidt, Bonus, & Wright, 2004, p. 1) that connect people (Shanahan, 2011), serve as a source of social support and empowerment (Rains & Keating, 2011), facilitate supportive communication (Rains & Keating, 2011), provide a historical record (Herring et al., 2004), and have a "socially-transformative, democratic potential" (Herring et al., 2004). An analysis of this medium was of particular interest for several reasons: 1) blogs allow for anonymity thus providing more candid reporting of experiences 2) blogs encourage interactions and connections among those who participate in online communities, 3) blogs provide detailed and rich descriptions of experiences, and 4) blog writing taps into internal thinking and cognitive processing, thus uncovering issues related to identity.

This study addresses a gap in the literature by investigating the link between identity centrality and women scientists' perceptions of workplace climate. Few studies have examined psychological factors, like identity, on women scientists' responses to challenges related to the "gendered institutional structure, cultures, and practices" (Rhoton, 2011, p. 696) of the scientific workplace in academic institutions. Additionally, this study advances research in this area by acknowledging individual differences in perceptions related to both identity centrality and career stage or professional status. Prior studies of women scientists' perceptions of workplace climate typically have aggregated responses of women scientists, failing to acknowledge how individual differences in identity centrality and professional status may moderate perceptions (Blickenstaff, 2005; Fouad & Singh, 2011; Rhoton, 2011).

LITERATURE REVIEW

Social Identity Theory

Social identity theory explains the dynamic process through which individuals construct an identity or a sense of self through their connections with various social groups (Tajfel, 1982; Tajfel & Turner, 1979). According to social identity theory, individuals simultaneously hold multiple identities or conceptions of selves based on their affiliation and identification with various social groups (Korte, 2007; Sacharin, Lee & Gonzales, 2009; Settles et al., 2009; Tajfel & Turner, 1979; Thoits, 1991) and strive to maintain a positive social identity through affiliations with in-groups rather than out-groups (Tajfel & Turner, 1979). Identification with various social groups influences attitudes and motivates behaviors because “[s]ocial structures (e.g., of gender, class, ‘race’) thus play an important role in shaping the identities, choices, and aspirations that people perceive as possible and desirable” (Archer, Dewitt, Osborne, Dillon, Willis & Wong, 2012, p. 970).

Individuals’ social affiliations have an impact on their psychological constructions of identity, as “[s]ociety gives form to each identity giving it a name and proscribing what behavior will make it up” (Kast, 2008, pp. 64-65). Identity schemas are cognitive structures of “complex, rich, affectively charged, interrelated concepts about the self” (Korte, 2007, p. 168). Identity schemas have been described as “internal organizations of stored information and meanings operating as frameworks for interpreting experiences” (Stryker & Serpe, 1994, p. 18). Conceptions of identities are reflexive (Stets & Burke, 2000) and dynamic (Wieland, 2010) and not “just states or traits of an individual that are relatively fixed” (Burke, 1991, p. 847). Social identity theory focuses on the active role of individuals in maintaining the group identities they most support (Burke & Reitzes, 1991; Stets & Burke, 2000). Individuals act to maintain specific identities when they hold strong commitments to them (Burke & Reitzes, 1991).

Identity centrality is “the importance or psychological attachment that individuals place on their identities” (Settles, 2004, p. 487). Some group affiliations may be more important or salient to one’s “identity centrality” than others (Settles et al., 2009). Identity integration describes a state achieved by individuals who strongly identify with multiple social groups even when these groups have conflicting values and goals (Sacharin et al., 2009). Identity interference, formerly referred to as role conflict (Van Sell, Brief, & Schuler, 1981), occurs when the one identity conflicts or interferes with another (Settles, 2004).

Identity interference is a critical concept for understanding women scientists’ negotiation of their dual roles and identities as scientists and women (Settles, 2004; Settles et al., 2007; Settles et al., 2009). Settles and colleagues (2009) noted: “Identity interference occurs when the performance of one identity creates problems or difficulties in the enactment of a second identity (and vice versa)” (Settles et al, 2009, p. 856). The extent to which women scientists experience internal conflict from identity interference varies depending on an array of personal and contextual factors (Settles, 2004). However, identity interference in women

scientists may be manifested when a woman scientist “feels that her woman identity cannot be expressed when she is enacting her scientist identity” (Settles, 2004, p. 487).

Blogging for Social Support, Identity Affirmation, and Social Change

In recent years, some women scientists have turned to blogging to report their experiences. Blogs have been characterized as a form of communication with both an individualistic self-expressive nature as well as a socially interactive nature (Herring et al., 2004). Research has traced the evolution of blogs from being simple “link-centered filters of Web content” (Herring et al., 2004, p. 9) to being more complex online journals that allow for public self-expression and social interaction (Herring et al., 2004). Research has found that blogging provides an environment that “makes appropriate and invites extended self-disclosure” (Rains & Keating, 2011, p. 528). Research has identified three key psychological benefits of blogging: 1) social support, 2) identity affirmation, 3) and social change (McKnight, 2009; Rains & Keating, 2011; Stein, 2009). Research has noted the ways blogs have been used by women to negotiate identity, particularly for professional women who have been silenced, isolated, or marginalized in their workplaces (McKnight, 2009). Specifically, research indicates that women communicate through blogs to 1) work through difficult experiences, 2) give meaning to their fleeting, everyday tasks, 3) establish connections with other women with similar interests and concerns, and 4) assert themselves and their identities when faced with competing social expectations (McKnight, 2009).

Blogs have been found to be a source of social support in promoting well-being for individuals who lack support networks and who feel stigmatized (Rains & Keating, 2011). A study of bloggers writing about a health condition reported greater well-being, and their blogging frequency was associated with greater perceived social support, suggesting that blogging reinforced existing strong-tie relationships with other blog readers (Rains & Keating, 2011). Although a slightly different form of online communication, another study found computer-mediated groups or listservs provided women scientists and engineers with social identification, help from peers, and access to role models and mentors (Kleinman, 2000). Online social support groups like these “can provide valuable psychological benefits for people who feel isolated or marginalized even if they choose to remain anonymous and invisible to other members” (Kleinman, 2000, p. 364).

Blogs also have been found to be a vehicle for supporting social change (Rains & Keating, 2011; Stein, 2009). One study noted how women lawyers used blogging to advocate for equality and rights in their workplaces (Stein, 2009). Women lawyers used the anonymous space provided by the blogs “Ms. JD” and “Building a Better Legal Profession” for both expression and connection to “challenge implicit male bias engrained in the profession, and share and obtain the information they need to become stronger bargainers in the workplace” (Stein, 2009, p. 358). Blogging helped women lawyers define the workplace issues that were important to them and work to change them (Stein, 2009).

