

## CHAPTER I

### MINORITY STATUS AND PRIVILEGE IN THE ACADEMY: THE IMPORTANCE OF RACE, GENDER, AND SOCIALIZATION PRACTICES FOR UNDERGRADUATES, GRADUATE STUDENTS AND FACULTY

*[Scientists] do not make wild claims, they do not cheat, they do not try to persuade at any cost, they appeal neither to prejudice nor to authority, they are often frank about their ignorance, their disputes are fairly decorous, they do not confuse what is being argued with race, politics, sex or age, they listen patiently to the young and to the old who both know everything. These are the general virtues of scholarship, and they are peculiarly the virtues of science (Jacob Bronowski, 1956)*

In his book *Science and Human Values* (1956), Bronowski writes about the personality characteristics of scholars, one of which is the motivation to produce objective scholarship that will ideally benefit humanity. This motivation is also assumed to substantially shape the culture of science (and the academy) into a space that is immune from biased political and social influences. Bronowski's view exemplifies the ideology of a historical moment when the privileged standpoint held was that of white men who constituted the majority of scholars and scientists in the academy. This privileged standpoint is arguably one informed by assumptions that the academy is experienced similarly by all groups of people who not only share similar intentions, but are also treated as equal members of the community. Examining the culture of science

through a feminist lens, Donna Haraway (1988) argued that these assumptions are the result of the "god trick," or the belief that one's view is infinite. It is through this god trick that the most privileged members of the academy imagine that their perspectives are complete and detached from their social context, allowing them to produce scholarship that is objective and free of social influence. This privileged standpoint was challenged by minority group members, white women, and their allies during the American Civil Rights Movement, launching reforms across the American social, political, and educational landscape. Substantial changes were made in postsecondary education including the establishment of Women's Studies and various Ethnic Studies programs which sought to correct the absence of material about women and racial/ethnic minorities, and to employ pedagogical and administrative practices reflecting the needs of a diversifying student body (Soldatenko, 2001).

These historical examples help us gauge the progress made in the educational system over subsequent decades. However, diversifying the academy – in the student body, faculty composition, and curricular content – remains a work in progress. Many institutions of higher education have taken critical first steps in addressing issues of diversity through initiatives around recruitment and retention. However, participation at all levels in the academy remains disproportionate for some racial/ethnic groups<sup>1</sup>.

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<sup>1</sup> I acknowledge that grouping people together based on race and/or ethnicity suggests that the groups are homogeneous (e.g. Asians), which is not the case. Heterogeneity within groups includes cultural and language (among other) differences. Grouping, for example, all Asian persons into the category "Asian" does not take into account the particular "Asian" country to which the person is being linked, or if American born, the cultural similarity to other Americans who are not Asian. When issues of identity are considered, the heterogeneity within all racial or ethnic groups including African Americans/Blacks (American born, Caribbean, Latina/o, African, etc.), Asians (Chinese, Filipino, Hawaiian, Indian, Japanese, Korean, etc.), Latina/os (North, Central, and South American; Caribbean, etc.) and Whites (Dutch, Italian, Irish, Jewish, etc.) calls attention to incorrect assumptions about sameness that are made when studying these different groups. One incorrect assumption is that all members within these artificial groups experience the category (e.g. "Asian") in the same way. For example, some might assume that all Asians

According to the US Bureau of the Census (2006), Black non-Hispanics and Hispanics combined constitute 27% of the U.S. population, yet combined they only earn 16.5% of all bachelor degrees and 16% of doctorates. In addition, some disciplines remain more homogeneous than others in terms of both gender and race (National Science Foundation, 2004). In general, socialization to the academy is less complicated for middle and upper class white men than for members of other groups because the academy's history and value system is consistent with those racial, class and gender statuses (Stewart & Dottolo, 2005; Gonzalez, 2006, Nagayama-Hall, et al, 2006). However, practices based on the white male student or faculty member may not be adequate for socializing those who do not fit this profile. For underrepresented groups entering the academy, these socialization practices inform beliefs about career opportunities and how they may fit within a particular professional context. For this dissertation, socialization practices were examined at three levels in the academy: undergraduate students exposed to alternative material in a political psychology course; graduate students' motivations for pursuing doctorates in social science and humanities fields; and the felt experiences of faculty in science, technology, engineering, and math fields.

### **The Academy as a Total Institution**

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are considered a "model minority" when in fact many Asian groups are not seen in this way (for further description of this, see "model minority myth" in the faculty study/chapter 4 of this dissertation). The data collected for this dissertation do not allow for analyses within groups because of the small numbers for each of the umbrella groups to begin with (African American/Black, Asian/Asian American, Latina/os, Native American, and Whites). Therefore, I will use the following groups that assume some commonalities within each group residing in the United States: "Asian/Asian American" for all Asians, including Asian Americans and Pacific Islanders; "African American/Black" for all persons of African descent; "Latina/o" for all persons of Latin American descent, including American born Latina/os; "White" for all persons of European descent. The sample size of Native Americans in this dissertation is small and therefore tribe is not noted. The category "people of color" collapses the categories African American/Black, Asian/Asian American, Latina/o, and Native American, assuming that persons with a non-white identity have some shared experience.

Socialization into any institution involves a process through which individuals learn the values, attitudes, norms, behaviors, and skills needed to succeed within a specific context (Anderson & Louis, 1994; Goffman, 1961; Tierney & Rhoads, 1991). As is the case with any institution, the academy has its own set of norms by which its members are expected to operate. The academy's historical roots as a middle and upper class white male institution have resulted in a set of norms, such as maintaining an appearance of self-control at all times, privileging intellectual engagement over utility, and a style of verbal engagement that may seem hostile to some groups. These are the norms by which all undergraduates, graduate students and faculty are socialized, which may or may not be easily adopted by members of some groups because of differences in cultural or gender norms. Nonetheless, the academy is where different groups of people seek to explore their life options and determine where they will fit in terms of careers or vocations based on the information they gather from curricular content, social interactions with peers and teachers, and exemplars in positions they themselves may hope to one day occupy.

Although Erving Goffman's (1961) description of a total institution is based mostly on his research in mental asylums, many of the facets of socialization within a total institution are applicable to the academy. A central feature of the total institution is the blurring of three spheres of life: sleep, recreation, and work. Goffman characterizes the total institution as a space where like minded individuals coexist for extended periods of time, often removed from larger society to varying extents (e.g. participants in the academy vs. inmates in a prison). Within this system of the academy, life is organized to meet the many needs of its members by a bureaucratic organization of "whole blocks of people." Examples of this include dormitories and dining halls for undergraduates, and

stipends that free graduate students from securing employment outside of the academy to cover basic living costs. Often, basic needs are met so that the members, residents, or inmates are free to concentrate on goals or tasks set by the institution, such as the pursuit and promotion of research by faculty who are funded through internal research and travel grants.

Goffman suggested five types of total institutions, each organized according to the needs of the community. Among the five are those created for people who cannot care for themselves (e.g. homes for the aged or orphaned; or mental asylums); facilities that hold persons who are threats to a community (e.g. prisons); religious retreats (e.g. monasteries and convents); and institutions organized for instrumental purposes such as the academy. Within any of these institutions, a culture exists that includes daily practices, habits, and thoughts that provide a group with a basis from which to evaluate and interpret their environment (Traweek, 2000). For example, various activities are designed and enforced to fulfill the official aims of the institution, such as class schedules, curricular and pedagogical standards, and criteria for graduation, tenure, or promotion. Other examples include “institutional lingo” (Goffman, 1961) or discipline-specific jargon, shared ideals about evaluation of performance of students or faculty, as well as a sense of community developed among members because of the close and ongoing proximity to one another. These shared cultural values and practices among members, residents or inmates are intended to contribute to the success of the institution.

Another defining characteristic of the total institution is a hierarchy established among members. Using prison inmates as an example, Goffman described a hierarchy based on crimes committed, as well as events that happen within a prison that either

promote or demote a prisoner to a particular status. Hierarchy within the academy is not determined by negative criteria as in the case of prison culture, but instead promotion is earned by talent and hard work. However, assuming that a system is solely based on meritocracy can allow discriminatory practices to go unnoticed, including acts of omission as well as the privileging of certain practices and certain groups of people.

Ultimately, the total institution is a well-organized system that socializes its members in its likeness via mechanisms and practices that ensure that members contribute to the success of the institution itself. In the case of the academy, this becomes a paradox because primary goals of the academy are to educate its members to be critical thinkers and productive citizens, as well as to produce scholarship that is innovative and useful. An effective means to accomplish innovative practices is through the inclusion of diverse groups of people (Page, 2008). However, traditional academic practices and assumptions of neutrality and meritocracy are often challenged by people who do not fit into the dominant structure. During their tenure in the academy, minority group members inevitably learn lessons – both explicitly and implicitly – about their fit within the academy, as well as where they fit in the larger society.

### **Hidden Curriculum**

Erving Goffman (1961) described socialization within the total institution in ways that parallel practices associated with the hidden curricula found in educational institutions. Scholars have argued that the education system is – and should be understood as – an institution organized to socialize its citizens (Freire, 1972; Giroux, 1981; Jackson, 1968; Soldatenko, 2001). Philip W. Jackson (1968) coined the phrase “hidden curriculum” to describe the implicit lessons learned in schools, including

behavioral and social norms, some of which are experienced by some as oppressive. Jackson argued that the oppressive nature of these hidden lessons is derived from the demand for conformity rather than the nurturance of creativity in students. This initial work explored secondary schools first (Jackson, 1968; Rosenbaum, 1976), with subsequent research examining the role of hidden curricula in postsecondary educational institutions. In his book, *The Hidden Curriculum*, Benson Snyder (1970) examined why some students turn away from education, arguing that even with explicit efforts to modify lessons taught, hidden curricula serve as powerful tools to teach social and behavioral norms, many of which are incongruent with some groups of people's cultural values and norms. Additionally, educator Paulo Freire (1972) argued that powerholders use the educational system as a means of controlling the mass population, and concealing information that may empower those holding subordinate statuses.

Although there is no one form a curriculum takes, it generally includes goals and objectives, content, sequenced learning experiences and activities, classroom organization, material/resources, and evaluation. In whatever form, a good curriculum is supported by an articulated rationale and reflects the local context such as the characteristics of its students, the strengths of its teachers, the realities of resources, and the expectations and values of the community (Zumwalt, 1995). Hidden curricula, on the other hand, serve to socialize and control groups of people via subtler methods. As Freire (1972) argued, the absence of certain information and the overemphasis of other information operate in both implicit and explicit ways. The absence of information or behaviors implicitly reinforces beliefs that those ideas, groups of people, behaviors and events are not valued or important. Conversely, consistent exposure to information and

behaviors reinforces their value. Hidden curricula operate at all levels in the academy, and those being socialized within the academy learn the appropriate approaches to work and life, and attitudes toward learning partially through these curricula.

Researchers have identified ways both hidden and overt ideological knowledge distorts the school curriculum and the academic subjects that teachers study and eventually teach. This research includes analyses of bias, omissions, and distortions concerning many topics including the classics (Bernal, 1987); history (Anyon, 1980); math (Fasheh, 1990); and science (Harding, 1986). This “color coded” curriculum (King, 1995) controls what students learn and influences their self-concept; it may result in disengagement from school more generally (Steele, 1997), or selection of a career based on limited information about fit in terms of social identity (Bigler, Averhart, & Liben, 2003; Liben, Bigler, & Krogh, 2002; Signorella, Bigler, & Liben, 1993).

These attempts to conceal or distort information are often politically motivated, as in the case of the Texas Board of Education removing material from textbooks that does not reflect their version of American history (“In Texas Curriculum Fight,” 2010), and Arizona State legislation banning the teaching of any ethnic studies courses altogether (“Bill to Curb 'Chauvinism',” 2010). The manipulation of identity and social interests creates a “culture of silence” (Freire, 1972; Fryberg & Townsend, 2008) that ignores or minimizes contributions made by minority group members within the United States. Over time, this absence of information becomes normalized and teachers and students alike perpetuate the hidden lessons without awareness (Freire, 1972; King, 1995).

Much of the work on hidden curricula examines curricular content itself, but little is known about the effects of curricular content (or the absence of particular information)



on students' identities or beliefs about other groups (Freyberg & Townsend, 2008). In the case of undergraduate education, curricular content and required courses for completion of the bachelor degree implicitly state what is valued in American society. The general absence of women and minorities in the educational curriculum conveys implicit messages to students about hierarchies in society based on gender, race, class, and sexual orientation (among others); the availability of courses devoted to diverse groups of people (i.e. Women's Studies, African American Studies, Latino Studies) implies at the same time that knowledge about these groups is part of the academy and outside of its mainstream.

Hidden lessons are also present in socialization practices for graduate students and faculty members. These hidden lessons are especially important because they contribute to the construction of identity (the "self") as well as the strength of beliefs and attitudes about the self and "others". These lessons transmitted via a "hidden" curriculum—hidden because it is not labeled or explicit (Freire, 1970; Jackson, 1968; Martin, 1998; Weis & Fine, 2001) - can result in a limited self-concept for some persons especially around gender, race and sexual orientation, and are likely to have behavioral consequences, such as a person's life choices being constrained by unconscious self-schemas about who she is and what groups she believes herself to belong to. Scholars have argued that even graduate students and faculty in "radical" disciplines, such as Women's Studies or Ethnic Studies, must conform to the hidden curriculum that serves to socialize and thus reproduce the agenda of the dominant structure (Soldatenko, 2001). In fact, the hidden curriculum is described as including "finishing" qualities, such as manners, leadership styles, and classroom disposition that reflect the values of

powerholders and are often tied to class, whiteness, patriarchy and heterosexuality (Margolis, Soldatenko, Acker & Gair, 2001), practices that some groups benefit from while leaving others out. A consequence of exclusion is that certain groups of people may perceive a lack of fit even as legitimate members of the academy.

### **Standpoint Theory and Outsiders-Within**

Goffman's description of the total institution provides a view into an explicitly hierarchical system; the people in it understand where they fit into the dominant culture and behave accordingly. In this case, cultural practices created by the dominant group become routinized and eventually viewed as "natural" by all members of the institution. Unlike Goffman's asylum, hierarchy in the academy manifests in various ways and is less explicit in some cases. In certain ways, the hierarchy is explicitly stated as in the case of degree attainment (e.g. bachelors, masters, doctorate) or professor rank (associate, assistant, full). However, hierarchy related to race and gender is implicitly understood by all groups, but more likely to be acknowledged by minority group members and denied by those in the majority (Goff, Steele, & Davies, 2008; Hall & Closson, 2005; Kantola, 2008; McGuire, McGuire, Child, & Fujioka, 1978; Thompson & Sekaquaptewa, 2002). These dissimilar experiences within the same context inform people's standpoints differently, such that minority group members may perceive a lack of fit in a particular discipline or the academy in general, while majority group members may perceive their environments as neutral and inclusive of all groups of people.

The basic tenet of standpoint theory is that the dominant culture in which all groups exist is not experienced in the same way by all persons or groups, with views held by dominant group members being validated more often than those held by subordinate

groups (Harding, 1991; Hartsock, 1983; Hill Collins, 2000). Goffman's analysis of socialization within a total institution included groups of people who held dominant and subordinate positions (i.e. inmates and staff), and exemplified how standpoints are differentially shaped by social location within an institution. Social location determines how a person's standpoint is informed, with all standpoints being partial due to varying levels of access to information. According to standpoint theory, subordinate group members must learn to be bicultural in the sense that they must learn to navigate the dominant culture along with their own. Goffman described his own understanding of the institution as being somewhat distorted because of his privileged position as an observer and his disadvantaged position as an outsider.

Patricia Hill Collins (1998) used the concept of the *outsider-within* to describe people operating within an environment but without fully fitting into it. Unlike Goffman (or other researchers who hold privileged positions despite being outsiders), outsiders-within are minorities who are perceived by those in the majority (i.e. members of the dominant group) as belonging because they hold the "rights to membership" (Hill Collins, 1998) including credentials or an invitation to join the group. In the context of the academy, this perception is based on holding the appropriate credentials, such as adequate SAT scores for undergraduates or a PhD for faculty, as well as explicit efforts made by the institution to recruit members from underrepresented groups into the academy at various levels. For outsiders-within, inclusion does not necessarily translate to true belonging, or a sense of equal power or influence within a particular context. It is well documented that undergraduate and graduate students of color face challenges to fitting into predominantly white institutions (Ellis, 2001; Gay, 2004; Hurtado, Nolan,

Cabrera, Lin, Arellano, & Espinosa, 2008; Lewis, Ginsberg, Davies & Smith, 2004), and at the faculty level leadership roles are often assigned to white male faculty (Traweek, 1988), while faculty of color and white women often find themselves with disproportionate responsibilities for mentoring and committee work related to diversity issues (Tapia, Chubin, & Lanius, 2000). These are only a few examples demonstrating that despite recruitment efforts of minorities, outsiders-within may not be perceived or treated as equal members of the academy, and these experiences may be obscured from those in privileged standpoints.

### **Identity & the Role of Exemplars**

Identity formation in Goffman's total institution is described in pragmatic terms and dependent on group membership. In the case of inmates, he described the stripping of identity for the purpose of conformity. He also described the importance of developing a professional identity for staff because of their crucial role in maintaining institutional practices. In either case, both groups were aware of their role within the institution. Unlike Goffman's institution, the academy is an optimal space for people in a state of moratorium (Marcia, 1966) because of the many opportunities it affords to gather information about possible life choices for themselves and where they might fit into greater society. For those who attend college, go to graduate school, or enter into the professoriate, academic socialization plays an important role in their identity formation by providing the space and resources to explore, and some possible niches for self-definition. However, cultural remnants of the academy's white male origins may present some challenges for underrepresented groups who may perceive the academy as not a

good fit because of the lack of identity-matched exemplars in the curriculum or in faculty or administrative positions they may someday hope to occupy themselves.