Workplace Culture in SET and Women Scientists' Perceptions of Workplace Climate

Research has linked the continued underrepresentation of women scientists and engineers in academia to factors in the workplace culture. The workplace culture has been defined as "a phenomenon that involves beliefs and behaviors; exists at a variety of levels in organizations; manifests itself in a wide range of features of organizational life such as structures, control and reward systems, symbols, myths, and human resources practices" (Pettigrew, 1990, p. 414). Workplace culture manifests itself through the workplace climate or "shared perceptions of organizational policies, practices, and procedures, both formal and informal" (Reichers & Schneider, 1990, p. 22).

The workplace culture in many male-dominated fields cultivates a workplace climate that leads to an accumulation of advantage for male scientists, while creating an accumulation of disadvantage for female scientists (Valian, 2006). These accumulated disadvantages have long-term consequences: "Unless across-the-board adjustments are made, women faculty can never 'catch up' to their male counterparts" (Leggon, 2006, p. 329). Women scientists in academia often report negative perceptions of the workplace climate. They report experiences with "subtle biased acts" (Gunter & Starnach, 2005), gender-biased evaluations (Heilman et al, 2004), covert discrimination (Handelsman, Cantor, Carnes, Denton, Fine, Grosv et al., 2005), and patronizing behavior from male scientists who dismiss or ignore their opinions (Gunter & Starnach, 2005b). Women scientists report lower levels of collegiality and a lack of strong professional networks (Gupta, Kemelgor, Fuchs, & Etzkowitz, 2005). Many describe the workplace as filled with "uncomfortable, tense, or hostile interactions" (Gunter & Starnach, 2005, p. 113). In these contexts, even praise from powerful supervisors has a "disingenuous and patronizing nature that can marginalize well-performing women" when praise and "trivial niceties" (Vescio et al., 2005, p. 659) are offered in place of valued resources.

In addition to the discrimination and devaluation many women scientists experience, others bear the additional burden of working in environments that provide little support for balancing family and career (Birmingham & Wasburn, 2008; Rosser & Lane, 2002). Women in engineering and technology reported intentionally turning down tenure-track for non-tenure track positions to achieve better work-life balance (Birmingham & Wasburn, 2008). A recent report, "Stemming the Tide: Why Women Leave Engineering" (Fouad & Singh, 2011), noted that one in five women engineers who had left the field since graduating with an undergraduate degree in engineering from a U.S. college or university reported leaving because of a desire to spend more time with family, negative perceptions of culture, and a lack of advancement opportunities. Work-family conflict, in particular, has been defined as "a form of interrole conflict in which the role pressures from the work and family domains are mutually incompatible in some respect" (Greenhaus & Beutell, 1985, p. 77). Problems in either sphere potentially can affect the other (Huang, Hammer, Neal, & Perrin, 2004), and "when one devotes extra time and energy into the work role (or family role), the family role (or work role) is assumed to suffer" (Noor, 2003, p. 298).

Based on the review of the literature provided above, the following research question was posed to explore women scientists' identity centrality and perceptions of workplace climate as associated with their professional status (graduate student, postdoc, professor): RQ1: How do women scientists' identity centrality as represented in their blogs influence their perceptions of workplace climate in academia?

METHOD

This qualitative study explored women scientists' identity centrality and perceptions of workplace climate as related to their professional status and as presented in their blogs. The blogs selected for this analysis were identified using Google searches of the following keywords: "women scientist blogs", "scientific women blogs", "lady scientist blogs", "blogs women and science", and "women scientists blog about life". Additional blogs that appeared in the blog rolls of previously identified blogs also were included in the sample. Only blogs that indicated female authorship and included experiences related to being a woman in science were included. Blogs focused on scientific or other topics were eliminated. A total of 30 blogs were identified and ranged in length from 8 to 226, U.S.-based blog posts during a one-year period from September 2010–September 2011. Blog posts for each of the 30 blogs were printed from the Web and archived for analysis. All blog posts for the time period selected for analysis were examined.

A subset of 6 out of the total 30 selected blogs was randomly selected and coded independently by the author and another coder after undergoing training and meeting twice to discuss discrepancies. The identity centrality (scientist/work, woman/family) was determined for each blog post. Scientist identity centrality was defined as a majority of statements referring to experiences, issues, or concerns related to being a scientist or studying to be a scientist. Woman identity centrality was defined as a majority of statements referring to experiences, issues, or concerns related to being a mother, spouse, girlfriend, fiancée, wife, or partner. Inter-coder reliability was 79 percent for scientist identity centrality and 88 percent for woman identity centrality, with an overall reliability of 83.5 percent as calculated using Cohen's Kappa.

After establishing inter-coder reliability, the identity centrality of the remaining blogs was coded by the author. The overall identity centrality (scientist centrality, woman centrality, scientist/woman integration) of each blog was determined based on the highest percentage across all blog posts for each blog by each of the women scientists. Those blogs with approximately equal percentages of categories when summed across all posts were seen as indicating work-family integration. The career stage or professional status of the blogger (graduate student, postdoc, professor) was determined from specific references to academic workplaces and work roles in the blog posts. This analysis included comparisons in perceptions of workplace climate by career stage because prior research, which typically has aggregated responses of women scientists, has failed to acknowledge how individual differences in identity centrality and professional status may moderate perceptions (Blickenstaff, 2005; Fouad & Singh, 2011; Rhoton, 2011). Additionally,

social identity theory suggests that identification with different social groups, which is likely to vary depending on career stage, will influence attitudes and behaviors (Archer et al., 2012).

The author also conducted a textual analysis of women scientists' perceptions of workplace climate based on dominant issues identified in the literature: job opportunities, workload, research funding, resources/equipment, networking opportunities, professional recognition and respect, and work-family balance. References to these themes were examined in relation to the identity centrality of the blog and the professional status of the women scientists. Women employed in industry were not included in this analysis because of the small sample size (n=2).

RESULTS

Graduate Students' Identity Centrality and Perceptions of Workplace Climate

Of the 30 women scientist bloggers, five identified themselves as graduate students (see Table 1). Three of them had recently completed doctoral degrees and were seeking employment; two were currently working on degrees. The identity centrality exhibited in the blogs of the graduate students and their perceptions of workplace climate varied depending on their student status. The blogs of two women scientists who were currently pursuing graduate degrees indicated scientist identity centrality and most of their blog posts focused on comments about running experiments, the condition of equipment in the laboratory, working with advisors and dissertation committee members, and networking opportunities. The blogs of two of the three bloggers who recently had completed their degrees exhibited woman identity centrality and their comments primarily focused on job searches and anticipated future concerns related to work-family balance.