Goffman acknowledged the “tangle of statuses and relationships” that inmates and staff bring into the institution that may not be necessarily tied to the institution itself. Similarly, members of the academy enter with existing social identities that may be perceived by some as incongruent within this context that has historically excluded them. The perception of increased barriers may complicate identity formation for certain groups of people, since it depends on fraught processes of choosing a field of study, a graduate program, and even a subsequent career as a professor or faculty member. Additionally, cues that inform a person of their fit within the academy may not be explicitly stated. The field of psychology has long recognized the power of indirect socialization practices (Erikson, 1959), and scholars have argued that non-conscious implicit attitudes and beliefs may result from repeated and consistent exposure with the environment (Greenwald & Banaji, 1995; Greenwald, McGhee & Schwartz, 1998; Greenwald, Nosek & Banaji, 2003; Murphy, Zajonc & Monahan, 1995; Nosek, Banaji, & Greenwald, 2002; Skowronski & Lawrence, 2001). Socialization practices in the academy may reinforce earlier messages about social identities, including race and gender, but also have the potential to disrupt stereotypes through curricular content (Hughes, Bigler, & Levy, 2007; Weisgram & Bigler, 2007), as well as exemplars on campus in general (Dasgupta & Agari, 2004) and in fields where they are not anticipated (Verba, Burns, & Schlozman, 1997). The academy is therefore an ideal environment to challenge preexisting – and perhaps unconscious – beliefs about race and gender. Within the academy, a person can learn about their “place” in society and participate in the processes that will contribute to

their sense of identity as legitimate members of the academy during their tenure, and as experts in their chosen careers.

### **Sense of Fit**

A component of identity achievement is the sense of belonging, contributing, or accomplishing something that is of value to the larger culture (Erikson, 1959). Goffman assumes that the total institution is potent enough to force a “fit” for all members, which may be the case in some institutions. However, the academy cannot be entirely characterized as a total institution for many reasons, including the complicated process of fit for many members. Unlike the military (which is considered an instrumental institution like the academy) or a prison, members of the academy can leave at their discretion. Specifically, the tenure of undergraduate members of the academy is temporary, as compared to that of graduate students and faculty who become increasingly invested in making a space for themselves in the academy, but are still free to leave at any time. Even with a greater sense of investment, participation at these higher levels is lower for some groups, particularly African Americans and Latina/os, calling attention to the leaky pipeline and the need for closer examination of who “fits” and why.

Civil rights activists believed that the alienation experienced by minority students in higher education was partially due to their lack of representation in the curriculum and as faculty members who could serve as exemplars (Soldatenko, 2001). It was also believed that the institutionalization of departments such as Women’s Studies and various Ethnic Studies would provide a space for these groups, legitimizing them as members of the academy and facilitating a sense of fit. More recently, psychologists have questioned the widespread American belief that all citizens are equally able to accomplish any

desired goal given the persistent “demarcations of humans into social groups and their unequal access to resources” (Nosek & Banaji, 2004). Related research has demonstrated that although people may explicitly state beliefs about equality (e.g. “all men are created equal”), unconscious associations between social identity and behaviors often differ (Greenwald & Banaji, 1995; Greenwald, McGhee & Schwartz, 1998; Greenwald, Nosek & Banaji, 2003; Murphy, Zajonc & Monahan, 1995; Nosek, Banaji, & Greenwald, 2002; Rudman & Kilianski, 2000; Skowronski & Lawrence, 2001). This suggests that limited knowledge about one’s own group, as well as limited accessibility of information about and exemplars from diverse groups may hinder a sense of fit for some groups of people within the academy who do not see themselves represented in this domain (Fryberg & Townsend, 2008).

“Fit” reflects a match between a person’s values and needs, and the demands made by the environment. Person-environment fit is assumed to influence many psychological outcomes, including job satisfaction, self-esteem, and positive work attitudes (Piasentin & Chapman, 2007; Roberts & Robins, 2004). Although there may be a fit in terms of talent and capability for people of color or women in fields where they are underrepresented, the cultural incongruence between a person and an environment can inhibit this sense of fit. In fact, males report higher rates of person-environment fit in academic settings than females (Roberts & Robins, 2004), suggesting that the culture of the academy remains more congruent with cultural values held by males than females.

Researchers also suggest that an absent “fit” may be compensated by a complementary relationship between persons and their organization. Complementarity includes the sense that a person is dissimilar to existing organizational characteristics, but

it is this dissimilarity that makes the person both unique and an asset to that organization (Piasentin and Chapman, 2007). The concept of complementarity is important when considering diversity initiatives, since the success of recruitment efforts of underrepresented groups depends on whether the institution, department or unit recognizes the importance of complementary fit. However, the perception of incongruence between a person and the environment may create an overall feeling of not fitting within the organization despite some particular characteristics that would seemingly lead to a “fit” (e.g. interest in the field or sufficient training for her position), and may contribute to the phenomenon of the leaky pipeline.

Hidden lessons also operate to inform a person of her fit within a particular domain. For example, researchers have found that deviations from a group’s collective gender beliefs are likely to be met with unfavorable responses from other group members (Young & Hulich, 2006). As gender reproduction theories suggest (Laslett & Brenner, 1989; West & Zimmerman, 1987), expectations for women’s role fulfillment may influence behavioral choices of “appropriate” career paths as well as gender-related behavior within an organization or institution, for example, women pursuing tasks that are supportive rather than leadership roles. Often these gendered behaviors are not optional, and women are put in a position of choosing between being continuously challenged for role-deviation or taking the less difficult road of conforming to gender-expectations. This is particularly problematic when the role being adopted is inherently gender-deviant, as in the case of women in politics and science. In such cases, members of the academy who belong to underrepresented groups may feel like outsiders-within because their minority status makes them visible targets.



## **Majority/Minority Group Status and the Intersections of Identities**

In most contexts, group membership is likely to include some variation of privilege or disadvantage, with majority group members experiencing some type of privilege and minority group members not. In the case of a total institution, majority group membership does not necessarily include the rights to power or privilege, as in the case of a mental asylum or prison. Although Goffman considered group differences in standpoint based on group status, he did not address how race or gender can have a substantial bearing on a person's experience as a member of an institution. In the academy, majority group members who hold the most privilege are most often white and male.

In an environment that is homogeneous in terms of its faculty or student body, being a member of a minority group can affect a person's perceptions of their environment and trigger certain behaviors related to performance. Psychological research has demonstrated that invoking negative stereotypes associated with minority status, such as gender (Cota & Dion, 1986; Sekaquaptewa, Waldman, & Thompson 2007; Thompson & Sekaquaptewa, 2002) and race/ethnicity (Crocker, Major, & Steele, 1998; Hall & Closson, 2005; Kiefer & Sekaquaptewa, 2007; McGuire, et al, 1978; Purdie-Vaughns, Steele, & Davies, 2008) can result in poor performance. Conversely, racial minorities who attend minority serving institutions are reported to do as well as their white counterparts at primarily white institutions (Hurtado, et al, 2008), indicating that majority group status does indeed have benefits for group members.

Research also demonstrates that it is common for members of the majority group to perceive their environment to be neutral and to overlook obstacles that minority group members may experience (Fiske, 1993), to perceive minority group members as being

overly attentive to their minority status (Goff, Steele, & Davies, 2008; McGuire, et al, 1978), and to use distancing strategies to avoid being perceived as racist (Case & Hemmings, 2005). As noted above, a person's status can change with context, and at times a minority group member may find themselves in the majority. Additionally, a person's multiple identities may converge, resulting in a person experiencing their environments differently depending on which identity is most salient.

Goffman's analysis of the total institution is informed by the standpoints of two groups of people occupying distinct positions: inmates and staff. He reflected on how his own standpoint was limited based on his status as an outsider, but also acknowledged that his analysis was limited by assuming homogeneity within these groups. Here, Goffman is referring to differentiation based on tasks; however, he is correct in suggesting that within groups there are differences based on the intersections of a person's social identities. These differences are often overlooked when studying groups based solely on one social identity, such as inmate/staff. For the academy, socially constructed identities, such as race and gender, intersect to differentially award a person privilege some or none of the time. Feminist scholars argue that all individuals hold two or more social statuses that cannot be easily separated (Acker, 2006; Cole & Stewart, 2001; Crenshaw, 1995; Deaux & Stewart, 2001), and the intersection of these identities alters the experience of other identities. For example, a Latino scientist is likely to experience gender privilege in his field compared to his Latina counterpart. However, the same Latino scientist may be considered less intelligent than his male Asian colleague because of race stereotypes. The same racial or ethnic identity may be experienced very differently by males and females, and other identities such as class and sexual orientation also contribute to how people

experience both their race and their gender. Research has demonstrated that even within a group (i.e. intragroup vs. intergroup), a person who belongs to multiple social groups may be stereotyped differently based on certain identity cues (Kiefer & Shih, 2006; Pittinsky, Shih & Trahan, 2006; Shih, Ambady, & Pittinsky, 2002; Shih, Pittinsky, & Ambady, 1999). Within the academy, not only is it important to pay close attention to the experiences of different groups but also to differences within groups at the intersection of race, gender, and other social identity statuses.

### **Why Diversity Matters in the Academy**

As the population of the United States continues to shift, changes in the overall population will continue to be reflected in those entering the professoriate, attending graduate school, and attending college in the first place. This diversifying population has inevitably captured the attention of higher education institutions that recognize diversity as an important goal for a range of reasons including social justice (Hurtado, 2005), promoting a wider breadth of scholarly inquiry and work (Cherwitz, 2005), preparing students for a global society (Gurin, Nagda, & Campanella, 2010), and for the potential positive outcomes associated with a diverse workforce, including creative thinking and innovative problem solving (Page, 2007).

Contrary to public perceptions that racial and ethnic minorities have gained parity within the academy, the faculty profile in the United States remains largely white and largely male (National Science Foundation, 2004). Additionally, blacks and Latinos continue to be underrepresented at all levels in the academy despite being the two largest race/ethnic groups in the United States. Even with diversity initiatives at many institutions of higher education, people of color and women in some fields continue to

struggle with the socialization process, and report feeling the need to overcompensate in order to be perceived to be “as good as” their white male counterparts or to be perceived as having *earned* their positions in the academy (Rendon, 2003; Sekaquaptewa, et al 2007).

Although diversity initiatives have increased the number of underrepresented minorities in the academy, cultivating a culture of inclusiveness remains a work in progress. According to Erikson (1959/1980), a person is identity achieved when she is recognized by herself *and* others as a certain kind of person. Additionally, a person needs to identify with their environment – whether in the curriculum, shared interests or shared identities – to have a sense of fit. Within the academy, people of color in general and women entering into some fields challenge the stereotype of an intellectual, professor, or scientist as being a white male merely by existing. As a result, their legitimacy in the academic domain can be doubted or challenged. At the same time, they serve as role models for others, both in terms of accomplishments as members of the academy, but also as members of particular race and gender groups.

Using these theoretical frames, this dissertation examines socialization practices in the academy in three separate studies. The first study considers the general absence of women in mainstream undergraduate curriculum, and how this absence conveys implicit messages to students about hierarchies in society based on gender and race (among other social identities). These lessons contribute to a person’s identity development as well as beliefs and attitudes about the self and others. These beliefs have the potential to result in a limited self-concept for some persons especially around gender and race (among other social identities), and are likely to have behavioral consequences such as a person’s life

choices being constrained by unconscious self-schemas about who she is and what groups she believes herself to belong to. Specifically, this study examines the influence of introducing women exemplars into an undergraduate political psychology course that is not identified as “Women’s Studies.” The absence of identity-matched exemplars in mainstream curriculum implicitly informs a person that they do not fit in a particular occupational domain, such as politics. The findings of this study have broader implications for curriculum development in the academy, because of its potential to encourage groups of people to pursue careers where they have been historically underrepresented, including positions in the academy as professors or scientists.

The second study examines doctoral students’ motives for going to graduate school and how these motives are related to completing their program of study. Understanding the academy as a space in which students are socialized, we see that graduate school provides opportunities for a person to develop the expertise needed for their intended career, a decision at least partially informed by earlier educational experiences. The high attrition rate for doctoral students, especially doctoral students of color, has prompted researchers to focus on department characteristics such as mentoring, department expectations, rate of progress, financial support, and peer support (Ehrenberg, Groen, So & Price, 2007; Golde, 2005; Lovitts & Nelson, 2000). Undoubtedly, the quality and nature of doctoral student education contributes to a student’s overall experience, but the motivation for pursuing a doctoral degree in the first place may also have a bearing on how a person experiences and navigates the demands of graduate school, and subsequently whether or not they finish their program of study. Considering how different types of motives for pursuing a PhD contribute to students' identity

development as emerging expert in their field as well as their perception of fit within the academy sheds light on the issue of majority/minority status and role models. Some groups perceive the academy as a good fit, whereas other groups continue to experience the need to prove their legitimacy within the academy despite holding the necessary credentials and an invitation to membership.

The third study examines the experiences of different groups of faculty in science, technology, engineering, and math fields. Faculty members represent those most invested in the future of the institution, and those who will socialize subsequent generations of students and faculty members. The science fields are assumed to be among the most neutral of academic disciplines but interestingly, the majority of science practitioners are white men. This high participation suggests that cultural practices within these fields are congruent with the values and beliefs held by white men, but also suggest cultural practices that compromise a sense of fit for other groups of people. The current study includes both white faculty and faculty of color who are all recognized as having outstanding research records. However, even though all faculty hold credentials that characterize them as legitimate members of the science community, interviews revealed differences in the standpoints held by different groups of scientists. In the science fields, holding a majority status is complicated by race and gender, such that the intersection of the two results in different experiences. Comparisons of standpoints were made for men and women, and for White faculty who constitute the majority group, Asian/Asian American faculty who are both people of color and the majority minority group, and underrepresented minority faculty including African American/Black, Latina/os and Native American faculty. Themes related to standpoint were identified, with common

institutional standpoints, insider standpoints, and outsider-within standpoints complicated by the intersection of race and gender.

The cumulative findings from these three studies suggest that the achievement of diversity within the academy is indeed a work in progress. However, progress made across several decades is also evident in who is participating at the various levels in the academy, as well as the opportunities and spaces available to implement initiatives for creating more inclusive environments for undergraduates, graduate students and faculty.

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## CHAPTER II

### “THINKING SHE COULD BE THE NEXT PRESIDENT”:

### WHY IDENTIFYING WITH THE CURRICULUM MATTERS<sup>2</sup>

Educational institutions have historically served to both educate and socialize their citizens. For many decades, scholars who have argued that education is a socialization process (Basow, 2004; Jackson, 1968) have also noted that there is a hidden curriculum in schools that shapes students' identities and attitudes about others (Aveling, 2002; Freire, 1970; Jackson, 1968; Martin, 1998; Weis & Fine, 2001). The phrase "hidden curriculum" implies that the explicit or visible curriculum contains implicit or hidden messages about ourselves and others (Jackson, 1968). Whereas the presence of material explicitly informs us of its importance, a consistent absence of material implicitly informs us that it is not important. Hidden curricula can convey especially powerful lessons about people with marginalized identities within a particular context and can influence unconscious self-schemas that are reinforced over time (Basow, 2004; Dasgupta & Asgari, 2004; Rudman, 2004; Wyer, Murphy-Medley, Damschen, Rosenfeld, & Wentworth, 2007).

The underrepresentation of women in American politics is echoed in mainstream curricular content, with fields devoted to politics largely focusing on the behavior of male leaders. At the same time, the events of the 2008 U.S. presidential election, which

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<sup>2</sup>An article based on this chapter is in press: Rios, D., Stewart, A.J., & Winter, D.G. (in press). "Thinking She Could Be the Next President": Why Identifying with the Curriculum Matters. *Psychology of Women Quarterly*.

included viable female and racial minority candidates, made it clear that participation in politics is diversifying even at the highest level. As beliefs and attitudes about the roles of marginalized groups in politics continue to change, it is important to prepare all students to recognize, understand, and analyze future leaders by providing examples of existing female leaders. With this in mind, the present study examines some effects of introducing a gender-inclusive curriculum into three of nine discussion sections within a political psychology course. Not only did this study take place in a naturally occurring educational environment, but we also used non-reactive indicators of effects on students by coding students' final exams for references to women as leaders, students' specific references to presidential candidate Hillary Clinton because of her high visibility in this election, and her invocation as a source of inspiration for women's own career aspirations.

### **Selective Knowledge and Implicit Learning**

Psychologists have long recognized the power of indirect socialization practices, including lessons that begin early in life that are based on sexual differentiation and that reward children for behaving in gender appropriate ways (Basow, 2004). Educator Paolo Freire (1970) argued that educational institutions socialize citizens through selective inclusion of knowledge and thus "mythicize reality and conceal certain facts" (p. 83) through hidden curricula. Several decades later, the role of hidden curricula continues to implicitly affirm gender, racial, and class hierarchies in American society through an emphasis on contributions made by privileged groups, such as White upper-class men in American politics (Warren, 1989). This focus provides an abundance of identity-matched information for White male students but omits information and exemplars for other groups, such as White women and women and men of color, and it contributes to the



development of students' implicit core assumptions about appropriate roles for different groups of women and men (Basow, 2004; Warren, 1989; Wyer et al., 2007). Although it remains true that women are a minority in American politics, theories of representation and accessibility (Nosofsky, 1988; Smith & Zárate, 1992) suggest that more frequent exposure to female exemplars will hinder the development of automatic gendered assumptions of who is qualified, typical, or a “good” example within such a male domain. Additionally, linguistic researchers and psychologists alike have demonstrated that many words associated with men reflect leadership or agency, whereas words associated with women are more likely to reflect supportive roles and less agentic traits (Kennison & Trofe, 2003; Liben, Bigler, & Krogh, 2002; Rudman & Glick, 2001). These findings combine to indicate that automatic stereotypic associations are more likely to link men than women with politics, suggesting the need for counterstereotypic exemplars to foster counterstereotypic thinking.