A heavy workload was a common workplace climate issue addressed in the blogs of the two current graduate students (*Life as an Outlier* and *The Sugar Scientist*). The blog posts for *Life as an Outlier* indicate a busy balance between time spent on research for her engineering dissertation and her personal life. For example, along with posts titled "Of High Standards and Pressures," "Points at Which PhD Students Wander," "Committee Meeting #1," "Korea Conference Wear," "Ph.D. Committee Requests Sent," are those titled "Hosting Pub Trivia," "Sightseeing in Korea," "Lemon Rolls," and "South of the Border Cooking Class." The blog posts discuss working in the laboratory, preparing for a pilot's license, taking cooking classes, co-organizing an international conference, mentoring high school students, participating in a medical study on metabolism, and making Christmas ornaments and gingerbread cookies using a laser cutter in the lab. Of her varied activities, this graduate student notes that she has "a lot of people to make happy on a daily basis" (April 5, 2011), but acknowledges these are all things she chooses to do.

A lack of job opportunities was a common workplace climate issue discussed in the blogs of recently graduated doctoral students (*A Natural Scientist*, *Grad Ovaries*, *Life as I Know It*). The blogger in *Grad Ovaries* notes problems with employers "being super picky and taking their sweet time with interviewing" (Aug. 17, 2011).

Many of the posts in *Life as I Know It* focus on unsuccessful attempts to find jobs and these posts indicate identity interference created by her roles as scientist and mother. She explains that she has volunteered to run camps and parties for kids to discover science while she waits for full-time employment (Feb. 22, 2011) and admits that she has "less desire than ever to return to the bench" (Jan. 24, 2011).

Another workplace climate issue discussed by the three recent graduates is actual or anticipated work-family balance conflict once they do find employment. All three women are mothers of either one child or two children. The blogger for *Life as I Know It*, notes the practical drawbacks of her failure to find employment and writes that she loves being at home with her new baby, but acknowledges the challenges of getting by on "one crappy postdoc salary" (Jan.24, 2011) earned by her husband while she struggles to find a job. Identity interference emerges in one of her blog posts when she explains that she has changed her curriculum vitae to remove references to when her child was born. She notes that she is torn about this decision because she is proud of her son and wants "to find a job with an employer who doesn't demand that I hide him all the time" (Feb. 1, 2011). However, she adds that she realizes that the mention of the length of her maternity leave on her vitae may be keeping potential employers from seriously considering her for a position.

Future concerns about work-family conflict were evident as identity interference in the blogs of some of the graduate student women scientists. The blogger for *Life as I Know It* writes about a specific incident when she experienced scientist-woman identity conflict: She explains she was unable to do a phone interview on the spot with a future employer who called while she was standing in the dairy section of a crowded local supermarket as her nearly 18-month-old was grabbing at the phone (April 19, 2011). She describes another incident when she acknowledges that after meeting who she describes as "THE very definition of professional career woman (academic) scientist mother," that she does not want to be like this woman because she wants to spend more time on her family (Jan. 31, 2011). She explains that she enjoys "domestic-ey things like sewing and baking" and does not want to spend 100 percent of her time devoted to "science-y things" and cannot be "200% of a person" to do both (Jan. 31, 2011).

Frequent and detailed blog posts in *Grad Ovaries* chronicle her activities as a graduate student finishing her doctoral degree and starting a life as a new mother. Although her early blog posts indicate more identity integration between her roles as scientist and mother, after her second child is born, her blog posts quickly turn to an almost exclusive focus on her family role (81% woman, 6% scientist). These blog posts, punctuated by occasional references to delays caused by dissertation committee members' lack of timeliness in providing feedback and an aversion to job searching, are titled "Family Dinner," "Flu," "Milk Update," "Dr. Mommy," "C-Section: The Ugly Side," and "Labor Anxiety." These blog posts discuss pregnancy, childbirth, breast feeding, potty training, picky eaters, and travelling with young children. Identity interference emerges clearly in one blog post: "I am desperate to get a job, desperate to get back to some semblance of normal life, and yet every

time I think about actually getting full-time childcare for [her infant] and starting a job, I cry" (Aug. 29 2011).

The blog posts for *Grad Ovaries* also describes identity interference that stems from the lack of recognition and respect she receives from others related to her dual role as a scientist and as a new mother:

One random observation: when you do all this final PhD work while toting a baby who is not quite two months old, just about everybody you interact with comments on it, saying something like, "Really, you're doing all this dissertation work with a newborn?!?" Don't feel too proud of yourself, though. Yes, approximately two-thirds of those people will mean, "Wow, it's really impressive that you're finishing up heavy duty graduate work while also caring for a newborn!" But the other third of the people will actually mean, "Wow, it's really sad that you're neglecting a newborn just to do some graduate work before some arbitrary deadline" (April 12, 2011).

Similar experiences are noted in the blog posts for *A Natural Scientist* (49% woman identity centrality, 4% scientist identity centrality) who also expresses frustrations with others' lack of understanding. She writes: "my old advisor would like me, my toddler, my thwompy fetus, and my nail-through-the cranium headache to edit my ... paper. Which I haven't seen in two years ([First child] was a newborn, and I was dictating to Dr. S while nursing)" (Aug. 13, 2011).

Postdocs' Identity Centrality and Perceptions of Workplace Climate

Half of the 30 women scientist bloggers identified themselves as postdocs and most of their blogs suggested scientist identity centrality (see Table 1). The blogs of two of these women scientists exhibited woman identity centrality and the blog of one woman scientist (the only one found in this study) exhibited identity integration, with approximately half of all blog posts focused on work and the other half on family issues. The blog posts written by postdocs addressed a greater number of workplace climate issues than those of graduate students as many assumed supervisory roles in laboratories and lead roles in scientific workplaces. Their blog posts described experiences supervising graduate students, undergraduate students and lab technicians; preparing papers and grant proposals; conducting experiments; interacting with the supervisors of the laboratory; applying and interviewing for jobs; and negotiating salary and startup packages for tenure-track academic positions.

Similar to graduate student bloggers who had recently completed their doctoral degrees, challenges in finding jobs also was a common theme in the blog posts of postdoc bloggers. Identity interference emerges in the blog posts of *A Little Bit Bitch*, *A Little Bit Buddhist* which describe the plight of a woman scientist who faces the dual-career scientist or "two body problem" in finding positions for herself and her scientist spouse. The majority of her blog posts focus on a scientist identity centrality as she explains how she and her husband have relocated from Canada to what she describes as Smalltown USA where both were offered postdoc positions at

SmallUniversity. She mentions the low probability of getting a tenure-track position at a university during an economic depression (Aug. 4, 2011) and notes the need to look broadly for jobs in science and not just in academia (July, 29.1011).