There are positive effects of introducing female exemplars into a domain where they are not anticipated. For example, Verba, Burns, and Schlozman (1997) found that women and men who lived in U.S. states where there were female political representatives were more likely than people in states with no female representatives to correctly identify politicians by name. The researchers also found that although men generally scored higher than women on political efficacy, women living in states with female representation scored higher in political efficacy than women who lived in states where there were no female representatives. One potential explanation for these findings is that when women are exposed to identity-matched exemplars, they have a stronger sense of political efficacy. In an experimental study on implicit associations, Dasgupta &

Asgari (2004) hypothesized that female students who were exposed to a higher frequency of female exemplars as compared to female students who were exposed to control exemplars would be more likely to implicitly associate women with leadership qualities. This pattern was indeed the case. They also described a second study, in which they sought to examine the external validity of consistent exposure to female exemplars. The researchers predicted that the greater representation of women faculty at a women's college would affect students' beliefs about women as leaders as compared to female students who attended co-educational colleges where numbers of female faculty tend to be lesser. Again, female students at the women's college were less likely to report automatic stereotypic beliefs about women than students at the coeducational college. Findings from these studies suggest that introducing female exemplars at a higher frequency into contexts where they are underrepresented has the potential to increase knowledge about women as well as to disrupt implicit negative beliefs about them. Additionally, introducing material about women inspires students to imagine themselves as agents within American society, while at the same time offering to all students a different view of what is possible for all groups of people (Dasgupta & Asgari, 2004; Hughes, Bigler, & Levy, 2007; Hurtado, 2005; Stake, 2007; Stake & Hoffman, 2001; Weis & Fine, 2001).

### **Identifying with the Curriculum**

Many Americans generally believe that group membership should not constrain the choices and preferences of group members (Aveling, 2002) so that, in theory, a girl may someday become president of the United States of America. However, by the time children start school, they already have an understanding of the gender-stereotyping of

jobs so that they tend to aspire to jobs that are more commonly held by workers of their own gender (Liben et al., 2002; Signorella, Bigler, & Liben, 1993). Although girls and boys rank masculine jobs higher in terms of status, both express greater interest in jobs that are perceived as gender-appropriate (Liben et al., 2002), perpetuating the cycle of many high-paid or high-powered jobs remaining male-dominated (Eagly & Carli, 2004). These research findings suggest that people use gender-matched information to make sense of where they fit in the world, highlighting the importance of gender-matched exemplars. Pre-existing assumptions can be challenged through lessons taught to students about the social construction of race and gender. Indeed, researchers have demonstrated that such lessons can increase girls' self-efficacy in male-dominated fields such as science (Weisgram & Bigler, 2007), reduce racist beliefs among European American children, and increase racial pride among African American children (Hughes et al., 2007).

Curricula can facilitate changes in students' beliefs about social identity in general – and about gender in particular. A gender-inclusive curriculum is especially relevant for college students because they are at a critical point in their identity development known as emerging adulthood (Arnett, 2000). At this stage, college students have the cognitive capacity and emotional maturity to make decisions about the opportunities that are available to them within the larger culture. Introducing students to identity-matched exemplars is crucial because the interaction of self-concept with social context shapes the academic and occupational choices that people make. For example, female students may report having a positive self-perception in relation to a male-dominated field, yet they are less likely than their male counterparts to imagine career

opportunities for themselves in these contexts (Lips, 2000, 2004). The inability to construct a “possible self” (Ruvolo & Markus, 1992) within a male-dominated domain can be attributed to life-long lessons about femininity and gender roles (Dasgupta & Asgari, 2004; Killeen, Lopez-Zafra, & Eagly, 2006), including educational curricula that confirm gender stereotypes by emphasizing or focusing predominantly on male accomplishments and by failing to include female examples (Basow, 2004; Warren, 1989; Wyer et al., 2007).

Introducing female exemplars into an educational curriculum where they are not anticipated has the potential to disrupt students’ automatic stereotypes about women and thus the educational and occupational choices that are conceivable to them. Many feminist educators have offered useful strategies for integrating marginalized groups into mainstream curricula (Ginorio & Martinez, 1998; Madden & Hyde, 1998; Okazaki, 1998; Warren, 1989; Worell, Stilwell, Oakley, & Robinson, 1999; Wyer et al., 2007). However, these suggestions have yet to be widely adopted in mainstream course content (Stewart, Cortina, & Curtin, 2008), and the effects of introducing curricular material about women remain largely untested (Wyer et al., 2007).

### **Women’s Studies and Gender Curriculum**

Women’s Studies programs emerged as a means to correct the general absence of women in academic scholarship and curricular content (Basow, 2004; Cooper et al., 2007; Warren, 1989). Researchers who have studied the impact of such programs and courses on student development have identified positive effects for female students, including raised feminist consciousness, awareness of gender discrimination, and gender-related egalitarianism (Case, 2007; Henderson-King & Stewart, 1999; Sevelius & Stake, 2003;

Stake, 2007; Stake & Hoffman, 2001; Worell et al., 1999; Yoder, Fischer, Kahn, & Groden, 2007). Feminist scholars also challenged androcentric epistemological and pedagogical practices in mainstream courses by promoting critical analyses of the content of books used in classrooms. Still research over several decades examining textbooks used in mainstream courses revealed that references about women specifically, and the use of gender analysis in general, remains limited (Bender-Peterson & Kroner, 1992; Potter & Rosser, 1992; Stewart et al., 2008).

To address wider audiences about diversity issues, colleges and universities have increasingly promoted diversity initiatives over the last decade, often through requirements that include courses that deal specifically with race, ethnicity, gender, and/or sexual orientation (Humphreys, 2000). Although these practices may encourage students to enroll in these courses, whether diversity courses are required or elective may make a difference in how students receive, recall, and incorporate the information. Students who self-select into courses that are interesting to them may be more receptive to new information and interpretations of the world than students who are mandated to attend diversity courses (Case, 2007; Henderson-King & Stewart, 1999; Sevelius & Stake, 2003; Yoder et al., 2007). The self-selection of students who enroll in Women's Studies courses limits how broadly we can generalize from this research so that the impact of gender-inclusive curricular materials on students enrolled in "mainstream" courses remains largely unexplored.

The social context of the classroom as well as course content may have both similar and different effects for male and female students. Gender-inclusive lessons may challenge gendered assumptions made by all students about the competence or fit of

women in these domains, and they may help to facilitate a positive self-concept specifically for female students in relation to these fields. The current study tested whether exposure to a gender-inclusive curriculum over a short period of time will influence attitudes about women and leadership in all students. In addition, it assessed whether such a curriculum will produce self-reflection in young women by providing gender-relevant information for those interested in politics or other leadership positions. Building on past studies that have demonstrated that Women's Studies courses can influence changes in beliefs about women, our study examined the effects of introducing women exemplars into a course that is not labeled "Women's Studies." We considered the curriculum (gender-inclusive versus traditional) as a factor for potentially influencing student attitudes about women in political leadership roles. We employed a quasi-experimental design within a naturally occurring environment and used non-reactive measures to assess the frequency with which students referred in writing to women leaders. We hypothesized that inclusion of female exemplars in the curriculum will increase students' awareness of female leaders such that they would make more references to female leaders in exam essays that focused only on "leadership" explicitly.

### **Hypotheses**

Specifically, we propose three hypotheses. (a) When asked to identify good leaders in general, both male and female students who were taught the gender-inclusive curriculum will use female examples of "good leaders" more often than will students who had learned the traditional curriculum. (b) Students in the gender-inclusive curriculum sections will write more about the impact of a woman running for president in the 2008 U.S. election as disrupting automatic gender assumptions about who is most qualified to

be president of the United States. Therefore, we predict that students will note that the presence of a woman running for president (and perhaps being nominated) will have a positive influence on attitudes about women as competent leaders for all people. (c) Having been exposed to many examples of women leaders, female students in the gender-inclusive curriculum sections will write significantly more about the positive effect of a woman running for president in the 2008 election on their own identities as well as on other women's identities in relation to career aspirations and leadership role possibilities.

## **Method**

### **Participants**

Participants for this study included 196 undergraduate students enrolled in an upper level political psychology course aimed at juniors and seniors at a large public university. Most students were women ( $n = 117$ ; 60%), with 43 women and 20 men enrolled in the gender-inclusive psychology sections and the remainder ( $n = 133$ ) enrolled in the traditional curriculum sections. Power analysis (with  $\alpha = .05$  and  $\text{power} > .80$ ) indicated that this size sample was adequate to detect a medium effect (Cohen, 1988). The course was cross-listed in psychology and political science; however (as in all cross-listed courses at this large, Midwestern university), all students received exactly the same materials and assignments, regardless of the particular departmental course in which they were enrolled. A plurality of the students were psychology majors ( $n = 88$ ; 45%); 24% ( $n = 47$ ) were political science majors; and 31% ( $n = 61$ ) declared other majors. All students were required to attend two 1-hour lectures each week (given by a male faculty member) and to enroll in one of nine 1-hour discussion sections taught

by a graduate student instructor. When registering for the course, students chose a discussion section based on their own convenience (e.g., class schedule and preferred time of day) and the availability of seats. At no time did the students have any knowledge that they were part of a study. The curricular intervention was conducted during the Fall 2007 semester while the 2008 U.S. presidential race was underway. It is notable that Hillary Clinton was perceived to be the leading candidate for the Democratic nomination at this time.

### **Procedure**

There were three graduate student instructors (GSIs): two female (from psychology) and one male (from political science). Each GSI taught three weekly discussion sections. Graduate student instructors were given a handbook with materials (described below) corresponding to either a traditional curriculum or a gender-inclusive curriculum. Neither the GSIs nor undergraduate students were aware that the curricular material provided for the use in the sections differentially addressed gender, although the GSIs were aware that the material was in some way “different.” The GSIs were told that curricular materials were being developed for future classes and that it was necessary to adhere to the material as much as was possible because they would be asked to assess the material assigned for their sections at the end of the term. They were asked not to discuss the details of their weekly lesson plans with each other but instead with only the faculty lecturer. GSIs were also asked to fill out weekly reports and consistently reported that they did use the materials provided in the handbooks.

It should be noted that the design of the course partially confounded GSIs’ disciplines and GSIs’ gender because three of the nine sections were taught by the only



male and only political science GSI who used the traditional curriculum handbook. However, two female GSIs from psychology taught the six other sections, with one using the experimental gender-inclusive curriculum handbook and the other using the traditional curriculum handbook. Sections were assigned to GSIs based on discipline: thus the political science GSI taught sections listed under political science and psychology sections were assigned to the psychology GSIs. The two female psychology GSIs agreed upon which sections to teach based on their schedules and availability. To enable a control for gender, we randomly assigned the two curricula to the female GSIs (one to each); the one male GSI taught the traditional curriculum. Therefore, although our curriculum comparison confounded the gender and the discipline of the section instructor, we were able to make pairwise comparisons among the three groups of sections (by GSI to assess the separate impact of GSI gender (comparing the man and woman who used the same curriculum and who differed in both gender and discipline) versus curriculum (comparing the two female GSIs from the same discipline who used different curricula).

### **Curricular Materials**

Two versions of the curriculum handbook were used for discussion sections: one reflecting the traditional curriculum and the other, a gender-inclusive curriculum. Both handbooks covered the same topics in the same order. The traditional curriculum handbook contained examples of male leaders, whereas the gender-inclusive curriculum handbook contained examples of both female and male leaders. The handbooks differed only in terms of gendered examples; within each handbook, the same examples were often used to build on previous concepts discussed in class. In 15 weeks of material, the traditional curriculum employed a total of 14 different male examples (three of these

examples were used repeatedly) and no female ones. In the gender-inclusive curriculum, there were seven male examples and 10 female ones (three used more than one time). For example, George W. Bush was used as an example for two different topics in the traditional curriculum sections, and Hillary Clinton was used as an example for two topics in the gender-inclusive sections. Apart from the use of different biographical materials for examples, materials for sections were designed to be virtually identical – that is, they illustrated the same concepts, used the same section activities and questions, and provided the same basis for discussion of key ideas in the course. This consistency was to ensure that students received similar lessons and opportunities to understand the weekly concepts covered in lecture and weekly assigned reading. (See Appendix 1 for the schedule of gender-inclusive and traditional lesson plans.) The handbooks included the following materials for the GSIs for each week: an agenda, notes on key concepts that students should learn, a lesson plan, and master copies of materials for distribution to students for discussion or group activities.

### **Data Collection and Coding**

Data were obtained from the final exam, a naturally occurring assignment in the course. Electronically-submitted final exam essays were first submitted to the graduate student instructors for grading. After final grades were submitted, the exams were forwarded to the researchers with all identifying information removed except for gender of student and section number. Identification numbers were randomly assigned to each exam by the authors and were later used to match exams to discussion section after coding was completed. The university's Institutional Review Board determined that the study “involves only coded private information...that cannot be linked to a specific

individual by the investigator(s) directly or indirectly through a coding system.”

Therefore, these data were considered archived, and the study was granted a “not regulated status,” which does not require that students be informed or debriefed about the curricular intervention.

A coding system was developed by the authors through a series of steps common in qualitative research to ensure consistency across coders and across time (Boyatzis, 1998; Charmaz, 2000; Reinharz, 1992; Strauss & Corbin, 1998; Wood & Kroger, 2000). To ensure consistency of judgments between raters and across themes, we established inter-rater reliability by percent agreement based on the presence of a coded theme (Boyatzis, 1998). Ten exams from each GSI were randomly selected for coding for references to women as leaders as well as for thematic codes related to women, leadership, and students’ own identities. The first author coded 10 exams and established a first draft of the coding manual with detailed criteria for coding the two exam essay questions. The second author coded these same 10 exams for themes detailed in the coding manual and disagreements in coding decisions were discussed. The first author revised the coding manual, and both authors coded additional exams. When the final version of a coding manual was agreed upon, inter-rater reliability was .94 (Boyatzis, 1998). Because agreement was so high, the first author coded the remaining exams using the established criteria detailed in the coding manual. Two questions from the final exam were coded for thematic content. These questions asked students to draw from the concepts covered over the entire semester.

1. Leadership has been a major theme of this political psychology course. After taking the course, what is your personal concept of a “good” leader? Name three

leaders you consider “good” by your criteria. Then pick any one successful action by one of these leaders, and analyze the reasons for the leader’s successful action in terms of any three of the following course themes and concepts: War (or avoiding war), level of political socialization, the bi-polar ideology dimension of authoritarianism vs. feminism/environmentalism/anti-materialism, framing and schemas, terrorism (or reaction to terrorism), nationalism, or the psychology of empire.

2. Any political “event” is always interpreted in terms of people’s age at the time of the event and thus their level of political socialization, their generational entelechy (or “generational mind-set”), their social identity (ethnicity, nationality, gender, social class), their significant personal experiences, and their position in a hegemonic structure. Suggest and explain (using these concepts, as appropriate) differences in how the 2008 U.S. presidential race would (a) differently affect, and (b) be interpreted differently, by yourself and any two of the following Americans: An upper-middle class person age 40; a child age 6; or a person of color age 80.

The first question was coded to test the first hypothesis that students in the gender-inclusive curriculum sections would write significantly more about women as “good leaders” than students in the traditional curriculum sections. For question 1, all references to women leaders as “good leaders” were counted. This count included elected leaders such as prime ministers and senators (e.g., Margaret Thatcher), charismatic leaders including public figures and activists (e.g., Oprah Winfrey; Susan B. Anthony), or any woman who was identified as a formal group leader in a student’s personal/private

life (e.g., sorority president). For example, “[Margaret] Thatcher was able to justify her position of power by taking on ...an aggressive political agenda...the public believed in her authority showing strong support throughout her time in office” (elected leader).

Also:

To be a good leader, one must also be aware of reality and not live in his or her own separate world that doesn't reflect what is really happening...[Susan B. Anthony] a leading suffragette, was a good leader because of this. She was aware of the difficulty that she would have in fighting for women's right to vote, yet she looked difficulty in the face and moved on. (charismatic leader)

The second and third hypotheses were tested by coding the second final exam question. Our second hypothesis stated that students in the gender-inclusive curriculum sections will write significantly more about a woman running for president as having a positive impact on attitudes toward women as leaders than students in the traditional curriculum sections. “Positive attitudes toward women leaders” were related to Hillary Clinton's run for president in the 2008 election and included references to the student's own or another person's development of positive attitudes, feelings, or beliefs about women in leadership positions as normative as well as expected changes in existing negative attitudes, feelings, or beliefs about women as leaders. Examples included: (a) “This could affect heuristics that I use; instead of assuming that a presidential candidate has to be a White male, I might see that it could be a female ...” and (b)

“By having a woman in this presidential election, it promotes the idea that women can do anything men can do. If Clinton is elected...[people] will more likely view women as equal to men and thus capable as holding the same positions of power.”

The second exam question was also used to test our third hypothesis that students in the gender-inclusive curriculum sections will write significantly more about Hillary Clinton as a positive role model for identity development. Text that met the following

criteria were coded as “identifying with leadership” and included references by students to the impact on references by female students about their own identity and the expansion of career opportunities for them as a result of a female president. The incorporation of “leader” (a) into a student’s identity included perceived potential outcomes as a result of having Hillary Clinton as a role model or (b) into another female’s identity development in relation to career opportunities and leadership positions, such as a girl who would grow up with a female president as a role model. Illustrative examples of both types, respectively, are:

I find this political issue relevant because there is a chance a woman president could be in power. I am a woman and Hillary Clinton is representing women in the race to presidency. My current life stage is on the verge of taking a new path by graduating from college and having a job. I am still defining myself and am still curious about what the world has to offer.

...a six year old girl will see Hillary Clinton in the highest position of power that one can hold in our country and might grow up not realizing how different things used to be. She might not sit there in her class thinking that it is most common for a young girl to be planning on being a mother when she grows up, but rather, she might sit there in her class thinking she could be the next president of the United States.

In addition to measuring the outcomes for students writing about women as good leaders, positive attitudes toward women leaders, and identifying with leadership, we were interested in the specific impact on students’ consciousness of the coverage of Hillary Clinton as the first major female national presidential candidate. We thought that national attention to a female presidential candidate might have an effect on all students and perhaps would confound the effects of the curricular intervention. To assess this possibility, we coded presence/absence of references to her (specifically by name) in relation to running for president.