The postdoc blogger for *Fumbling Toward Tenure*, whose blog posts predominantly focus on a scientist identity centrality, also mentions the challenges of the dual-career issue. She writes that she and her partner will live apart until he finds a job in the city where she has moved to start a tenure-track position (July 20, 2011). She describes the trials of her job search: "Dozen of applications, and not a whisper of interest from anyone, despite my Classy Institution-filled CV, letters of rec from Famous Dudes (and Dudette), and (what I naively thought was a) brilliant Research Plan" (July 11, 2011). Identity interference is evident in one post when she writes: "the whole experience made me want, at times, to throw in the towel completely" (July 11, 2011).

A lack of employment opportunities appeared to be an issue regardless of the identity centrality exhibited by the postdocs; however, identity interference also indicated more serious consequences for postdocs whose blogs indicate a strong woman identity centrality. *Mother of All Scientists*, whose blog posts suggest woman identity centrality (woman 50%, scientist 25%), announces that she will "be out of a job come January" (June 25, 2010) when her postdoc is over, and at that time she will leave academia. She explains that the uncertainty of finding a tenure-track line, although her husband has just lined up an interview for a tenure track job at a very prestigious institution, has led to this decision. The mother of two children, she writes: "I guess I'm finally over it. I'm done caring if people want to brand me a 'failed scientist' and I'm going to try my best to find a position with a decent paycheck and some appropriate work-life balance" (June 25, 2010).

The challenge of a heavy workload related with the demands of being a principal investigator in charge of the laboratory was another commonly addressed workplace climate issue that surfaced in the blogs of postdocs. Postdocs often described juggling multiple tasks and looming deadlines. *Dr. Zeek: Confessions of a Self-Admitted Nerd*, whose blog posts indicate a high scientist identity centrality (scientist 83%, woman 6%), writes that she has 250 samples to analyze and adds that "there is only so much one can do" (Aug. 29, 2011). She writes that after spending an entire day talking science with a guest colloquium seminar speaker and hosting a dinner for him with her boss and a collaborator that she is stressed out and "everything just seems to be too much" (Feb. 14, 2011). In another post, she notes: "writing four (yes, four) recommendation letters, a progress report for my fellowship, a section of the NIH grant for our lab is submitting in a few weeks has done little for my sanity, let alone for my progress (Oct. 5, 2010).

The "Candid Engineer in Academia," whose blog posts mostly suggest a scientist identity centrality (47% scientist, 6% woman), describes the challenges of managing an equally intense workload. She notes the stress caused by underestimating the amount of time a project would take to complete, and after turning in the project a day late, she writes: "I know it would have been even better if I had not written so much of it on the fumes of 3-hour nightly sleeps and

gallons of caffeinated beverages. Not to mention the extreme, soul-wrenching stress it caused. This is not how I want to live my life" (Feb. 9, 2011).

Similarly, *Ambivalent Academic*, a postdoc whose blogs reflect a scientist identity centrality (56% scientist, 0% woman), describes challenges in balancing an intense workload that includes writing journal articles and supervising undergraduate students. She writes that she is "swamped with manuscript edits" and "running on fumes" (Dec. 7, 2010). She notes the effects of her heavy workload: "These drained feelings are causing me to question whether I really truly want to keep hacking away at this career path. I love the science. I really really do. But the other crazy that comes with it is killing me" (Dec. 7, 2010).

A number of postdoc blogs posts that indicated scientist identity centrality expressed an early awareness of the competitiveness in securing grants that will be needed to keep their research and careers afloat. The *Ambivalent Academic* notes that she is "watching my PI and other young profs keep running into that brick wall of funding (or lack thereof)" (Nov. 5, 2010). Later in this post, she presents a long list of questions that express her uncertainty related to securing funding needed to continue as a postdoc: "What if I don't get this NRSA, and what if PI still doesn't have an R01? Can he still support me? Will he still support me? What if he can't/won't? What if I end up unemployed? How long will it take me to find another position? Should I start looking now, just in case? Would that be a faux pas? Should I look outside of academia? ..." (Nov. 5, 2010). Similarly, the blogger for *A Little Bit Bitch, A Little Bit Buddhist* also expresses dismay over the anticipated need to continually seek research funding. She writes: "I despise the idea of spending the rest of my career scrounging and chasing money to have the 'freedom' to follow my intellectual curiosity. Eighty-percent of a professor's job seems like it is spent looking for grant money. Not interested" (July 20, 2011). *Young Female Scientist* adds that funding opportunities are worse than they were 10 years ago and she believes that reviewers look for excuses not to fund rather than focusing on projects' merits (Oct. 12, 2020).

Several postdoc women scientists mentioned a lack of resources or equipment needed to advance their research as a negative workplace climate issue. The postdoc in *Living the Scientific Life* (100% scientist identity centrality) describes her entire postdoc as a time when she worked with not enough, old/broken, or the wrong equipment (May 8, 2011), and she notes that "Blond Guy," who is liked by her boss, receives preferential treatment in purchasing equipment. The blogger in *Ever on Ever on*, whose blogs indicate a scientist identity centrality (76% scientist, 2% woman), mentions frugal principal investigators who "won't let go of money" (March 23, 2011) for lab supplies and equipment. One postdoc explains the challenges in completing her research when "the shiny new toy that makes [her] project possible" (Nov. 5, 2010) does not show up. *Ambivalent Academic* explains the consequences: "I'm also feeling a little like, "Why am I here?" about this. Why would they hire me to do this job for which we do not actually have the tools?...Why would they tell me we were going to get these critical tools when we got something else entirely?...Can we work around this problem? Sure, but not gracefully. The analysis will be a total mess with any conceivable work-around

strategy. It will also ratchet down the impact of this project quite a few notches" (Nov. 5, 2010).

Exclusion from professional and social networks emerged as a negative workplace climate issue for a number of postdoc bloggers and often was described as a form of identity interference. One blogger describes the consequences of this form of exclusion: "Today, I met another woman who is a postdoc and has decided to leave academia. That's a total of 5 women now, all of whom were postdocs for somewhere between 1-5 yrs and have left or are planning on leaving... And no, it's not always because of family/kids" (*A Little Bit Bitch, A Little Bit Buddhist*, Aug. 4, 2011). She explains the perspective of the postdoc female scientist she describes:

Her supervisor is here at the conference and it turns out that he's decided to play hookey and go and see a ball game. The interesting thing is that he's invited four people to join him. Guess who. All boys. she has not been invited. In Postdoc XX's words, 'I'm just tired of battling the old boys. I don't want to do it anymore' (Aug. 4, 2011).

Later this blogger describes a "second level of networking," which she calls "chumming," that often involves late-night drinking. She explains that this form of social interaction and networking among professional scientists specifically excludes women and minorities who may have personal or cultural objections to drinking (Aug. 22, 2011). She advises other women to get around this by setting up their own "chumming circle" or joining their local Association for Women in Science chapter (Aug. 22, 2011).

A lack of respect and recognition was another workplace climate issue cited by postdoc women scientists whose blog posts suggested a scientist identity centrality. A number of the bloggers describe the exclusiveness of what one blogger calls "the evil boys club" (*Young Female Professor*, Sept. 8, 2010). *Dr. Zeek* recalls an incident of unfair treatment by her "grad school adviser mentor slave=driver ungrateful, unfeeling cyborg boss" who said he would never yell at her because he didn't want her to cry like one of his other female graduate students once did (Aug. 23, 2011). She explains that it hurt her that her boss was withholding his true opinion of her work, and she writes she would have preferred to have his honest impressions of her work (Aug. 23, 2011). She adds that she was irritated when this boss wrote that she was "always cheerful" in a recommendation letter, wondering if he would have made that comment in letters for male postdocs.

Other postdoc women scientists also mentioned the workplace climate challenges related to the lack of respect and recognition from male colleagues. One blogger writes "the undercurrent that women and minorities in science are second-rate and the power of the unspoken can be debilitating" (*Ever on Ever on*, Feb. 5, 2011). She notes that women's names are not mentioned for seminar speakers or panel members until someone notices there are no women on the list (*Ever on Ever on*, Dec. 2, 2010). Another complains about women scientists' need to explain themselves, or what she calls "bean'splaining" (*A Little Bit Bitch, A Little Bit Buddhist*, June 15, 2011), to male scientists who are more likely to simply accept

the words of fellow male scientists. *Young Female Scientist* describes the “so-called ‘subtle’ discrimination [that] continues to hold back women at the faculty level by overwhelming them with heavy teaching loads while limiting their access to influential committees” (Sept. 8, 2010). A postdoc with blog posts that suggest a high scientist identity centrality (90% scientist, 10% woman), *Young Female Scientist*, describes her frustrations in not only dealing with sexual harassment from her advisor, but also by the lack of constructive suggestions from female mentors about how to handle this issue, noting that commiseration from older women professors who experienced similar situation did not make her feel any better (Sept. 13, 2010). She also notes “selective sexism,” explaining that “this is when a guy seems to be okay with some women but when threatened by others, resorts to harassment tactics” (Oct. 12, 2010).

Discussions of work-family balance challenges were noted in the blogs of the three postdoctoral women scientists who were parents. Each of these postdocs is the mother of one child; one of their blogs suggested woman identity centrality and the other one suggested scientist/woman integration. Yet even *Dr. O*, the only woman scientist whose blog showed identity integration (38% scientist, 41% woman), writes that although she has been productive “establishing a nice little scientific niche with some strong publications, helpful collaborations, and sound advice from my mentors,” she anticipates work and family balance challenges when she searches for tenure-track jobs (*Labspace/Dr. O* Sept. 7, 2010). She writes: “With a baby (and new-found monetary responsibility) on the way, Hubby and I have finally begun working on back-up plans (aka – Plan C)” (Sept. 7, 2010). Although her blog posts overall indicate identity integration, some note the challenges of juggling work and family: “I’m a big fan of work-life balance, but I can’t seem to focus on either one these days. When I’m working on job applications, I find myself thinking about the journal club I have to put together. So I switch to working on the journal club, then the upcoming interviews for the little [baby]’s pediatrician take over.... I start working on *anything*, and *everything* ends up spinning in my head until I feel like my brain has been thrown in a blender” (Oct. 3, 2010). Similarly, another post focuses on reprimanding a co-worker for interrupting her maternity leave: “I know I’ve mentioned this, like 10 gazillion times, but in case you didn’t catch it, I won’t be at next week’s meeting because “I’M ON MATERNITY LEAVE!! I made it abundantly clear these past few months that I would not be doing any committee work from November to March – so I could focus on lab work the month of my pregnancy, and make sure my head is on straight after coming back to work before adding on extra duties” (Nov. 30, 2010).

In their blogs, some of the female postdoctoral scientists expressed doubts about future success in achieving work-family balance. After working around the clock on a project, *Candid Engineer in Academia* asks: “And what is going to happen when I have children?!?” (Feb. 9, 2011). The blogger for *A Little Bit Bitch, A Little Bit Buddhist* writes: “I have many friends who consider themselves progressive - we sit around and talk about the presence of an old boy's network. We talk about how academics can still have a family and work-life balance. But frankly, I don't see it.... I can't really name any more than 1 successful female academic whose husband, also in science, has sacrificed his career for hers” (July 27, 2011).

Professors' Perceptions of Workplace Climate Challenges

Nine of the 30 women scientist bloggers identified themselves as professors, ranging in rank from newly hired assistant professors to full professors (see Table 1). The blogs of all of the women scientists who were working as full-time professors indicated scientist identity centrality. These women scientists most often blogged about preparing and rewriting grant proposals and manuscripts; teaching and mentoring postdocs, graduate, and undergraduate students; travelling for their research; collaborating with colleagues; and working in their laboratories.

Demanding workloads focused on research, grant writing, and teaching surfaced as common themes in the blogs of the women scientist professors. Their comments about the intensity of their workloads often described attempts to juggle varied professional responsibilities, particularly at times when they felt overstretched by too many deadlines or projects. *Prodigal Academic* writes about juggling the writing of five grant proposals and white papers. The blogger for *Chemicalbiology* reports success in achieving research funding, but notes she secured funding only after she "submitted and re-and re-re-submitted" (Aug. 23, 2011). Another blogger writes that she has just spent four hours on emails and in the last 15 days has been home for only two days and is scheduled to "jet off to another conference on Sunday" (*Janus Professor, My Travels in a Two-Body Life*, March 25, 2011). Most of these bloggers note that they are principal investigators of funded research projects.

Access and equitable distribution of research resources and equipment was another workplace climate issue addressed in the blogs of the women scientist professors. Some note inequities in resources in comparison to male colleagues: "I have a colleague who has been going on for a year about his need for a new \$200,000 foot pedal operated microscope. I would be happy with a lab that has lights that work every day. And, perhaps, if I could be so indulgent, a functioning sink. But, I realize that's probably asking too much" (*On Becoming a Domestic and Laboratory Goddess*, June 15, 2011). Similarly, *Prodigal Academic* writes about limited resources: "I was doing my projected budget for this year, and boy am I freaking out. I decided to go for it with a 'burn the ships' spending strategy on my startup, but the reality of seeing that nest egg dwindle is jarring" (*Prodigal Academic*, Oct. 3, 2010).