## **Results**

## **Analysis Plan**

The nature of coding for the presence of these three categories - women as good leaders, positive attitudes toward women leaders, identifying with leadership, as well as general references to Hillary Clinton, defined our dependent variables as categorical, thus linear regression was not suitable because many of the assumptions on which the linear model is based could not be satisfied, such as normal distribution and homoscedasticity of the residuals. Instead, we used binary logistic regression which allows for the prediction of a discrete dichotomous outcome, such as writing about a woman as a leader being coded as present/not present (Hosmer & Lemeshow, 2000). Because logistic regression does not assume a linear relationship between the independent and dependent variables, maximum likelihood estimations are calculated by changes in the log odds of the dependent variable – but not changes in the dependent variable itself. Therefore, the maximum likelihood estimate calculates the odds of an event occurring based on observed values of the independent variables. Effect sizes in a logistic regression model are reported as odds ratios, and they reflect a comparison of the odds of an event occurring given condition A and the odds of the same event occurring given NOT A. For example, an effect size of 2 for the curriculum variable would indicate that the ratio of the two odds – the odds of writing about women given gender-inclusive curriculum compared to the odds of writing about women given the traditional curriculum – is 2. Therefore, the odds of writing about women as leaders would be two times greater for students in the gender-inclusive curriculum sections as compared to students who are not in the gender-inclusive curriculum sections.

The dependent variables in this case are the three themes that were identified during the content coding phase of analysis (“good leaders,” “positive attitudes toward women leaders,” and “identifying with leadership”), as well as coding for the presence of general references to Hillary Clinton. We hypothesized that the influence of the independent variable “curriculum” would predict students' writing about these three themes, with references to Hillary Clinton being related to these themes. We included gender of GSI and gender of student as controls in our analyses. We also ran interactions for gender and curriculum but found no significant interaction effects, which may be due to low cell frequencies for some categories. In cases like these, the precision of estimating an outcome with an interaction term is significantly reduced (Jaccard, 2001). Therefore, we conducted post-hoc analyses using chi-square comparisons. Alpha levels of .05 were used for all statistical tests.

### **Hypothesis Testing**

All data are presented in Table 1. Testing our first hypothesis that students in the gender-inclusive curriculum sections would write significantly more often about women as “good leaders,” we found that curriculum was indeed a significant predictor, with students in the gender-inclusive curriculum sections having higher odds of writing about women as “good leaders,” odds ratio = 3.23,  $p = .02$ . We found no significant results for our second hypothesis that stated that students in the gender-inclusive curriculum sections would write more about “positive attitudes” about women as leaders as compared to students in the traditional curriculum sections. Our third hypothesis was confirmed, with students in the gender-inclusive curriculum sections writing significantly more often about “identifying with leadership,” odds ratio = 3.81,  $p < .001$ , than students



in the traditional curriculum sections. Curriculum was not a predictor of students writing more often about Hillary Clinton.

We also found that gender of student was a significant predictor, with female students exposed to the gender-inclusive curriculum having greater odds of writing about women as “good leaders,” odds ratio = 8.26,  $p < .001$ , to express “positive attitudes” toward female leaders, odds ratio = 2.51,  $p = .01$ , and to “identify with leadership,” odds ratio = 7.18,  $p < .001$ , compared to female students in the traditional curriculum sections. Gender was a predictor of students writing more often about Hillary Clinton, with male students less likely than female students to make reference to her running for president, odds ratio = 2.30,  $p = .01$ . Gender of GSI did not predict students’ writing about any of these categories.

Further exploratory analyses assessed differences among female students enrolled in the gender-inclusive curriculum and those enrolled in the traditional curriculum sections. The results showed significant differences for the categories “good leader,”  $\chi^2(1, n = 117) = 15.53, p < .001, V = .36$ , and “identifying with leadership,”  $\chi^2(1, n = 117) = 8.65, p = .01, V = .27$ , with more female students in the gender-inclusive sections writing about these categories. There were no significant differences in references to positive attitudes among female students enrolled in the different discussion sections.”

### **Ruling out Alternative Explanations**

We were able to rule out the possibility of gender of GSI accounting for our results by comparing students with male and female GSIs in the traditional curriculum sections. Results of the chi-square comparison of themes between students of the female graduate student instructor and male graduate student instructor who used the traditional

curriculum indicate no significant differences for any of the categories, including “good leader,”  $\chi^2 (1, n = 133) = .24, p = .77, V = .04$  ; “positive attitudes,”  $\chi^2 (1, n = 133) = 1.03, p = .33, V = .09$ ; and “identifying with leadership,”  $\chi^2 (1, n = 133) = 1.59, p = .27, V = .11$ .

We also compared the students in the gender-inclusive versus traditional sections taught by female GSIs. Consistent with our hypotheses, we found significant differences for the category “good leader,”  $\chi^2 (1, n = 126) = 7.97, p = .01, V = .25$  with 32% of students in the gender-inclusive sections writing about women as good leaders compared to 11% students in the traditional curriculum sections. In addition, students in the gender-inclusive sections taught by a female GSI (41%) expressed marginally significant more “positive attitudes toward women leaders” than students in the traditional section (14%) taught by the female GSI,  $\chi^2 (2, n = 126) = 4.49, p = .05, V = .20$ . We also found significant differences for the category “identifying with leadership,”  $\chi^2 (2, n = 126) = 11.43, p < .001, V = .30$ , with 40% of gender-inclusive curriculum students writing about this theme as compared to 22% of the traditional curriculum students.

## **Discussion**

The design of our study allowed us to examine the effects of introducing women exemplars into a naturally occurring learning environment by coding naturally-produced materials. In the final exams, we coded for references to women as leaders (“good leaders”), positive references to the student’s own or another person’s development of positive attitudes, feelings, or beliefs about women in leadership positions (“positive attitudes”), and the positive influence of a woman leader on identity development for women and girls (“identifying with leadership”). As we predicted, binary logistic

regression results indicate that students in the gender-inclusive curriculum sections wrote significantly more than students in the traditional curriculum sections about women as “good leaders” and about “identifying with leadership.” However, our hypothesis that students in the gender-inclusive sections would express “positive attitudes toward women leaders” as compared to the students in the traditional curriculum sections was not confirmed. Post hoc analyses indicate that these positive effects of the gender-inclusive curriculum were present only for female students. We believe that because students and GSIs did not select their curriculum exposure and were not aware that the curricula differed in terms of the gender of exemplars, the possibility of selection bias was eliminated. Additionally, the setting and measures provided a naturalistic source of data for measuring the impact of the gender-inclusive curriculum.

It is also notable that this modest intervention – exposing students to women exemplars for a total of 10 hours (one hour per week over 10 weeks) – had a significant impact, at least for female students. All students in the course attended lectures that introduced students to the idea that politics are gendered, but few lecture examples centered on female political leaders (Madeline Albright and Hillary Clinton were exceptions). These two examples were also used in the gender-inclusive sections, along with six additional exemplars (Queen Elizabeth I, Rachel Carson, Dolores Huerta, Ulrike Meinhof, Loretta Ross, and Margaret Thatcher). In their exam responses, when students referred to women leaders they mentioned two of the exemplars studied in the sections (Queen Elizabeth I and Margaret Thatcher), but they also referred to 11 additional female leaders, including Susan B. Anthony, Golda Meir, Rosa Parks, Eleanor Roosevelt, and Gloria Steinem. The references made by female students to exemplars used in the

curriculum demonstrate the effect of a higher frequency of identity-matched material on associations between two concepts, such as women and leadership (Dasgupta & Asgari, 2004; Nosofsky, 1988). The references to female exemplars not covered in the sections suggest that female students in the gender-inclusive discussion sections applied their expanded idea of what a leader looks like by generating their own examples, including imagining themselves in leadership roles (Dasgupta & Asgari, 2004; Killeen et al., 2006; Lips, 2000; Lockwood, 2006; Ruvolo & Markus, 1992).

### **Limitations**

Although the quasi-experimental design of the study allowed us to measure the effects of a curricular intervention through naturally occurring data and in a natural setting, our archival design and efforts to be unintrusive limited our ability to collect other information from the participants. For example, we have no data about the students' prior exposure to different types of curricula, educational experiences, or exemplars in their lives. Having information about prior exposure to Women's Studies and/or Gender Studies courses, type of high school previously attended (coeducational or single-sex), and parent occupation would be helpful in understanding how different exemplars and educational experiences contribute to a student's worldview.

The impact of the gender-inclusive curriculum may have been amplified – or alternatively watered down – by the widespread media coverage of Hillary Clinton in the 2008 presidential race. However, such media coverage should have increased awareness of women in politics for all students, not just those in the gender-inclusive sections. Although it is possible that the gender-inclusive curriculum sensitized students to the presence of Clinton in the race, it is also possible that her presence increased the

awareness of female exemplars for all students and thereby weakened the impact of the gender-inclusive curriculum. Our data demonstrate that students across all discussion sections did indeed write about Hillary Clinton, as well as issues related to identity and attitudes toward women leaders. However, women in the gender-inclusive discussion sections were significantly more likely to write about women leaders and identity-related issues as compared to the students in the traditional curriculum sections.

It is also possible that the traditional curriculum was less informative generally than the gender-inclusive curriculum. The possible risk of providing a "thinner" educational experience should be weighed against the possible gain of generating truly comparative data that might persuade those currently offering a non-inclusive experience that it is indeed "thinner." In addition, there are reasons to question whether the two educational experiences are not of equivalent value in some very general way. First, recall that all students, regardless of section enrollment, were required to attend all lectures and were assigned the same reading material; the only differences in course content were exemplars used to illustrate the concepts presented in lecture or assigned reading. Although we believe that all students can benefit from a diverse curriculum, our efforts to provide students with the best curricular material possible were reflected in the weekly lesson plans regardless of the gender of the exemplars used. Finally, we conducted a one-way ANOVA on student course evaluations collected at the end of the term, comparing the inclusive and traditional curricula. There were no significant differences between sections in median evaluation ratings for the question "overall, this was an excellent section,"  $F(2, 6) = .42, p = .67$ .

Finally, it is theoretically possible that differences in personality characteristics between the graduate student instructors could have contributed to their presentation of material about women leaders. If this were true the individual differences between them might account for differences in attitudes between students in the gender-inclusive and traditional curriculum sections. However, since results were similar in the traditional curriculum sections taught by the male and female instructors from different disciplines, this interpretation seems unlikely. A future study with different GSIs would, however, help rule out this possibility.

### **Future Directions and Conclusion**

Future directions for exploring the potential of educational curricula influencing beliefs about possible selves and behavioral outcomes should utilize Women's Studies courses as models. These courses provide not only female role-models and exemplars in the curriculum, but also analytical tools for understanding social structures and overcoming barriers set up for different groups of people (Hurtado, 2005; Oyserman, Bybee, & Terry, 2006).

Although we hoped that male students would also be positively affected by the curriculum, results from exploratory analyses suggest that they were not. Therefore, positively influencing male students' attitudes about women as leaders deserves further examination. Researchers have noted that in male-dominated fields women are not necessarily recognized as good exemplars (Rudman & Glick, 2001; Wyer et al., 2007), and gender stereotyped language may indeed trigger stronger associations for male students in particular (Kennison & Trofe, 2003; Liben et al., 2002). Additionally, the faculty lecturer was male and presented predominantly male examples in lectures, thus

reinforcing in both behavior and content that males are the legitimate authority in male-dominated contexts (Basow, Phelan, & Capotosto, 2006; Dasgupta & Asgari, 2004). Therefore, positively influencing men's attitudes about women's leadership capabilities may require more consistent and sustained exposure to gender-inclusive material, as suggested by researchers who have examined attitude changes in Women's Studies and Gender Studies courses (Case, 2007; Sevelius & Stake, 2003; Standing & Huber, 2003), as well as earlier exposure in a student's academic career (Weisgram & Bigler, 2007). Positively affecting the attitudes and beliefs of male students is as important as affecting those of female students, because sexist attitudes not only limit women's access to positions of leadership, but also influence negative evaluations of women in leadership roles (Eagly, 2007; Rudman & Glick, 2001).

The current results may be applicable – for both women and men – to racial inclusion. Just as women are underrepresented in politics, so too are men of color. Understanding the role of intersecting social identities may help us understand how male students conceptualize their possible selves in terms of leadership roles. Although the political landscape has changed with the election of Barack Obama, the diversity of the United States population goes beyond the Black/White binary. Therefore, it is important to develop more inclusive curricula than the one presented here – one that may inspire people of color with positive representations of exemplars. Finally, future research could examine the effects of gender-inclusive curricular material that was introduced regularly in both the lecture and discussion sections. Although a graduate student instructor has relatively more power than undergraduate students, the faculty lecturer is considered the most legitimate source of knowledge. Students' perceptions of professor legitimacy and

competency have been well-documented as being driven by gender stereotypes and therefore the gender of a professor may play a role in how students receive information about women in politics (Basow, 2004; Basow & Montgomery, 2005; Basow et al., 2006). Thus, it would be useful to compare the effects in a course taught by a female versus male lecturer.

Although introducing information about women into mainstream courses may be novel for all students, it holds different symbolic meaning for men and women. Most curricula taught in schools remain largely devoted to the contributions and participation of White males, for example in political history, and therefore identity-matched information is abundant for White male students. Overall, the present findings suggest that a gender-inclusive curriculum has positive effects for female students on identifying with gender-matched information and the application of this information to envisioning themselves as leaders. Thus it is possible to disrupt a hidden curriculum that disempowers by excluding or limiting information about groups within a domain where they have been historically excluded. Moreover, our study provides evidence that changing the curriculum in this way along with the use of gender as an analytic tool helps shape new attitudes and beliefs about what is possible for the group as a whole and for oneself, encouraging “thinking she could be the next president.”



Table 1

*Logistic Regression Predicting Students in the Gender-Inclusive Sections (n = 63) Writing About Women More Often Than Students in the Traditional Curriculum Sections (n = 133)*

Variable	“Good Leaders”			“Positive Attitudes”			“Identifying with Leadership”			Hillary Clinton		
	$\beta$	SE	Odds ratio	$\beta$	SE	Odds ratio	$\beta$	SE	Odds ratio	$\beta$	SE	Odds ratio
Curriculum	1.17*	0.51	3.23	0.72	0.41	2.06	1.34**	0.47	3.81	.33	.37	1.39
Gender of student	2.11**	0.64	8.26	0.92**	0.35	2.51	1.97***	0.47	7.18	.83**	.31	2.30
Gender of GSI	0.40	0.60	1.50	-0.37	0.41	0.69	-0.53	0.48	0.59	-.02	.36	.99

*Note.* Curriculum was coded as 1- *traditional* and 2- *gender-inclusive*. Gender of student and GSI were coded as 1- *male* and 2- *female*.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

Appendix I

*Weekly Lesson Plans for Gender-Inclusive and Traditional Curriculum Discussion Sections*

Gender-Inclusive Curriculum Lesson Plans			Traditional Curriculum Lesson Plans	
Week	Weekly lecture topics	Discussion Section Materials	Weekly lecture topics	Discussion Section Materials
1.	Introduction to political psychology	Introduction to course; no assigned reading	Introduction to political psychology	Introduction to course; no assigned reading
2.	Gender, power, and politics: Comparing a good and bad leader	Queen Elizabeth I speech to the troops at Tilbury & DVD clip <i>Elizabeth</i> (1995)	Gender, power, and politics: Comparing a good and bad leader	Henry V St. Crispin Day speech & DVD clip <i>Henry V</i> (1989)
3.	Models of leaders, followers, and groups: Psychoanalysis, ego psychology (Freud & Erikson), and measures of leaders at a distance	Transcripts from 2008 Presidential Debate, Manchester, NH June 3, 2007 Hillary Clinton and Rudy Guiliani	Models of leaders, followers, and groups: Psychoanalysis, ego psychology (Freud & Erikson), and measures of leaders at a distance	Transcripts from 2008 Presidential Debate, Manchester, NH June 3, 2007 Barack Obama and Rudy Giuliani
4.	Charisma (Weber): Can you create charisma through the media?	DVD clips of presidential campaign ads for Hillary Clinton and Rudy Guiliani	Charisma (Weber): Can you create charisma through the media? (Movie: <i>Triumph of the Will</i> )	DVD clips of presidential campaign ads for Barack Obama and Rudy Giuliani
5.	Effects of power on target & powerholder	REVIEW FOR MIDTERM	Effects of power on target & powerholder	REVIEW FOR MIDTERM
6.	<b>HOURLY EXAM</b>	No discussion sections	<b>HOURLY EXAM</b>	No discussion sections

7.	Comparing crises: The World War that happened (1914) and the World War that didn't happen (the Cuban Missile Crisis of 1962)	Excerpt from Madeline Albright and Bill Clinton autobiographies; the events leading to the Kosovo War.	Comparing crises: The World War that happened (1914) and the World War that didn't happen (the Cuban Missile Crisis of 1962)	Excerpt from Bill Clinton autobiography; account of the events leading to the Kosovo War.
8.	Motivational factors in war; Perception, misperception and war	Excerpt from <i>Margaret Thatcher: The Iron Lady</i> and the Falkland Islands War; Excerpt from <i>Politics of Thatcherism</i>	Motivational factors in war; Perception, misperception and war	George W. Bush speech on the War on Terror September 20, 2001); speech on the Iraq War (March 19, 2003)
9.	Political socialization and Political "generations"	Biographies for Cesar Chavez and Dolores Huerta (United Farm Workers Union) and timeline of historical/ political events	Political socialization and Political "generations"	Biographies of Cesar Chavez & Mahatma Gandhi and timelines of historical/political events for both US and India contexts
10.	Elite politics: Decision making and Ideology and political beliefs	Excerpt about the final phase of negotiations leading up to Kosovo War (from Madeline Albright and Bill Clinton autobiographies)	Elite politics: Decision making and Ideology and political beliefs	Excerpt about the final phase of negotiations leading up to Kosovo War (from Bill Clinton autobiography)
11.	Political cognition and the mass media  Linking the personal and the political	DVD – Excerpts from Loretta Ross interview from the Global Feminisms Project; Excerpt from <i>Muting the Women's March</i>	Political cognition and the mass media  Linking the personal and the political	Biography for Cornel West; statement from Cornel West: <i>Why I'm marching in Washington</i> Excerpts from <i>Press Bias and Politics: How the Media frame controversial issues.</i>
12.	Nationalism: Ethnicity, ethnic solidarity, ethnic cleansing	THANKSGIVING – no discussion sections	Nationalism: Ethnicity, ethnic solidarity, ethnic cleansing	THANKSGIVING – no discussion sections

13.	Envy, justice, rebellion, and terrorism	Biographies of Andreas Baader and Ulrike Meinhof and the Baader-Meinhof Gang Manifesto (edited)	Envy, justice, rebellion, and terrorism	Biography of Theodore Kaczynski (aka the Unabomber) and the Unabomber Manifesto (edited)
14.	Psychological perspectives on what is happening in the world	Rachel Carson and Al Gore environmental work biographies	Psychological perspectives on what is happening in the world	Ralph Nader and Al Gore environmental work biographies
15.	End of term	No discussion sections	End of term	No discussion sections

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**CHAPTER III**

**FITTING IN AND GOING WITH THE FLOW:  
MOTIVES FOR GRADUATE STUDY AND COMPLETION OF THE  
DOCTORATE**

Like socialization to any institution or profession, socialization to the academy involves a process through which individuals learn the particular values, attitudes, norms, behaviors, and skills needed to succeed within their chosen field and in the academic world more broadly (Anderson & Louis, 1994; Nettles & Millet, 2006; Weidman, Twale, & Stein, 2001). The academy's historical roots as a middle and upper class white male institution have resulted in a set of norms by which all graduate students and faculty are socialized, such as maintaining an appearance of self-control at all times, privileging of intellectual engagement over utility, and a style of verbal engagement that may seem hostile to some. These norms may not be easily adopted by members of some groups because of different cultural or gender norms. Most research to date on graduate students has focused on mentoring and support practices (Hadjioannou, Shelton, Fu & Dhanarattigannon, 2007; Johnson-Bailey, Valentine, Cervero & Bowles, 2008; Knox, Schlosser, Pruitt & Hill, 2006), identity development and competence (Weidman, et al, 2001, pp. 15-21), coping (Matheny, Ashby & Cupp, 2005), socialization practices (Deem & Brehony, 2000; Gardner & Barnes, 2007), curriculum and learning outcomes (Sammons & Speight, 2008; Treleaven & Voola, 2008), research productivity and career outcomes (Love, Bahner, Jones & Nilsson, 2007; Singer, Cassin & Dobson, 2005), as

well as challenges experienced by students of color (Ellis, 2001; Gay, 2004; Lewis, Ginsberg, Davies & Smith, 2004; ) and female students (Buck, Leslie-Pelecky & Lu, 2006; Maher, Ford & Thompson, 2004; Turner & Thompson, 1993). Research on attrition suggests that the cost of doctoral student attrition is substantial for both the graduate student in terms of well-being, and the academic institutions in terms of wasted resources (Golde, 2005; Lovitts & Nelson, 2000). Studies focusing on psychological factors associated with success in graduate school are few (DaRos-Voseles, Collins, Onwuegbuzie & Jiao, 2008; Whinghter, Cunningham, Wang & Burnfield, 2008; Witcher, Alexander, Onwuegbuzie, Collins & Witcher, 2007), and to our knowledge no quantitative studies examine graduate student motivation for pursuing a doctoral degree in the first place. . The current study contributes to this literature on graduate students by including students of color drawn from three racial/ethnic groups (Asian/Asian American, African American/Black, Latina/os) along with White students. Specifically, we examine students' motives for going to graduate school and how these motives are related to the completion of their doctoral programs.

### **Diversity in the Academy**

The educational system is an important socialization tool, and at advanced stages of education graduate school provides opportunities for a person to develop expertise needed for their intended career. Changes in the United States' demographics will continue to be reflected in the student population attending college in the first place, attending graduate school, and entering the professoriate. Many institutions of higher education have recognized diversity as important for many reasons, including social justice (Hurtado, 2005; Nagda, Gurin, Sorenson & Zuniga, 2009), to promote wider

breadth of scholarly inquiry and work (Cherwitz, 2005), and to prepare students for a global society (Gurin, Nagda, & Campanella, 2010). Despite diversity initiatives, the US Census Bureau (2005) reports disproportionate numbers of doctorates conferred compared to their presence in the US population for some groups including Hispanics who comprise 17% of the US population but earn only 5.5% of doctorates, and Black non-Hispanics who constitute 15% of the population and earn 9.5% of all doctorates. Additionally, attrition rates are high for all groups, with national averages around 50-55% (Lovitts & Nelson, 2000; The Ph.D. Completion Project, 2009). More specifically, 55% of Whites, 51% of Latinos/Hispanics, 50% of Asian Americans, and 47% of African Americans complete their Ph.D.s within ten years. The cumulative completion rate for men overall (58%) is slightly higher than women's overall (at 55%).

The high attrition rate for doctoral students has prompted researchers to focus on department and disciplinary characteristics including mentoring, department expectations, rate of progress, financial support, and peer support (Ehrenberg, Groen, So & Price, 2007; Golde, 2005; Lovitts & Nelson, 2000). Undoubtedly, the quality and nature of doctoral student education contributes to a student's overall experience. However, the motivation for pursuing a doctoral degree in the first place may also have a bearing on how a person experiences and navigates the demands of graduate school, and subsequently whether or not they finish their program of study.

### **Privileged Status in the Academy**

The reasons that a person pursues an advanced degree in the first place are important to understand because individuals are likely to differ in their motivations for many reasons, including social context. Motivational differences are likely to have

consequences for how a person approaches graduate education, the discipline, and the profession. One source of particular motivations may be individuals' social identities, such as race and gender, and the representation of these identities within the academy. Psychological research on how majority/minority status affects performance has shown that gender (Kiefer & Sekaquaptewa, 2007; Thompson & Sekaquaptewa, 2002) and race/ethnicity (Hall & Closson, 2005; Purdie-Vaughns, Steele, & Davies, 2008) can trigger both different performance and emotional reactions to academic settings and experiences. This is partly due to the fact that negative stereotypes encountered among peers and faculty may compromise performance and diminish motivation (Shih, Ambady, Richeson, Fujita, & Gray, 2002; Steele, 1997). We are particularly interested in underrepresented groups entering the academy and expect that gender and racial/ethnic minority status also influence a person's motives for going to graduate school.

Researchers have identified some of the ways that minority status matters; for example being the only woman in a program may make gender quite salient to a woman in that context (Kantola, 2008; Thompson & Sekaquaptewa, 2003). Equally, a person of color from an underrepresented racial/ethnic group in a given context is likely to be more aware of that aspect of their identity (Hall & Closson, 2005). Researchers have also demonstrated that it is common for members of the majority group to perceive minority group members as being overly attentive to their minority status (Goff, Steele, & Davies, 2008). Thus, minority and majority group members are likely to view environments differently, and in the social context of graduate school, doctoral students who are part of the majority group may overlook obstacles that minority group members may experience. Majority group members may also believe that any grievances minority group members

have can be attributed to being overly attentive to their minority status, including “playing the race card” (Jost & Banaji, 1994; Kaiser & Pratt-Hyatt, 2009). Considering the historical goals of the academy, motives related to social identity, such as addressing social justice issues related to your own group, may be perceived as less scholarly by majority group members. Whether a person holds a privileged status based on majority group membership, or a subordinate status based on minority group membership, is likely to have some influence on a person’s motivation for pursuing a doctorate.

Framing the experiences of graduate students in terms of subordinate/minority and privileged/majority status is only a preliminary step in understanding how identity may inform their motives for pursuing a PhD. Scholars have argued that race, ethnicity, gender, and other identity statuses cannot be separated (Cole, 2009; Crenshaw, 1995), but the effects of intersecting identities are often overlooked when researchers look at race or at gender as separate facets of a person’s life. All individuals hold several status-related identities that are not separable; thus, a racial or ethnic identity may be experienced differently by a male than a female, and other identities such as class and sexual orientation also contribute to how an individual experiences both their race and their gender. In some cases, holding both a minority and majority status changes how a person experiences their environment, such that a Latino (compared to a Latina) may hold some privileges based on his gender status in some contexts, but this privilege may not translate when his race/ethnicity is made salient in other contexts (Shih, et al, 2002). We suggest, then, that the intersection of identities will contribute differentially to the motives for pursuing a PhD for different groups of students.

## **Legitimacy via the PhD**

Felt and recognized legitimacy may be both an obstacle and a motive for students with a minority status. Researchers have demonstrated that assumptions about legitimate holders of power and status are related to stereotypes, with majority group members having a greater investment in maintaining a privileged position (Jost & Banaji, 1994; Kaiser & Pratt-Hyatt, 2009). The presence of minority group members in a domain where they have been historically underrepresented may generate the need to justify their historical underrepresentation or illuminate that their presence challenges the status quo (Haines & Jost, 2000; Jost & Banaji, 1994; Rudman, Feinberg & Fairchild, 2002). In either case, the question of legitimacy will be raised, and is especially relevant for women (white women and women of color) and people of color who often feel the need to perform consistently at a higher level than men or white students in order to disprove assumed incompetence or to establish themselves as legitimate authorities in their fields (Kantola, 2008; Tajfel & Turner, 1979). Therefore, motivation based on the desire to acquire legitimacy and dispel stereotypes about one's own group may affect how a graduate student perceives and adjusts to her academic environment, especially if the graduate student perceives their academic environment as endorsing these stereotypes. This type of motivation may prove too burdensome when students are trying to meet the demands of graduate school, while challenging negative stereotypes about their own group. Conversely, this type of motivation may facilitate a greater need to succeed and in the process dispel negative stereotypes.

## **Gendered Attributions of Success: Serendipity vs. Agency**

Success related to goal achievement has been framed in the psychological literature in terms of agency and serendipity (Plunkett, 2001). Agency is conceptualized as including instrumentality and the intention to pursue a goal, with a person responding to and creating opportunities leading toward the goal. Serendipity refers to the unplanned aspects of an experience, including the absence of preconceived intent, goals, or strategies (Tomlinson-Keasey, 1994). Plunkett (2001) argues that researchers tend to ascribe agentic career outcomes to men, and use serendipitous explanations to describe women's career development. She also argues that women's own reference to serendipity in their career trajectories can be described more appropriately as pseudoserendipity, since even when women actively pursue or work toward their goals they often identify chance opportunities that have helped them. How individuals recognize their own agency and the role of chance in recognizing and pursuing opportunities is arguably gendered, and can be consequential. As described by Bandura (1999), "serendipitous" opportunities are fortuitous events that all persons benefit from, yet some individuals with higher social status and privilege may not notice that they do. It may matter whether graduate students describe their motivation for pursuing a doctoral degree as a series of serendipitous events that convinced them to apply or to their own hard work and decisiveness.

### **Sense of Fit Within the Academy and Identity Development**

A crucial component of achieving a solid sense of identity is the sense of belonging, contributing, or accomplishing something that is of value to the larger culture (Erikson, 1959). For those motivated to go to graduate school, academic socialization plays an important role in their development in many ways, including their identity formation as an expert in their chosen field of study. In the end, a firm commitment must



be made to reaching each benchmark leading to the degree; along the way, cognitive flexibility is necessary for exploring and integrating a substantial amount of new information learned throughout a doctoral program. Identity development status, therefore, may play a role in motivation for graduate school, as well as in how a person experiences it. Marcia's model of identity (1966) describes four statuses (achievement, moratorium, foreclosure, and diffusion), each defined by varying levels of active exploration of life options and commitment to particular choices, including career, values, goals, and beliefs. Because the commitment needed to persevere to degree completion requires that people understand themselves (Berzonsky & Kuk, 2005), these identity statuses may help us understand motives for pursuing graduate education.

Some students may pursue a PhD because graduate school provides a rich environment for intellectual and social exploration; these are optimal circumstances for a person in the status of moratorium, which is characterized by ongoing exploration of options. A person in the state of moratorium has not yet made a commitment to any particular identity, but may be embarking on a process of deciding upon which commitments to make (Marcia, 1966). Individuals in the state of moratorium may also be more likely to recognize fortuitous events (Bandura, 1999) as opportunities to explore their alternatives.

Students who are motivated to pursue doctoral studies based on their perceived fit within a field or academia generally are not focused on exploration, but they are characterized by a commitment. This commitment may have resulted from an exploratory process (in which case it is classified as resulting in an "achieved" identity status) or may not (in which case it is classified as a "foreclosed" identity status). Individuals with

foreclosed identities tend to rely on family or significant others for decision-making about life choices (Berzonsky & Kuk, 2000; Marcia 1966). Students with foreclosed identities may have decided to go to graduate school based on preconceived ideas of what they expect their graduate experience (and the academy) to be like.

According to Marcia's model, the ideal state of identity development is the identity achieved status; here the person has made a commitment based on sufficient exploration of their options. A person with an achieved identity status has engaged in active exploration of her life options and has made a commitment to some of them (e.g., career, values, etc.). Identity achieved people are reported to be less susceptible to social pressure, utilize an information processing style, and are able to make commitments to careers, ideologies, and values (Berzonsky & Kuk, 2000; Boyd, et al., 2003; Marcia, 1993). A student may come into graduate school with an achieved identity status based on previous educational or life experiences, or may achieve this as a result of their doctoral training. In any case, underlying identity processes of exploration and commitment that define identity statuses may contribute both to motives and to attrition, particularly as a result of an anticipated sense of fit that may or may not be realized.

Students' actual sense of fit in graduate school is not only a function of their expectations in advance. Once in graduate school, "fit" reflects a match between a person's values and needs, and the demands made by the environment. Person-environment fit influences many psychological outcomes, including job satisfaction, self-esteem, and positive work attitudes (Roberts & Robins, 2004). People at risk of being judged negatively based on group membership are attuned to cues that signal social identity contingencies for a person in a particular domain (Kiefer & Sekaquaptewa, 2007;

Purdie-Vaughns, et al, 2008). Roberts & Robins (2004) found that in academic settings men report higher rates of person-environment fit than women, and although there may be a fit in terms of interest, talent, and capability, cultural incongruence between a person and an environment can inhibit the sense of fit for all women and all people of color in fields where they are underrepresented. For graduate students, perceived fit is likely to foster positive outcomes including those reported in prior studies, as well as earning the PhD and achieving a sense of identity as an expert in their field. However, the sense of fit reported in this study as a motive for graduate school does carry the risk of disappointment if the actual demands of the training feel different from what the student anticipated.

In this study we developed content coding categories that captured graduate students' descriptions of their motives for doctoral education. Then we assessed race and gender differences in those motives, testing the hypotheses that maleness and whiteness are majority statuses that confer privilege and are associated with some motives, while femaleness and being an ethnic minority are minority statuses that are associated with different motives. Finally, we considered the degree to which these motives are associated with degree completion, controlling for race and gender.

### **Method**

This study is part of a larger project involving both faculty and doctoral students at a large, public, midwestern university that is recognized for its commitment to institutional diversity. The Socialization to the Academy Project was initiated in 2000 to investigate the experiences of faculty and doctoral students who differed with respect to race and gender.

## **Participants**

Eighty-two doctoral students were selected from the humanities (49%) and social sciences (51%) for this project. Science fields were not included because equal sampling of all racial/ethnic groups in all fields would have been impossible due to low participation rates of African Americans/Blacks and Latina/os in these fields (The PhD Completion Program, 2009; US Census of the Bureau, 2006). A stratified random sample was drawn from the pool of all doctoral students in the humanities and social sciences who had spent a minimum of two years in their program. By the end of the second year of doctoral study, students are expected to meet similar benchmarks across doctoral programs including credits earned and advancement to candidacy. Therefore, participants in this study were in similar stages of their doctoral programs. To ensure the sample included equal numbers of male and female students as well as white students and students of color, students from each group were recruited until all cells were full for each group. Demographic information was obtained from the graduate school, including gender, race/ethnicity, field of study, and year of registration. Students were guaranteed confidentiality and any identifying references to individuals, departments or programs made by a participant were deleted from the transcript. The project was reviewed by the behavioral sciences institutional review board (“IRB”) and was approved as compliant with all institutional, state, and federal regulations pertaining to studies involving human subjects.

There were 46 women (55%) and 36 men (45%) in the sample. For race/ethnicity, there were 42 students of color including 14 African American/Blacks, 15 Asian/Asian Americans, 13 Latina/os, and 40 White doctoral students. As noted above, initial

interviews were conducted in 2000 with students who had completed at least two years of doctoral program study. In 2010 we assessed degree completion for all students in the sample. For those students interviewed at the *earliest* stage in their program (after only 2 years), this was fully 12 years after they started in the program. It was longer for students who were initially sampled later in the program. In 2010, a total of 17 students (21%) had not completed their degrees, with 4 students still enrolled and 13 who had left their programs. Although during this period there was no formal procedure for terminating a degree at the graduate school level, we confirmed with each student's department that they were no longer working on the degree and had informed the department of that fact. Of the students who had completed their programs in 2010, 22 (27%) had completed in less than 7 years, 21 (26%) had finished in 7-8.5 years, and 22 (27%) had taken more than 8.5 years to earn their PhD. Chi-square comparisons revealed no significant differences for length of time to completion between students in humanities or social science programs or for likelihood of completion overall. There were also no gender differences in completion, but there were significant race differences with people of color significantly less likely to finish (29% did not complete their degrees) than whites (8%),  $\chi^2(1, N=82) = 6.09, p = .02, V=.27$ . Because of this race difference, analyses of motives as predictors of completion control for race.

### **Data Collection**

Feminist researchers have suggested that use of an interviewer who is similar to the interviewee may aid in minimizing discomfort felt by participants when asked about issues relating to race, gender, or sexual orientation (Reinharz, 1992). Theoretically speaking, an interviewer who is similar to the interviewee may be perceived as better able

to understand cultural nuances. Participants were therefore matched as closely as possible to an interviewer by race or ethnicity; thus an African American/Black participant was interviewed by an African American/Black interviewer. If a perfect match was not available, then matches were as close as possible (e.g. a Filipino participant with a Chinese interviewer). Additionally, interviewers were always from a different discipline than the interviewee to increase the sense of privacy for the participant. It was not always possible to match for gender or immigrant status.