Another frequent negative workplace climate issue discussed in the professors' blogs relates to the lack of respect and recognition from male colleagues. Identity interference often emerged in the posts that discuss this issue. *Female Science Professor* writes of a situation when three other male co-organizers of a professional conference received an email thanking them for their work while she and the other female co-organizer were copied on the email. The blogger for *Blue Lab Coats* explains her challenges with workplace politics. She writes that she spends a lot of time in meetings: "Some are useful, some are not. Most are benign. Some are not. Today I experienced first-hand a non-benign variety. The ambush" (July 15, 2011). She gives a list of the "hard lessons" she has learned about departmental politics and writes: "Sometimes I feel like I need a guide to

navigate aspects of the professional mine field that I feel trapped in. Sorry that is all I have energy for" (July 15, 2011). Another blogger in a post, "Seminar pet peeve of the day," writes about her request to a colleague asking that he not show slides with images of women in bikinis during seminar presentations (*Blue Lab Coats*, Feb. 28, 2011). *Janus Professor, My Travels in a Two-Body Life* explains how she ducks into a restroom to avoid interactions with "the harasser-in-question" and contemplates moving office hours to a conference room because the harasser's office is next to her office (Aug. 22, 2011). The blogger in *Academic Jungle* notes her impressions of how pregnancy has influenced her colleagues' perceptions of her: "As my belly grows, my perceived IQ and competence drop – I become ever less a scientist, and ever more a lower being: just another procreating woman. Who apparently dumps work on others" (June 20, 2011). She acknowledges the problem of subtle forms of discrimination that often go unnoticed, but points out: "Bias against women is well-documented and real because many, many women have the exact same ambiguous unpleasant experiences happening to them" (Aug. 22, 2011).

Work and family balance was often mentioned in the blogs of women scientist professors. A greater number of the women scientists employed as professors (seven out of eight are mothers) blogged with greater frequency about family issues than did women scientist postdocs whose blogs suggested a scientist identity centrality, and some of their comments about this issue indicate identity interference. For example, Dr. Isis who blogs for *On Becoming a Domestic and Laboratory Goddess* often writes about her child, noting times when identity interference results from her roles as scientist and mother. The blogger for *Academic Jungle* describes herself as "working maniacally to finish multiple white papers and start drafting grants" in anticipation of "the inevitable decline in cognitive abilities due to infant-induced insomnia" (March 10, 2011). *Blue Lab Coats* discusses the lack of support for work-family balance: "Can having a new baby affect your productivity? ...Having a baby can affect your ability to get in a shower once per day, we are not even going to talk about what it can do to your ability to complete tasks that involve actual brain power. And anyone who has had a baby knows that when the maternity leave is over your brain isn't automatically switched back on to its full pre-baby full night of sleep every single night productivity (March 4, 2011).

Janus Professor, My Travels in a Two-Body Life, the mother of one child and expecting another, explains that she has a modified workload to release her from teaching during the later months of her pregnancy, but asks: "What kind of activity can a person do, if they can't even dress themselves or if they can barely type?" (Aug. 10, 2011). In another post, after she has returned from maternity leave, she describes a specific incident of work-family conflict: "My husband has strep, my son has an ear infection, and I've got a proposal due tomorrow. I'm running a mini-hospital at home" (Dec. 21, 2010).

Work-family conflict and the resulting identity interference often was mentioned as requiring compromises to either the women scientist bloggers' professional or personal lives. *Janus Professor, My Travels in a Two-Body Life* explains how her

quest for work-family balance led to compromises in her career, specifically when she left an Ivy League university for a less prestigious one. She explains how this move has placed limitations on her research: "Even if I go into the lab and show them how to do it, [students] can't even copy my actions. If I give them a paper, they can't reproduce the results. It takes two students to do one project, but grants generally fund one student. I'm not at a top ten place, and I don't get top ten students" (April 20, 2011). Similarly, the blogger in *Academic Jungle* writes: "The work-family balance is never a balance; more like a seesaw" (April 16, 2011). She also links her work-family balance with career compromises: "I have kids and am at an R1 (Research 1) school, the state's flagship, and according to all metrics I am doing pretty well. If I hadn't had children, would I have been at MIT or Stanford (top places in my field)? Maybe, maybe not...All I know for sure is that I wasn't going to have a family and not be there to raise them" (Sept. 1, 2011). *Janus Professor, My Travels in a Two-Body Life* describes how her work commitments constrain her parenting style: "With my job, I wasn't able to spend every precious moment with him. I was often working at night writing proposals. I didn't have time to dote, to helicopter, or to sanitize" (June 29, 2011).

Identity integration in the midst of work-family conflict was noted as attainable by some of the women scientist professors. The *Prodigal Academic* describes a synergy that suggests an integration of her two roles as scientist and mother: "Being a parent and a scientist has been a great combo for me. My kids have a wonder about them that touches all aspects of my life. In parenting them, I have learned to be patient in explaining things, to expect off-the-wall questions, and to enjoy the awesomeness of our world. I think this has made me a better teacher in my classes" (*The Prodigal Academic*, April 29, 2011). However, she acknowledges the challenges: "In my career, being a parent forces me to be more efficient. I can't surf for hours a day, because I can't work between 5 and 8 or 9 pm every evening, so I need to make my work time count. ...Yes, it can be hard to balance kids, work, marriage, and personal time, but how many things in life that are worthwhile are also easy? (April 29, 2011).

DISCUSSION

The findings from this study revealed that women scientists who blogged about their experiences as scientists, regardless of their identity centrality and professional status, all noted workplace climate challenges. The specific workplace culture issues they experienced and the extent of concern about these issues varied depending on both their identity centrality and career stage. These findings support those of previous studies that found issues such as workload, being asked to do more with fewer resources, and heavier service, committee work, and advising were all viewed as barriers to success by women faculty in STEM fields (Wachs & Nemiro, 2007).

Identity emerged in this study as a key consideration for advancing our understanding of the effects of negative perceptions of workplace climate on women scientists. The findings from this study indicated that women scientists with a scientist identity centrality as well as those with a woman identity centrality both

experienced identity interference that appeared to be related to views of the scientific workplace climate as hostile to women. The implications of these findings are important for women scientists with a woman identity centrality, in particular, because research suggests that women scientists' persistence and success in STEM fields despite negative perceptions of workplace climate is dependent on which identity women scientists hold most central (Settles 2004; Settles et al., 2009).