The interview protocol was semi-structured to allow participants to articulate and interpret their experiences in their own words. Questions were included about demographics, background, research interests and experiences in graduate school. All interviews were audio recorded with the consent of the participants. Interviews averaged over an hour in length and were transcribed verbatim. All identifiers of race and gender were removed to reduce awareness of these variables during the coding process. Additional data were obtained from the graduate school and other university data sources, such as department administrators, and included year entering graduate program, years to complete degree, year and month of graduation, and when applicable, year and month that a student left their program. We also obtained departmental demographics such as percentage of underrepresented minority faculty in a department and total number of faculty in a department to include as control variables in regression analyses, although subsequent analyses did not produce significant findings related to these departmental demographic variables. Therefore results are reported without them.

## **Content Analysis**

The authors identified themes that emerged across interviews related to graduate student motives. We identified nine of the twenty-four questions from the interview protocol as containing material addressing motives for going to graduate school. We developed a detailed coding system using a series of steps common in qualitative research to ensure consistency across coders and across time (Charmaz, 2000; Reinharz, 1992; Strauss & Corbin, 1998). From a subsample of 4 interviews randomly selected from the database, the first author coded across the nine selected questions and established a first draft of the coding manual with detailed coding criteria. Using the coding manual, the second author coded these same four interviews and the few inconsistencies or questions raised about the themes at this point were addressed by discussion. The coding descriptions and criteria were refined and six more interviews were selected to ensure that each racial and ethnic group was equitably represented for a balanced construction of the coding protocol (4 White students, 2 Latina/os, 2 African-Americans, and 2 Asian/Asian Americans), with both authors coding across the interviews. Interrater reliability across the coding in these ten interviews was .88 calculated in terms of the conservative percent agreement on the presence of a coded theme (Boyatzis, 1998). The themes included in the final coding manual resulted from this subsample of ten interviews. A third and final round of coding followed, with 9 additional interviews being coded by both authors. Interrater reliability on this new set of interviews was .89 (Boyatzis, 1998). Because agreement was so high on these 19 interviews, the first author coded the remaining 63 interviews using the established criteria detailed in the coding manual.

By this process, five themes were identified as capturing students' motives for going to graduate school: Sense of Fit (62%), Intellectual Satisfaction (43%), Occupational Pragmatism (39%), Serendipitous Events (33%), and Dispelling Myths (18%). The first two themes were expected to reflect majority or privileged status, the third to be shared among many graduate students regardless of status, and the last two to reflect minority or subordinate status. They are described below in the order of their frequency of presence in the 82 interviews.

*Sense of fit with discipline (privileged status)*

Fifty-one participants were coded for this category (62%). Participants believed that their long-standing interests made them well-suited for their field of study and suggest that the trajectories leading them to a doctoral program were guided by earlier experiences related to their field. Criteria for coding text include indications of: 1) a long-term interest, engagement, and commitment to their field or area of study; 2) an attraction to the academic lifestyle because of its facilitation of their research interests; 3) a sense of fit or 'natural' inclination toward their field, and 4) feeling well-suited because of prior knowledge (e.g. familiarity with culture of group they are studying; language familiarity; familiarity with academic lifestyle).

An Example:

I think as far back as I can remember I've always been interested in politics. My mom used to tell me that I was going to be the first woman president so it was almost a natural choice to go into political science.

And:

I grew up in an academic community and really liked being in an environment where I could discuss research...I could discuss [my] interests...



*Intellectual Satisfaction (privileged status)*

Thirty-five participants (42%) mentioned the desire to pursue research interests and intellectual questions for personal satisfaction alone, without further indication of how their intellectual pursuits may contribute to a larger body of knowledge or relate to preparation for a profession. This motive was described in terms of Intellectual Satisfaction in pursuit of the individual's intellectual questions, and a sense of entitlement to pursue what they enjoy doing. For example,

I chose [field] on the basis of what I really liked...My primary justification for going to graduate school at all was that I wanted to be out of [career field] and into something that I enjoyed.

And:

I wanted something that I...felt I could just love for the rest of my life...I didn't want a career... I'm just such a student...I really wanted something that resonated, something that I love, something that I enjoyed.

*Occupational pragmatism (shared motive)*

Thirty-three participants (40%) described themselves as pursuing a doctoral degree in their field of study for practical reasons, including acquiring legitimacy via these credentials to ensure employment, status, or long-term stability. For example, "There is not too much you can do with a bachelor's in [field], and graduate school was a necessity if I wanted to get a job." Also:

I realized that the people who were making all the decisions were the people running projects, who had PhDs. And so I did this...decision-making tree of "this is what I need to get there."

*Serendipitous events (subordinate status)*

Twenty-seven participants (33%) attributed going to or getting into graduate school to serendipitous events. Participants did not claim agency but instead indicated

that they were not initially sure about why they wanted to go to graduate school. Indications of this category include: 1) admission into graduate school was a “fluke,” a “stroke of luck,” or serendipitous with another event taking place at the same time; or 2) the desire to go to graduate school is attributed to the “good fortune” of having an advisor/mentor that encouraged the student to apply to graduate school. For example, “Usually, I actually fall into things; so I never really had a sort of goal in mind in terms of career.” Another example:

It was the only [program] I really got into...mainly because my college mentor's partner was faculty there, and I think that's partly why I got in. So it's just circumstance in a way.

*Dispelling myths (subordinate status)*

Fifteen respondents (18%) made references that fit into this category. This category includes references to a need to dispel myths and/or misjudgments about themselves as members of a group (e.g. social class background, ethnicity or race, or gender). This was expressed in terms of 1) proving others wrong about their intelligence and work ethic; and 2) having to work harder for the same recognition as comparable others belonging to different groups. Dispelling myths about women and people of color was not necessarily indicated as a primary motive for pursuing a doctoral degree, but was mentioned as one motive (as well as an obstacle) for going to graduate school for some of these students. For example:

That is what I tell the kids behind me. I say look 'you're talking about graduating in four, five, or six years even. Unless you can show them...that you stand head and shoulders above whatever they think we are...they think we're dumb, some of them do.'

And:

There is a perception among the white males, which are pretty much all the males, that women are getting something for nothing...screw it, you know? It's like there are so few women in this field that we have to have some. It's just like, we just have to, and we have to do something to make, to create [opportunities].

### **Hypotheses about Race and Gender Differences in Motives**

We test hypotheses about differences as a function of race/ethnicity and gender, with a focus on issues related to status in the academy. Because our sample is relatively small, we were only able to assess differences by race and by gender separately. We did, however, consider two special situations; the circumstance of holding two majority statuses (white and male) or two minority statuses (female and a racial-ethnic minority).

We hypothesized that:

- 1) There would be no differences for gender or race/ethnicity for motives related to pursuing a PhD for the credentials needed to pursue a particular type of work. Here we assumed that all students have an understanding that a PhD is the necessary credential for entry to the academy as a professor or researcher and understand it as Occupational Pragmatism.
- 2) Students holding a minority status in graduate school, including women in some fields and people of color in general, are expected to be motivated to Dispel Myths and negative stereotypes about their group.
- 3) Students holding a majority or privileged status will be more likely to view themselves as entitled to participate in the academic profession. Therefore, men and white students will refer more often than women and students of color to motives related to a Sense of Fit within the academy or their academic discipline, as well as motives related to pursuing a doctoral degree for personal Intellectual Satisfaction not related to career outcomes or credentials needed to pursue a particular type of work.

4) Women will attribute their successful matriculation in graduate school to Serendipitous Events more often than men. It is unclear whether this is a product of female gender socialization (and perhaps gendered life courses) or a result of minority status. Therefore we will examine whether this is also true for people of color, who hold minority status but only some of whom are exposed to female gender socialization.

Given the small numbers of individuals with particular combinations of race and gender features, we will consider on an exploratory basis whether women of color, as the group holding two minority statuses, actually report motives associated with minority group membership more than other groups. Equally, we consider whether white men, as the group holding two privileged statuses, report motives associated with majority group status more often than other groups.

In the second part of the study, we consider whether race and gender, and these motives, are predictors of successful completion of doctoral education. We did not expect that all motives for attending graduate school would have consequences for completion. We tested the following hypotheses:

- 5) First, based on prior research on completion rates for all groups at all levels of higher education, we predict that students with a minority status will be less likely to complete their programs of study.
- 6) We expected that students who were motivated to go to graduate school to Dispel Myths about their group would be less likely to finish their graduate program, since their awareness of negative stereotypes would be an ongoing stressor in addition to the challenges of graduate school.

- 7) We expected the Sense of Fit to be consequential, but considered two alternatives:
  - a) If a Sense of Fit is based on an achieved identity, students reporting motives related to a sense of fit should be particularly likely to complete their PhD programs.
  - b) If a Sense of Fit reflects a foreclosed identity, it will interfere with completion, as graduate school requires openness to professional identity development.
- 8) We viewed attribution of entrance to graduate school to Serendipitous Events as an indication of identity moratorium. Since this stance reflects openness, and is compatible with professional identity development, we anticipated that students who report that serendipitous events led them to their graduate program would be more likely to complete their degrees.

### **Quantitative Analyses**

Since our data are non-parametric, we used chi-square comparisons to calculate gender and race/ethnic differences among students of color and white students. In analyses of attrition we used binary logistic regression, which allows for the prediction of a discrete dichotomous outcome, such as completing or not completing a Ph.D. (Homser & Lemeshow, 2000). Linear regression was not suitable for our study because many of the assumptions on which the linear model is based (such as homoscedasticity of the residuals and normal distribution) could not be satisfied. Logistic regression does not assume a linear relationship between the independent and dependent variables, and maximum likelihood estimations are calculated *not* by changes in the dependent variable itself but by changes in the log odds of the dependent variable. Therefore, the odds of an event occurring based on observed values of the independent variables are calculated as

the maximum likelihood estimate. Effect sizes in a logistic regression model are reported as odds ratios, and are a comparison of the odds of an event occurring given one condition and the odds of the same event occurring given the absence of that condition. For example, an effect size of 2 for motive A indicates that the ratio of the two odds – the odds of finishing graduate school given motive A compared to the odds of finishing graduate school given the absence of motive A – is 2. Therefore, the odds of finishing graduate school are two times greater for students who state motive A as compared to students who did not state motive A as a reason for going to graduate school.

We hypothesized that certain motives for going to graduate school would predict completing their PhD programs. We included gender and race as controls, and also ran interactions with gender and motives, as well as race and motives, but found no significant interaction effects. This may be due to low cell frequencies for some categories, since these circumstances imply that the precision of estimating an outcome with an interaction term is significantly reduced (Jaccard, 2001). Alpha levels of .05 were used for all statistical tests. As noted earlier, we examined the percentage of minority and women faculty and total number of faculty, as well as field (humanities vs. social sciences) as predictors of completion. Because they were not related to this outcome, and our sample was small, we dropped them from the analysis.

## **Results**

### **Comparisons of Motives by Gender**

The hypothesis that female students would refer significantly more often than male students to Dispelling Myths as a motive for going to graduate school was confirmed, with 28% of female students reporting Dispelling Myths as a motive

compared to 6% of male students,  $\chi^2 (1, N=82) = 6.97, p = .01, V=.29$ . No significant differences were found between female and male students for Serendipitous Events  $\chi^2 (1, N=82) = 1.03, p = .35, V=.11$ , Occupational Pragmatism  $\chi^2 (1, N=82) = 0.05, p = .83, V=.03$ , Intellectual Satisfaction  $\chi^2 (1, N=82) = 0.54, p = .51, V=.08$ , or Sense of Fit  $\chi^2 (1, N=82) = 2.42, p = .17, V=.17$ .

### **Comparison of Motives by Race**

As hypothesized, there was a significant difference between students of color (29%) and white students (8%) for Dispelling Myths,  $\chi^2 (1, N=82) = 6.09, p = .02, V=.27$ . There were also significant differences between students of color and white students in references to Intellectual Satisfaction and Sense of Fit as motives for going to graduate school. White students (58%) referred to Intellectual Satisfaction more often than students of color (29%),  $\chi^2 (1, N=82) = 7.01, p = .01, V=.29$  and to Sense of Fit (75% for whites vs. 50% for students of color),  $\chi^2 (1, N=82) = 5.45, p = .02, V=.26$ . There were no significant differences between white students and students of color for Occupational Pragmatism or Serendipitous Events as motives for going to graduate school.

### **Intersectional Analyses**

We hypothesized that women of color would be more likely than all other groups to report motives associated with a subordinate status as a result of their holding two minority statuses. Our analyses revealed significant differences for Dispelling Myths, with women of color (39%) significantly more likely to report this motive than other students (9%),  $\chi^2 (1, N=82) = 10.36, p = .00, V=.36$ .

Additionally, we tested whether white men were more likely to report motives related to privilege more often than all other groups since they held two majority statuses.

Results indicated that white men (65%) were more likely to report Intellectual Satisfaction as a motive for going to graduate school (65%) than other groups (36%),  $\chi^2(1, N=82) = 5.39, p=.04, V=.26$ . Conversely, they were least likely (0%) to report the need to Dispel Myths compared with all other groups (24%),  $\chi^2(1, N=82) = 5.92, p = .02, V=.27$ .

### **Predicting Attrition**

Due to the small sample size, each motive was run in separate regression analyses, with gender and race as controls. Race was a significant predictor in all models tested, with white students having significantly higher odds of completing graduate school, while gender was not a significant predictor in the models tested. Two motives for attending graduate school predicted attrition after controlling for race and gender: Sense of Fit and Serendipitous Events. The regressions summarized in Table 5 display the separately identified estimates of effects for all motives.

Our hypothesis that students who reported Dispelling Myths as a motive for going to graduate would be less likely to complete their programs was not confirmed, odds ratio=1.30,  $p=.74$ . We found that students who did *not* report a Sense of Fit as a motive were 95% more likely to finish graduate school compared to students who *did* report an expected fit, odds ratio = .05,  $p=.00$ . Serendipitous Events also predicted attrition, with the odds of completion for students who reported this as a motive being almost 11 times greater than students who did not report this as a motive, odds=10.94,  $p=.03$ . In these analyses, race was a significant predictor in the regression that tested Sense of Fit, odds ratio = 16.49,  $p=.00$  and Serendipitous Events, odds ratio=6.01,  $p=.01$ . Gender played no significant role for Sense of Fit or for Serendipitous Events.



## Discussion

Our study contributes to the literature on graduate student socialization by examining students' motives for pursuing doctoral studies, group differences, and predictors of attrition. The results from this study speak to the issue of identity based motivation, as well as how different motives predict completion of a doctoral program. As predicted, we found no gender or race differences for the motive Occupational Pragmatism, and responses across race and gender groups indicate that many students from all groups pursue doctorates in order to enter disciplines as researchers and/or the academy as professors. For students who held minority or subordinate statuses, we found that 28% of women (compared with 6% of men) and 29% of students of color (compared with 7% of white students) reported the desire to Dispel Myths as a motive for going to graduate school. Intersectional analyses revealed that it was women of color in particular who reported most often the need to Dispel Myths (39%) as a motive, most likely because they hold two subordinate statuses. These results confirmed our predictions and are consistent with previous research on women and students of color who often report feeling the need to perform consistently at a higher level than men or white students in order to disprove assumed incompetence or to establish themselves as legitimate authorities in their fields (Kantola, 2008; Tajfel & Turner, 1979). However, there were differences in the types of myths each group who reported this as a motive (white women, men of color, and women of color) felt the need to dispel. White women referred to affirmative action related myths, tied directly to gender and not race ("there is a perception among white males...that women are getting something for nothing"). Similarly, men of color referred to their one subordinate status, and described their

motivation to “stand head and shoulders above...[because] they think we’re dumb...some of them do”. Women of color were more likely than all other groups to refer to dispelling myths as a motive, and similar to white women and men of color, they also made references to affirmative action myths. However, unlike white women and men of color, many recognized the intersection of race and gender, and that they were held accountable for their race (“thwart[ing] some of the stereotypes that my race will have”) as well as their gender (“it only takes one to hurt the perception of all women”).

We did not find significant differences for gender for the categories Intellectual Satisfaction and Sense of Fit. However, we did find significant differences for race, with white students being more likely than students of color to report both Intellectual Satisfaction and an expected Sense of Fit. Intersectional analyses revealed that white men were more likely than all others to report Intellectual Satisfaction as a motive for going to graduate school, but not Sense of Fit. Considering the academy’s historical roots as a middle-upper class white male institution, we expected that white men might feel entitled to participate in the academy for personal Intellectual Satisfaction more than other groups. However, they were not more likely than all other groups to expect a Sense of Fit. Main effects for race revealed that white students as a group were more likely to report an expected Sense of Fit as a motive. Here white women appear to benefit from race privilege, perhaps because the majority of faculty are white (Nettles, Perna, & Bradburn, 2000). On the other hand, no white men reported a need to Dispel Myths about their group, which was significantly different from all other groups combined (or 13% men of color, 15% white women, and 38% women of color). Although we did not predict this outcome, this finding suggests that they hold a privileged status in a context where

they are the majority and where stereotypes about their group are positive and rooted in the history of the academy itself. It is also possible that some white men may be motivated to challenge negative myths related to their group, such as white men being unaware of their privilege and how it shapes the academy. However, no white men in our sample reported this as a motive.

Through logistic regression analyses, we found that race was consistently a significant predictor of attrition (with white students more likely to complete their degrees than students of color), whereas gender was not. With race controlled, we also identified two motives that predicted attrition and did not interact significantly with race: Sense of Fit (negatively) and Serendipitous Events (positively). As we expected across all groups of students, attributing graduate school attendance to Serendipitous Events was associated with successful degree completion. Using Marcia's (1966) model of identity development, we suggested that students who make this attribution may be comfortable with the ongoing exploration of life options that defines the state of moratorium. These students are in an active process of deciding upon which identity commitments to make, as demonstrated across all groups of students in our sample. For example, a white man stated that he "kind of fell into it" when describing his trajectory to graduate school, and similarly a woman of color described going to graduate school as something that "just sort of happened." Graduate school provides a rich environment for intellectual and social exploration; a person in the state of moratorium can benefit greatly from the experience and may be particularly likely to discover that they are well suited for the academic lifestyle.