Identity interference often appeared to be the result of conflict between the two central identities of all women scientists, that is, being a woman and being a scientist. This finding supports prior research on identity interference. For example, research has indicated that women scientists who hold their woman identities rather than their scientist identities to be most central are those who are most likely to experience identity interference (Settles, 2004). Additionally, women scientists who ascribe importance to *both* of these identities may experience greater interference between them (Settles, 2004). Research has documented several negative consequences of identity interference reported by women scientists including lower science performance and lower psychological well-being related to self-esteem, depression, and life satisfaction (Settles, 2004; Settles et al., 2009).

Additionally, the findings of this study documented the heightened negative effects of identity interference for women who face intense work-family conflict and who often mentioned leaving science as a negotiation strategy for reducing scientist-woman identity interference caused by work-family balance conflict. Previous research has found that the resolution of identity interference may only result when women scientists drop out of science or disidentify with one identity (Settles, 2004). This finding suggests that efforts to eliminate identity interference in women scientists are critical for the retention of women in STEM fields.

The findings from this study documented patterns related to important individual differences in women scientists' perceptions of workplace climate by career stage or professional status. For women scientists working as graduate students, the most common negative perceptions of workplace climate focused on heavy workloads, lack of job opportunities, and anticipated conflict related to work-family balance. For women scientists working as postdocs, the most common negative perceptions of workplace climate focused on heavy workloads, lack of job opportunities, work-family balance conflict, lack of resources and equipment, competitiveness of the field in securing research funding, exclusion from professional and social networks, and a lack of respect and recognition from colleagues. For women scientist working as tenure-track professors, the most common negative perceptions of workplace climate focused on heavy workloads, work-family balance conflict, lack of respect and recognition for colleagues, and inequitable distribution of resources and equipment. Acknowledging individual differences in experiences and perceptions of workplace climate among women scientists at various stages of their careers is critical for identifying the specific types of support needed at each career stage in order to ensure their retention in STEM fields. These findings identified some of the specific areas of concern by career stage that would be important to consider when

developing initiatives focused on institutional reform and transformation in STEM fields.

Limitations and Implications for Future Research

There were a number of limitations to this study. First, as an exploratory story, the textual analysis established interesting patterns associated with how identity centrality related to women scientists' perceptions of workplace climate, but did not assess the overall strength of women scientists' identity centrality nor provide a specific measure of the workplace climate issues of greatest concern. Second, the blogs provided only one, limited source of information about women scientists' perceptions of workplace climate. Third, the representativeness of the experiences of the women scientists shared in the blogs is limited. This study reported findings from a self-selected group of women scientists – those who blog – which represents a small subgroup of all women scientists. The women scientists in this subgroup may have been more likely to experience and note challenges in workplace climate and may have been more actively negotiating their identities as compared to other female colleagues. Fourth, only one woman scientist exhibited work-family identity integration allowing for limited exploration of this issue. Finally, this assessment of identity was measured based on an interpretation of comments in blogs. This qualitative assessment could be further supported by quantitative assessments, such as interviews or surveys

Future research on women scientists' perceptions of workplace climate related to their identity centrality and integration of their female and scientist roles could compare the findings from this qualitative assessment of blog posts with quantitative, self-reported assessments from scientists to measure these constructs (Settles, 2004). Additional research involving both qualitative and quantitative assessments of identity also could compare similarities and differences in the experiences and perceptions of workplace climate of women and men scientists to determine if women scientists experience more barriers and perceive less support for their scientific careers. Future research could also examine if identity interference has a positive influence on identity negotiation, assisting women scientists in ultimately achieving scientist-woman identity integration.

Additional research also could investigate the role of blogging as a forum for exploring social change needed to improve the workplace culture for women in STEM. Future research could explore both the social and the psychological benefits of blogging noted in previous research (McKnight, 2009; Rains & Keating, 2011; Stein 2009). Additional research on the benefits provided through blogging is important in light of research highlighting that positive experiences with female role models and the presence of supportive social networks serve as buffers to social identity threat for women scientists and engineers (Richman, vanDellen, & Wood, 2011). Research by Settles and colleagues (2009) suggested that greater connection with other women scientists may lead to greater social support that may in turn lead to greater scientist identification, which may be critical for the retention and success of women scientists.

Research has noted that those female students who think about their futures as parents are more likely to self-select out of academic research careers in math and science even before applying for positions because of a perceived work-family conflict (Sears, 2003). Additional research also could explore the psychological benefits of blogging in addressing identity interference related to work-family conflict because the findings of this study noted this as a particular concern for some of the women scientists. Work-family conflict has been reported as a major problem for women scientists (Rosser & Zieseniss, 2000) and one that exists for women scientists at all stages of their careers (Wachs & Nemiro, 2007). The findings from this analysis echo those from other studies calling for greater institutional support for work-family balance.

Additionally, the findings from this study suggest the need for future research to address the specific psychological benefits of blogging related to giving women a voice to express concerns about the workplace culture. Blogging appeared to have provided women scientists with a voice when they felt that they were so often silenced, when their opinions minimized, or when their work undervalued in their workplaces. Research has found that women scientists who reported having an actual voice in departmental policies and practices are less likely to report job dissatisfaction as a result of poor workplace climate (Settles, et al., 2009). Being able to voice opinions, ideas, and concerns suggests an empowering function of blogging that also may be important for the retention of women in science.

Overall, the findings of this study advance our understanding of how identity centrality connects to women scientists' perceptions of workplace climate and the influence of individual differences such as professional status on those perceptions. These findings highlight the need for future examination of identity related to the experiences of women scientists. Research has found that negative perceptions of workplace climate affect women scientists' and engineers' job satisfaction (Bruck, Allen, & Spector, 2002; Fouad & Singh, 2011; Miner-Rubino, Settles, & Stewart, 2009), productivity (Gupta et al., 2005; Settles, 2004), job turnover (Chang, 2003), and well-being (Noor, 2003). Specifically, researchers have noted: "The threat of not being taken seriously, exclusionary experiences, dependence on hostile colleagues or seniors, conflict between gender roles and silence surrounding women's issues produce anxiety that interferes with scientific production and recognition" (Gupta et al., 2005, p. 1384). Researchers also have noted the consequences of identity interference: "Perceiving an incompatibility between one's gender and STEM identity can be a significant impediment to sustained achievement and engagement in pursuing a STEM career for women over time" (Rosenthal, London, Levy, & Lobel, 2011, p. 727). This study highlights the importance of national initiatives like the U.S. National Science Foundation's ADVANCE program that funds effective institutional transformations needed to increase the representation and participation of women in academic science and engineering careers.