Also controlling for race, we found that Sense of Fit did not predict finishing; in fact, it was associated with *not* finishing. This is consistent with our alternate hypothesis that Sense of Fit, if associated with identity foreclosure rather than identity achievement, might result in non-completion. A person who reports a long-held interest or natural inclination for their field of study may not be prepared for the level of challenge graduate school offers and flexibility it requires. Although commitment to a field of study is one aspect of successfully completing a PhD program, a person who is foreclosed makes an identity commitment without active exploration.

### **Limitations and Future Directions**

Of course we cannot generalize our findings to all graduate students, since we have a small sample from only one institution, and we limited our sample to the humanities and social science fields. Although we are informed by the comparisons we present here, low power due to subsample sizes does not allow for us to make meaningful comparisons among the four race/ethnic groups. For students who did not finish their programs of study, we do not have information about the reasons for their leaving, nor do we have information about their intended future endeavors. A larger sample reflecting diverse social identities, programs of doctoral study, institutions, and educational backgrounds and preparation, could address these issues and allow for a greater understanding of nuanced differences among these different groups of students. Future studies of motives for pursuing a doctorate should address the issue of attrition with follow-up surveys that compare the experiences for students pursuing the PhD who go into the academy versus those who go into government or the private sector.

### **Conclusion**

The diversification of the academy necessitates a closer examination of graduate student motives for pursuing a doctorate in the first place. For many, pursuing a PhD may reflect the traditional purpose of this degree, which is conferring the highest certification of scholarly inquiry and learning. For others, it may provide the skills, legitimacy, and self-confidence needed to pursue goals related to minority status. Results from our study indicate both that motives for graduate study differ by gender and race/ethnicity, and that these motives may reflect identity statuses and identity-based expectations for their experiences in the academy, and have consequences for attrition.

Table 2  
*Chi-Square Comparisons For Attrition Rates For Gender, Race, and Gender Within Race*

	Women (n= 46)		Men (n = 36)		$\chi^2$	Sig.	V
	Freq.	%	Freq.	%			
Attrition rate	8	17	7	19	.06	1.00	.03

  

	Students of Color N = 42		White Students N = 40		$\chi^2$	Sig.	V
	Freq.	%	Freq.	%			
Attrition rate	12	29	3	8	6.09	.02	.27

  

	Women of color (n=26)		Men of color (n=16)		White women (n=20)		White men (n=20)		$\chi^2$	Sig.	V
	Fre q	%	Freq	%	Fre q	%	Freq	%			
Attrition rate	8	31	4	25	0	0	3	15	7.81	.05	.31

Table 3  
*Chi-Square Comparisons For Gender and Motives*

Motives	Women N = 46		Men N = 36		$\chi^2$	Sig.	V
	Freq.	%	Freq.	%			
Dispel myths	13	28	2	6	6.97	0.01	0.29
Intellectual Satisfaction	18	39	17	47	0.54	0.51	0.08
Occupational pragmatism	18	39	15	42	0.05	0.83	0.03
Sense of fit	32	70	19	53	2.42	0.17	0.17
Serendipitous events	13	28	14	39	1.03	0.35	0.11

Table 4  
*Chi-Square Comparisons of Students of Color and White Students For Motives*

Motives	Students of Color N = 42		White Students N = 40		$\chi^2$	Sig.	V
	Freq.	%	Freq.	%			
Dispel myths	12	29	3	8	6.09	.02	.27
Intellectual Satisfaction	12	29	23	58	7.01	.01	.29
Occupational pragmatism	17	41	16	40	.00	1.00	.01
Sense of fit	21	50	30	75	5.45	.02	.26
Serendipitous events	14	33	13	33	.06	1.00	.01



Table 5  
*Chi-Square Comparisons For Intersection of Gender and Race For Motives*

Motives	Women of color N = 26		All others N = 56		$\chi^2$	Sig.	V	White men N = 20		All others N = 62		$\chi^2$	Sig.	V
	Freq	%	Freq	%				Freq	%	Freq	%			
Dispel myths	10	39	5	9	10.3 6	.00	.36	0	0	15	24	5.92	.02	.27
Intellectual Satisfaction	8	31	27	48	2.21	.16	.16	13	65	22	36	5.39	.04	.26
Occupational pragmatism	11	42	22	39	.07	.81	.03	9	45	24	39	.25	.79	.06
Sense of fit	17	65	34	61	.17	.81	.05	15	75	36	58	1.85	.20	.15
Serendipitous Events	8	31	19	34	.08	1.00	.03	8	40	19	31	.60	.59	.09

Table 6  
*Logistic Regression Predicting Attrition With Gender and Race as Controls*

Motives	Completed graduate program?		
	$\beta$	SE	Odds ratio
Dispelling myths	0.26	0.78	1.30
Intellectual Satisfaction	-0.76	0.64	0.47
Occupational pragmatism	-0.35	0.60	0.71
Sense of fit	-2.96	1.03	0.05***
Serendipitous events	2.39	1.09	10.94*

Note: This table displays data drawn from five separate regressions of race and each motive on completion. Race was a significant predictor in all of these regressions. Gender tended to be a significant predictor only for Sense of Fit. Details of odds ratios for race and gender, when motives also predicted, are reported in the text.

## Appendix II

### *Graduate Student Socialization Interview Protocol*

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#### *I. Demographic Questions*

I'd like to begin with a few background questions that will allow us to describe our sample.

What is your birth date and where were you born?

Where did you get your undergraduate degree? Did you attend all four years there?

What was your undergraduate major? Did you have a minor?

What degree are you pursuing here? What is your discipline or field of study?

How many years have you been at Michigan?

At what stage are you in your program (e.g., completed course work; preparing for prelims, writing dissertation)?

[If at the dissertation stage] Can you tell me about your dissertation?

What are you studying?

#### *II. Background Questions*

**1. Why did you decide to get a Ph.D.?**

**2. How did you choose your discipline and program of study? [particularly probe if different from undergraduate major]**

**3. Why did you choose the University of Michigan for graduate study?**

**4. What did you expect to acquire from your choice of studies?**

**5. What were you planning to focus on when you started grad school?**

**6. Were there research questions that you found particularly compelling when you started graduate school?**

• **What were they?**

7. What are you studying now?

8. [If early plans/interests and present activities differ]: Why are you studying something different from your initial interests?

9. What kind of job did you want when you started grad school?

10. What kind do you want now?

11. [If early and present career interests differ]: Why did your career plans change?

#### *III. The Graduate School Experience*

**12. Did you get what you expected when you started graduate school?**

• **If not, what was different?**

• **How do you feel about the differences?**

**13. What was your biggest surprise in graduate school?**

14. Can you think over your entire graduate school experience so far and identify some problem you have had—a pretty important problem that really worried you. Can you describe for me both what the problem was and how you handled it?
- In retrospect, how do you feel about how that problem got addressed?
15. Can you think of a particularly positive experience you have had in graduate school? (could be a course, a research project, an accomplishment, something you did well on or really enjoyed)—can you describe what happened and what made it so positive?
16. Now I'm going to ask you about the kind of advice you get in four areas:  
 Courses and requirements  
 Research  
 Professional/career  
 Personal life  
 In each area, I'll ask you whether you get advice, how you get it, and from whom. In addition, I'd like to know how satisfied you are with the advice you're getting, or whether you feel like you're getting the advice you need.  
 Okay, Let's start with Courses and Requirements  
 Get it? How? From whom? Satisfied?  
 Okay, how about research?  
 Get it? How? From whom? Satisfied?  
 Professional/career?  
 Get it? How? From whom? Satisfied?  
 Personal life?  
 Get it? How? From whom? Satisfied?
16. [For those with a dissertation] Let's turn to your dissertation now. How did you find your thesis advisor?
17. Has your relationship changed with your advisor since you began working with him or her? If so, how?
18. Do you think your advising experience has been the same as that of the other students in your program? Why? Why not?
19. Graduate school includes a variety of experiences and circumstances. I'm going to ask you about your experience in general, and about whether and how your experience has been different from those of other students in the program in each of six areas.  
 Let's start with coursework—what's your experience been like in this area?  
 Has it been similar to other students' or different?  
 How about funding?  
 Teaching opportunities? [be sure to check on TYPES of opportunities, not just whether they have them]  
 Interaction with faculty? [not just advisor]  
 Networking? [within UM and especially in discipline beyond UM]  
 Career preparation?
20. Overall, how do you think your experiences compare to others in your program?
21. Do you have a sense of where you stand in your program, compared with

- other students in your cohort?
22. Are you moving along in your program at the pace you expected you would?  
Why or why not?
  23. How would you change the program to improve it?
  - 24. How are issues of race/ethnicity, gender, and/or sexuality visible in your program?**  
**How do you think your experiences have been affected by your race/ethnicity, gender, or sexuality?**
  25. What, if anything, would you do differently if you could start your program over again?
  26. Is there anything about your experience in graduate school that's important, but that I didn't ask about? Anything you'd like to add?

Note: Questions selected for this study are in **bolded** font

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## **CHAPTER IV**

### **RACE AND GENDER IN SCIENCE AND ENGINEERING FIELDS:**

#### **THE EXPERIENCES OF FACULTY OUTSIDERS-WITHIN**

Science as a field and practitioners of science are both often described as neutral, objective, and meritocratic (Barbercheck, Giesman, Ozturk, & Wayne, 2001; Bronowski, 1972; Traweek, 1988), suggesting an immunity to practices that privilege certain groups of people over others. However, the neutrality of the spaces where science is practiced is questionable when we consider that the overall science faculty profile in the United States remains largely White and male (National Science Foundation, 2007). Low participation in science fields by men of color - particularly African Americans and Latinos - and all groups of women cannot be attributed to a lack of interest alone. Over the course of several decades, researchers have documented that features of the academy are experienced differently for faculty who differ in terms of race and gender, with women and racial/ethnic minorities often reporting chilly climates and a sense of not fitting in or belonging (Nelson and Rogers, 2005; Settles, Cortina, Stewart & Malley, 2007; Sotello Viernes Turner, Gonzalez, & Wood, 2008). Significant differences have not been found for interest in science at the undergraduate level for race or gender (College Board, 2005; Hurtado, Cerna, Chang, Saenz, Lopez, & Mosqueda, 2006), yet fewer degrees are awarded to African Americans and Latina/os compared to Whites, and women compared to men (National Science Foundation, 2007), resulting in fewer people of color and women practicing science as faculty members (Nelson & Rogers, 2005).

National efforts have been initiated to recruit and retain underrepresented ethnic/racial minorities and women in the science, technology, engineering and math (STEM) fields (e.g. the ADVANCE Project funded by the National Science Foundation), with attention to expanding the pipeline (Kulis, Sicotte, & Collins, 2002) and examining the culture of science itself (Harding, 1986; Traweek, 2000; Traweek, 1988; Wyer, et al, 2001). In spite of emerging research and intervention efforts, women remain underrepresented in the STEM fields and the experiences of faculty of color in these fields remain largely unexplored. The current study contributes to this literature by including faculty of color drawn from four racial/ethnic groups (African American/Black, Asian/Asian American, Latina/o, and Native American) along with White faculty. Using standpoint theory (Harding, 1991; Hartsock, 1983; Hill Collins, 2000), we examine whether holding a majority or minority status in science is related to differences in how scientists experience their work environments at a research university.

### **Underrepresented Groups in the STEM Fields**

Some groups of people have historically faced barriers to participating in higher education in the United States, and although the academy has diversified in terms of race/ethnicity and gender in many fields, the sciences remain predominantly White and male (National Science Foundation, 2007). Researchers have documented that participation rates in science drop for some groups as they progress along the educational and career STEM pipeline, with fewer degrees conferred at the bachelor level for people of color as compared to Whites and at the doctorate level for people of color and women as compared to Whites and men (National Science Foundation, 2007). Specifically, women earn about half of the bachelor's degrees in science fields but only one third of the

doctorates, and eventually hold less than 26% of full-time science and engineering faculty positions (National Science Foundation, 2007). Among incoming undergraduate students, students of color and White students report similar levels of interest in science (College Board, 2005; Higher Education Research Institute, 2010), yet rates of degrees conferred for these same students are lower for Black (18%) and Hispanic (22%) students, compared to their White (33%) and Asian (42%) counterparts. For these underrepresented minorities (URM), total rates of degree completion are not comparable to their numbers in the general population, with Blacks constituting 15% of the population but only earning 8% of STEM bachelor degrees, and Hispanics making up 17% of the total population, but only earning 8% of bachelor's degrees in STEM fields (National Science Foundation, 2007). Further along the pipeline, Blacks and Hispanics combined earn less than 8% of science and engineering doctorates (National Science Foundation, 2007). People of color as a group hold about 20% of faculty positions in STEM fields, but closer examination reveals that URM faculty hold less than 8% of positions, while Asian/Asian Americans tend to be overrepresented in these fields, holding about 12% of faculty positions although they constitute less than 5% of the total U.S. population (National Science Foundation, 2007). For gender within race, URM men hold most of these faculty positions, whereas women from underrepresented groups are virtually nonexistent in science and engineering departments. In some cases, women of color are completely absent; for example, in 2004 there were no Black, Hispanic, or Native American tenured or tenure track women present in any of the “top 50” computer science departments (Nelson, 2004).

Scholars have suggested many reasons for the low participation rates of URM groups in the STEM fields, including work environments that present multiple barriers to their sense of belonging. For example, scholars argue that because the cultural stereotype of a scientist is male, gender-normative prescriptions for scientists are consistent for men and inconsistent for women (Barbercheck, 2001; Settles, et al, 2006). Therefore, women scientists who adopt a stereotypically masculine career may face social and professional penalties (Rudman & Fairchild, 2004; Rudman & Glick, 2001; West & Zimmerman, 1987). The science climate is described as “chilly” for women, and because STEM fields tend to be male dominated, negative experiences such as sexual harassment are more likely to occur (Grauerholz, 1996; Settles, et al, 2006). Additionally, the science environment is often described as aggressive and competitive (Traweek, 1998), and often involves the exclusion, isolation, and negative treatment of women by their male peers. Researchers have reported negative outcomes for women in this culture including fewer leadership opportunities, social isolation, self censoring, lower tenure, lower job satisfaction, and higher attrition (Carr, Szalacha, Barnett, Caswell, & Inui, 2003a; Niemeier & Gonzalez, 2004; Wright, Schwindt, Bassford, Reyna, Shisslak, St. Germain, 2003).

The samples used for research on women in the STEM fields are comprised largely of White women, most likely due to the low numbers of women of color in these fields. Research specifically assessing the experiences of women and men of color in STEM fields is sparse (Blackwell, Snyder, & Mavriplis, 2009), and mostly focused on demographic patterns (Blickenstaff, 2005). However, a literature review on faculty of color in academe over the course of 20 years revealed similar experiences to those

reported by women faculty in the sciences (Turner, Gonzalez and Wood, 2008). Themes identified for faculty of color included a sense of isolation, a sense of heightened visibility, feeling undervalued, tokenism, and intense demands to mentor underrepresented students. These combined findings suggest that there are cultural practices in higher education that constrain a sense of fit for racial/ethnic minority faculty across all disciplines and women in the STEM fields.

### **Outsiders-Within**

The process through which people become “insiders” in a particular community is often facilitated by senior members of a community who pass on information about how to navigate the process. Accordingly, determinants of membership in the scientific community— and whether the person will hold a position at the center or margins of it - are based on the value of contributions made by an individual to the community (Traweek, 1988; Zuckerman, 2001). It is assumed the information needed to successfully navigate the process of becoming integrated into a community is accessible to all; even assuming equal accessibility, having the information alone may not ensure a sense of fit or belonging for all people. Patricia Hill Collins (1998) uses the term *outsider-within* to describe people operating within an environment without fully fitting into it. She argues that in a given context, those in the majority (i.e. members of the dominant group) are likely to perceive people who are in the minority (i.e. members of the subordinate group) as belonging, despite the subjective experiences of those in the minority. This assumption by majority group members is based on minorities having the “rights to membership,” such as holding the necessary credentials as well as an invitation to join the group. In the context of the academy and STEM fields in particular, this perception is based on having



the same credentials and training in the form of the PhD, as well as explicit efforts to recruit members from underrepresented groups including White women, African Americans, Latina/os, and Native Americans. For outsiders-within, inclusion does not necessarily translate to true belonging, or a sense of equal power or influence within a particular context. It is well documented that leadership roles are often assigned to male faculty in general, and more often to White male faculty (Traweek, 1988), while faculty of color and women often find themselves with disproportionate responsibilities for mentoring and committee work related to diversity issues (Tapia, Chubin, & Lanius, 2000). Therefore, women scientists and scientists of color may be recruited to a particular department, school, or university, but may nonetheless experience feelings of isolation, tokenism, or the need to overcompensate to prove their legitimacy (Biernat & Kobrynowicz, 1997).

Holding majority status (that is, outnumbering the minorities) does provide certain privileges to group members. This is suggested in the higher completion rates of bachelor degrees earned by Black and Latina/o students at minority serving institutions (MSI) compared to Black and Latino students attending predominantly White institutions (PWI; Provasnik, & Shafer, 2004; U.S. Department of Education, National Center for Education Statistics, 2002). Cultural practices shared by majority group members contribute to their development as scientists but outsiders-within may perceive themselves as not belonging in a culture where they are the minority. This suggests that cultural practices in a science domain may include aspects that are not science related. Underrepresented minority students in STEM fields who attend predominantly PWIs are more likely to change majors from science to another field and describe the science

environments as competitive, but also report a racialized or gendered environment that includes stereotyping and social stigma, and a lack of supportive peer networks (Hurtado, Nolan, Cabrera, Lin, Arellano, & Espinosa, 2008). The science environments at minority serving institutions are not necessarily less competitive (Chang, Cerna, Han, & Saenz, 2008), but being in the majority has the benefit of confirming a sense of belonging which may offset stressors related to academic achievement in a STEM field.