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APPENDIX A: List of Blogs

Graduate Students

A Natural Scientist

<http://naturalscientist.blogspot.com/>

Grad Ovaries

<http://gradovaries.blogspot.com/>

Life as an Outlier

<http://three-sigma.blogspot.com/>

Life as I Know It

<http://jennphd.blogspot.com/>

The Sugar Scientist

<http://www.sugarscientist.com/>

Post Docs

A Little Bit Bitch, A Little Bit Buddhist

http://www.labspace.net/blog/profile/868/Little_bit_bitch_and_a_little_bit_buddhist

Ambivalent Academic

<http://ambivalentacademic.blogspot.com/>

Candid Engineer in Academia

<http://scientopia.org/blogs/candidengineer/>

Dr. Zeek: Confessions of a self-admitted Nerd Girl

<http://drzeeknerdgirl.blogspot.com/>

Ever on and on

<http://biochembelle.wordpress.com/>

Fumbling Towards Tenure/Dr. Becca

<http://scientopia.org/blogs/drbecca/>

Infectious Agents

http://www.labspace.net/view_blog.php?ID=586

Lab Spaces/Dr. O

http://www.labspace.net/view_blog.php?ID=611

LabSpaces/Biochem Belle

http://www.labspace.net/blog/profile/569/biochem_belle

A Lady Scientist

<http://biochemgradstudent.blogspot.com/>

http://www.labspace.net/view_blog.php?ID=581

Living the Scientific Life

<http://scienceblogs.com/grrlscientist/>

Mother of All Scientists

<http://motherofallscientists.blogspot.com/>

Prof-like Substance

<http://scientopia.org/blogs/proflikesubstance/>

The Happy Scientist

<http://thehappyscientistblog.blogspot.com/>

Young Female Scientist

<http://youngfemalescientist.blogspot.com/>

Professors

Academic Jungle

<http://academic-jungle.blogspot.com>

Blue Lab Coats

<http://bluelabcoats.wordpress.com/>

Chemical BiLOLogy

<http://scientopia.org/blogs/chemicalbilology/>

Dr. Mom, My Adventures as a Mommy-Scientist

<http://mommyscientist.blogspot.com/>

Female Scientist Professor

<http://science-professor.blogspot.com/>

Janus Professor, My Travels in a Two-Body Life

<http://janusprofessor.blogspot.com/>

On Becoming a Domestic and Laboratory Goddess

<http://isisthescientist.com/>

The Prodigal Academic

<http://theprodigalacademic.blogspot.com/>

Industry Professionals

Apple Pie and the Universe

<http://mrscomethunter.blogspot.com/>

Life's a Biotech

http://www.labspace.net/view_blog.php?ID=571

Graduate Student (n=5)	Professional Status	Identity (% of Entries)**		No. of Children	Identity Centrality
A Natural Scientist	Ph.D. Graduate (Unemployed)	Scientist (4%)	Woman (49%)	1 & pregnant	Woman
Grad Ovaries	Post Graduate (Unemployed)	Scientist (6%)	Woman (81%)	2	Woman
Life as an Outlier	Graduate student	Scientist (33%)	Woman (0%)	0	Scientist
Life as I know it	Ph.D. Graduate Unemployed	Scientist (94 %)	Woman (0%)	1	Scientist
The Sugar Scientist	Graduate student	Scientist (20%)	Woman (4%)	0	Scientist
Postdoc (n=15)	Professional Status	Identity (% of Entries)*		No. of Children	Identity Centrality
A Little Bit Bitch, A Little Bit Buddhist	Postdoc	Scientist (45%)	Woman (5%)	0	Scientist
Ambivalent Academic	Postdoc	Scientist (56%)	Woman (0%)	0	Scientist
Candid Engineer in Academia	Postdoc	Scientist (47%)	Woman (6 %)	0	Scientist
Dr. Zeek	Postdoc	Scientist (83%)	Woman (6%)	0	Scientist
Ever On and On	Postdoc	Scientist (76%)	Woman (2%)	0	Scientist
Fumbling Toward Tenure	Postdoc New Professor	Scientist (54%)	Woman (2%)	0	Scientist
Infectious Agents	Postdoc	Scientist (57%)	Woman (0%)	0	Scientist
Labspace/Dr. O	Postdoc	Scientist (38%)	Woman (41%)	1	Integration
Labspace/Biochem Belle	Postdoc	Scientist (63%)	Woman (0%)	0	Scientist
Lady Scientist	Postdoc	Scientist (25%)	Woman (75%)	1	Woman
Living the Scientific Life	Postdoc (Unemployed)	Scientist (100%)	Woman (0%)	0	Scientist
Mother of All Scientists	Postdoc	Scientist (25%)	Woman (50%)	1	Woman
Prof-Like Substance	Postdoc	Scientist (78%)	Woman (0%)	0	Scientist
The Happy Scientist	Postdoc	Scientist (60%)	Woman (4%)	0	Scientist
Young Female Scientist	Postdoc	Scientist (90%)	Woman (10%)	0	Scientist
Professor (n=8)	Professional Status	Identity (% of Entries)*		No. of Children	Identity Centrality
Academic Jungle	Professor	Scientist (72%)	Woman (26%)	3	Scientist
Blue Lab Coats	Professor	Scientist (84%)	Woman (3%)	2	Scientist
Chemical BiLOLogY	Professor	Scientist (61%)	Woman (9 %)	0	Scientist
Dr. Mom, My Adventures as a Mommy Scientist	Professor	Scientist (75%)	Woman (0%)	>1	Scientist
Female Science Professor	Professor	Scientist (73%)	Woman (2%)	1	Scientist
Janus Professor, My Travels in a Two Body Life	Professor	Scientist (75%)	Woman (16%)	1 & pregnant	Scientist
On Becoming a Domestic and Laboratory Goddess	Professor	Scientist 38%)	Woman (19%)	1 & pregnant	Scientist
The Prodigal Academic	Professor	Scientist (91%)	Woman (3%)	>1	Scientist
Industry Scientist Blogs (n=2)	Professional Status	Identity (% of Entries)*		No. of Children	Identity Centrality
Apple Pie and the Universe	Ph.D., Coordinator, Education & Outreach	Scientist (11%)	Woman (39%)	1	Woman
Life's a BiOTeCH	Ph.D. Graduate Industry - Biotech	Scientist (47%)	Woman (0%)	0	Scientist

*List of URLs of all blogs may be obtained from the author
 **Percentages do not add up to 100% in all cases because some blog entries focused on other issues

Table 1. Names of Blogs(N=30)*, Professional Status, Identity Focus of Blog Entry, Number of Children, and Blog Identity Centrality