How people perceive their fit in any context is dependent upon the various groups to which they feel they belong, and researchers report that in academic settings men report higher rates of person-environment fit than women (Roberts & Robins, 2004). A perceived person-environment fit reflects a match between a person's values and needs, and the demands made by the environment, and influences many psychological outcomes, including job satisfaction, self-esteem, and positive work attitudes (Piasentin & Chapman, 2007; Roberts & Robins, 2004). Researchers also suggest that an absent "fit" may be compensated by a complementary relationship between persons and their organization. According to Piasentin and Chapman (2007), complementarity involves a person's perception that although she is dissimilar to existing organizational characteristics, it is this dissimilarity that makes her both unique and an asset to that organization. It is a *positive* experience for people when they perceive their difference to be both desirable *and* valued. The concept of complementarity is in line with the argument posed by Page (2007) about potential positive outcomes of a diverse workforce, such that differences can promote creative thinking and innovative problem solving. A person may perceive herself as *fitting* into an organization because she both possesses some necessary attributes, and is aware that she brings *complementary* specialized

training or knowledge that is missing from the organization. However, the perception of incongruence between a person and the environment may create an overall feeling of not fitting within the organization despite some particular characteristic that should lead to a sense of fit, such as interest in the field or sufficient training for her position. Although there may be a fit in terms of interest, talent, and capability, cultural incongruence between people and their professional environment can inhibit a sense of fit for faculty from underrepresented groups in the STEM fields.

### **The Culture of Science**

Culture is defined by anthropologists as a set of daily practices, habits, and thoughts that provide a group with a basis from which to evaluate and make meaning of their environment (Traweek, 2000). Cultural practices are created and practiced by those at the center who hold power, but they are also practiced by those at the margins (hooks, 2006; Traweek, 1988). Psychologists have argued that social contexts within particular cultures - such as gender and race - have a substantial influence on the ways in which different groups experience personality processes including identity development related to a particular vocational field (Erikson, 1959; Veroff, 1983). Scholars of science education have suggested that norms taught to students reproduce the collective culture's values and practices deemed acceptable to "do science" (Hurtado, et al, 2008; Hutchison & Bailey, 2006). Individuals who are trained to do science are encouraged to use the tools of science to take a detached approach that is assumed to ensure neutrality as well as skepticism in order to produce original results that are universally applicable and accessible to all people (Bronowski, 1972; Wyer, et al, 2001). Additionally, they are expected to display "drive, commitment, and charisma" in order to push their research

forward and convince others of its value (Traweek, 1988; Wyer, et al 2001). What is implied here is that through the employment of these practices and tools - including scientific knowledge and the use of the scientific method - neutrality, objectivity, and meritocracy are ensured (Bronowski, 1972).

On the other hand, some scholars have questioned this assumption of neutrality and have demonstrated how science can be driven by racist, sexist and classist agendas (Cohn, 2001; Harding, 2006), manifest in biased language (Gilbert, 2000) and lines of inquiry that have resulted in biased constructions of gender (Rhodes, 2000), race (Stern, 2005), and sexual orientation (Fausto-Sterling, 1993). Additionally, hierarchies among sub-fields of science may contribute to segregated work spaces (Traweek, 1988), and make collaboration or interdisciplinary work less likely to occur. Low participation rates of women and ethnic/racial minorities in the STEM fields also point to a chilly climate (Settles, et al 2007), calling into question the “neutrality” of the spaces where science is practiced. Despite diversity initiatives at many institutions of higher education to address climate issues, research suggests that characteristics of the science culture may indeed inhibit the development of underrepresented scientists (Hurtado, et al, 2008) and the integration of new faculty of color and women into the STEM fields (Moreno, Smith, Clayton-Pederson, Parker & Teraguchi, 2006).

### **Standpoint Theory and Legitimacy**

Standpoint theory suggests that the dominant culture in which all groups exist is not experienced in the same way by all persons or groups, and that the views of those belonging to the group with more social power are validated more than those belonging to marginalized groups (Harding, 1991; Hartsock, 1983; Hill Collins, 2000). Members of

marginalized groups must therefore learn to be bicultural in the sense that they must learn the perspective of the dominant culture, in addition to their own, in order to survive and/or thrive in that environment. People's worldviews are largely determined by their social locations which then influence what they focus on as well as what is obscured from them. Social locations shape what we know and how we communicate, and generate distinctive perceptions of social relationships.

Although diversity initiatives have helped to increase the number of underrepresented minorities in the academy, the development of a professional identity for faculty of color and women in the science and engineering fields remains challenging for several reasons. Theories of identity development (Carlone & Johnson, 2007; Erikson, 1959; Marcia, 1968) suggest that a healthy person should eventually achieve identity integration by recognizing herself *and* having the recognition of others as a certain kind of person. In this case, a person pursuing a career as a scientist should be perceived by herself and others as a legitimate member of the scientific community. People of color and women entering into the STEM fields challenge the stereotype of scientists as White men, and as a result their authority in this domain can be doubted (Eberhardt & Fiske, 1994; Fiske, 1995; Sekaquaptewa & Espinosa, 2004; Wyer, et al, 2001). Scientists of color and women scientists have the dual tasks of developing identities as scientists/faculty members as well as making a place for themselves within a domain that has not historically had a place for them. The difficulties that arise for many faculty members include challenges to their intellectual and professional authority by both colleagues and students based on gender and race/ethnic stereotyping (Sotello Viernes Turner, Gonzalez, & Wood, 2008; Sotello Viernes Turner, 2002; Stanley, 2006). In the

case of faculty of color and women in the STEM fields, if a faculty member feels valued as a legitimate member of the scientific community, diversity initiatives can be a positive experience for both the person and the organization. However, if the person perceives herself not to be valued and not belonging, the opposite may be true.

Research related to context and majority/minority status has demonstrated that persons who are considered most credible when delivering a message are also those who are assumed to be legitimate holders of power (Carlone & Johnson, 2007). Whether the message reinforces a widely held belief (such as men being naturally “better” at math), or is one that challenges these common misperceptions, the deciding factor of whether or not the message is credible is based on the attribution of legitimacy. It is through this perceived legitimacy that a member of an underrepresented group can challenge the status quo, and possibly create change (Page, 2007). Therefore, the person who is challenging scientific practices, introducing innovation, or advocating for the study of historically ignored groups must be perceived as authoritative and competent. If legitimacy and expertise are narrowly defined, those that fall outside of these definitions will not be taken seriously.

Ample psychological research demonstrates that minority and majority group members are likely to view environments differently, and these differences in experience can present obstacles for a person’s sense of fit within a particular context. Differences may include minority group members responding to negative stereotypes encountered among peers and faculty, with diminished performance and motivation due to psychological burden (Shih, Ambady, Richeson, Fujita, & Gray, 2002; Steele, 1997). Majority group members may perceive minority members as being overly attentive to

their minority status (Goff, Steele, & Davies, 2008) and therefore overlook obstacles that minority group members may experience, and attribute challenges reported by minority group members to undue attention to their minority status, including “playing the race card” (Jost & Banaji, 1994; Kaiser & Pratt-Hyatt, 2009).

### **Some Consequences of Stereotypes and Model Minority Myths**

The perception of competence and legitimacy is also dependent upon context and situation. Members of underrepresented groups often feel the need to perform consistently at a higher level than men or Whites in order to disprove assumed incompetence or to establish themselves as legitimate authorities in their fields (Sekaquaptewa, Waldman & Thompson, 2007; Thompson & Sekaquaptewa, 2003). They may also be concerned that poor performance will be generalized to their entire group (Sekaquaptewa, et al., 2007). According to stereotype threat theory (Steele, 1997), negative stereotypes faced by a person within a certain domain (e.g. “women are not good at math”) can compromise performance, or result in disidentification with or disengagement from a domain. People at risk of being judged negatively based on group membership are attuned to cues that signal social identity contingencies that are relevant to a person’s social identity in that domain (Crocker, Major, & Steele, 1998; Kiefer & Sekaquaptewa, 2007; Purdie-Vaughns, Steele, & Davies, 2008; Murphy, Steele, & Gross, 2007). In the face of obstacles, a person can both disidentify with a domain and simultaneously master the task at hand (Davies, Spencer, & Steele, 2005; Nussbaum & Steele, 2007; Pronin, Steele, & Ross, 2004). Therefore, although a person is successful in a work domain, that success does not necessarily translate into personal well-being if the person believes he was negatively judged because of his group membership.

It is important to note that not all minority groups experience stereotypes as negative, and majority/minority status may be context specific. For example, Asian/Asian Americans hold a complex status in STEM disciplines; they are not underrepresented in those fields, and they are considered by most majority group members not to be "White" and therefore to be people of color. Moreover, the model minority stereotype about certain groups of Asians/Asian Americans (specifically Chinese, Korean and Japanese) assumes that members of these groups are natural achievers in math and science fields (Kao, 1995; Kawai, 2005). In this case, different groups of Asians in the United States may be more or less motivated to challenge myths about their groups, depending on whether they feel their group is associated with positive or negative stereotypes. For Asians and Asian Americans in the U.S. the model minority myth can be both an advantage because of the assumption of high competence and a burden because of the demand to live up to an unattainable standard. Research demonstrates that although Asians/Asian Americans may be perceived as competent and intelligent, they may also be perceived by the majority to be low in social skills. This perception may justify tendencies by other groups to behave negatively toward them (Lin, Kwan, Cheung & Fiske, 2005). Thus, expectations for science performance for Asians/Asian Americans may be high, but inclusion in social settings, where informal mentoring and transmission of information takes place, may not follow. Thus, within the STEM fields Asians/Asian Americans may be viewed as technical or scientific "insiders" but still as "outsiders" to the community.

### **Intersections of Social Identities**



Examining group differences in a given context is useful for understanding outcomes such as differences in degree attainment by group in STEM fields, or the patterns for tenure among women faculty compared to men in science and engineering fields. In the context of STEM fields, it is often the case that African Americans/Blacks, Latina/os and Native Americans are grouped into a broader category, such as URM or people of color, because of the small number of them in these fields. Here we assume that those who are underrepresented in these fields share at least some common experiences. On the other hand, collapsing groups of people into broad categories assumes homogeneity and erases within group differences at the intersection of race and gender (among other social identities). Feminist scholars have argued that race, ethnicity, gender, and other identities cannot be easily separated (Acker, 2006; Cole & Stewart, 2001; Crenshaw, 1995; Deaux & Stewart, 2001), and the intersection of identities is often overlooked when looking simply at race or at gender as separate facets of a person's life. Intersectionality recognizes that individuals hold at least two social statuses in which their different status-related identities are not separable; thus, the presence of one identity alters the experience of other identities. Researchers have demonstrated that even within a group, a person who belongs to multiple social groups may be stereotyped differently based on certain identity cues and which cues are most salient in a particular domain (Kiefer & Shih, 2006; Pittinsky, Shih & Trahan, 2006; Shih, Ambady, & Richeson, 2002; Shih, Pittinsky, & Ambady, 1999). Demographic patterns in STEM fields show that White men constitute the majority of science practitioners whereas other groups have varying levels of participation rates (NSF, 2007). Therefore, an intersectional approach is

necessary for examining how gender and race intersect to alter a person's experience – and ultimately a sense of fit - in STEM fields.

### **Research Questions**

This research was motivated by the expectation that groups that hold a subordinate status, including women and underrepresented minority race/ethnic groups (African American/Black, Latina/o, and Native American faculty), experience the academic environment differently than do majority/privileged group members (e.g. White faculty and male faculty). We anticipated that these groups would differ in their perspectives in ways that reflected majority group members' insider standpoint, or the outsider-within standpoint. We also considered the particular status held by Asian/Asian American faculty; holding a complex status as technical insiders and community outsiders would both inform and obscure their standpoint depending on the salience of their status as outsiders versus their status as insiders. In addition, we expected all three groups (URM, Asians/Asian Americans, and Whites), as well as women and men, might share some views as scientists in this institution regardless of their status. Finally, we considered that the intersection of race and gender would relate to the perspectives of faculty members who held two privileged or subordinate social statuses. We proceeded in two stages: derivation of themes associated with these three standpoints across all interviews, followed by tests of association of these themes with race and gender. We will therefore outline the themes we identified, specify hypotheses about the relationship between these themes and race and gender, and then test those hypotheses.

## Method

The current study was designed to put "outsiders" at the center to better examine their experiences as scientists at a research university. Therefore, the sample includes more people from underrepresented groups in the STEM fields (i.e. men and women of color and White women). At the same time, we include White men in our sample to gain an understanding of the differences and similarities among majority and minority group members, and to avoid privileging any one perspective (Narayan & Harding, 2000). In addition, Asians/Asian Americans were included as individuals viewed as insiders in science fields, and outsiders to majority White male culture.

A stratified random sample of male and female faculty scientists and engineers from five groups (African American/Black, Asian/Asian American, Latina/o, Native American, and White/European) was interviewed over two summers (2006 and 2007). Our goal was to draw roughly equal samples from each of the racial-ethnic groups; unfortunately, the small number of Native American faculty made it impossible for this one group, so we interviewed all that agreed to participate. Names of faculty from science, technology, engineering, and math disciplines in seven schools and colleges, including Literature, Sciences and the Arts, Engineering, Medicine, and four smaller schools that have scientists on the faculty were obtained from the institutional database. Faculty were contacted by email and invited to participate in this study of science and engineering work environments. Close attention was paid to ensuring that racial/ethnic groups were evenly represented, and scheduling of interviews was coordinated based on these efforts. Participants were guaranteed confidentiality and any identifying references to individuals, departments or programs made by a participant were deleted from the

transcript. The project was reviewed by the behavioral sciences institutional review board and was approved as compliant with all institutional, state, and federal regulations pertaining to studies involving human subjects.

### **Participants**

Forty-one faculty scientists and engineers were interviewed for this study. There were 16 men (39%) and 25 women (61%) participants. Fifteen faculty were White (37%; 9 women and 6 men) and of the 26 faculty of color (63%), 8 were African American/Black (20%; 5 women and 3 men), 7 were Asian or Asian American (17%; 5 women, 2 men), 8 were Latinas/Latinos (20%; 5 women and 3 men), and 3 were Native American (7%; 1 woman, 2 men). Nine were assistant professors (22%), 9 were associate professors (22%) and 8 were full professors (20%). White faculty were drawn from the same schools as faculty of color. Randomly selected faculty within groups were contacted until cells were filled; the response rate for faculty of color was 50% and 35% for White faculty.

### **Data Collection**

The interview protocol was semi-structured with open-ended questions. The use of semi-structured interviews allowed us to explore the participants' interpretation of their work environments rather than approaching them with surveys derived from our preconceived ideas about their experiences as underrepresented groups in the STEM fields (Reinharz, 1992). All participants were asked to describe their position and length of time in their department, observations about their department's daily procedures and practices, understanding about how to succeed in their department, as well as questions related to identification with a racial/ethnic group and perceptions about the climate for

racial/ethnic minorities. Most of the questions asked were identical for faculty of color and White faculty; however, minor adjustments were made to the interview protocol based on the ethnicity of the person being interviewed. Only one question was asked to faculty of color and not to White faculty: “Are there any other things we did not discuss that make being faculty of color more difficult?” Two questions were modified to address faculty of color or White faculty appropriately. For example, faculty of color were asked “are there particular things about being a faculty of color that are difficult for your colleagues to understand?” whereas White faculty were asked “are there any particular things about *not* being a faculty of color that are difficult for your colleagues to understand?” The second modified question asked faculty of color “what advice would you give a new faculty member of your race/ethnicity at Michigan about the kind of issues we’ve been talking about?” and was reworded as “what advice would you give to a new faculty member at Michigan about the kind of issues we’ve been talking about?” for White faculty.

With the exception of one interview at the participant’s request, all interviews were audio recorded with the consent of the participants. For the interview that was not audio recorded, the interviewer took notes throughout the interview that were transcribed immediately after the interview was completed. Interview time averaged at least one hour, though some were considerably longer. All interviews were transcribed verbatim. Names of participants were replaced by identification numbers, and all identifiers for race and gender were removed from the interviews.

## **Content Analysis of Themes**

We developed a detailed coding system using a series of steps common in qualitative research to ensure consistency across coders and across time (Charmaz, 2000; Reinharz, 1992; Strauss & Corbin, 1998). From a subsample of 4 interviews randomly selected from the database, the first author identified emergent thematic patterns and established a first draft of the coding manual with detailed coding criteria. Using the coding manual, the second author coded these interviews; interrater reliability assessed by percent agreement based on the presence of a coded theme (Boyatzis, 1998) was .91. Inconsistencies or questions about the themes were addressed and the coding manual was updated to reflect these decisions. After this initial round of coding, 10 more interviews were selected to ensure that each racial and ethnic group was equitably represented for a balanced construction of the coding protocol. Both authors coded the interviews and interrater reliability of .92 was reached (Boyatzis, 1998). Given this high reliability on 14 interviews, the first author coded the remaining 27.

Eight themes were identified as occurring in at least one quarter of the interviews. These themes included Social Identity Not Important (78%), Culture of Excellence (73%), Friendly and Supportive Environment (59%), Race and Cultural Privilege (56%), Heightened Responsibility (44%), Sense of Isolation (44%), Self Censoring (27%), and Convenient Diversity (24%). As we reviewed these themes, it appeared to us that they fell into three groups. One was related to a common institutional standpoint where the perception of a particular aspect of the work environment might be shared by most science faculty working at this institution (Culture of Excellence). Two reflect an insider standpoint (where the perception of the work environment is shared by those in the

majority: Social Identity Not Important and Friendly and Supportive Environment), and five reflect an outsider-within standpoint (where the perception of the work environment is shared by those who feel in some way outside the community: Race and Cultural Privilege, Heightened Responsibility, Sense of Isolation, Self-Censoring and Convenient Diversity). The themes below are organized to reflect our expectation that they represent these three perspectives: common institutional standpoint, insider standpoint, and outsider-within standpoint.

*Culture of excellence (Common Institutional Standpoint).* Thirty participants (73%) made references to the intellectual stimulation, excitement about working with really talented people, excellence of the research environment and its infrastructure, rich and abundant resources, and the freedom and institutional flexibility in the service of scholarship as noteworthy aspects of the environment. For example,

[This] is, you know, one of the best places that I can imagine working for...the University is very good. The Department here is...in the top ten, has been for a long time. There's really world class people here, a lot of great research going on, the students are very strong, especially the undergrad students are very, very strong.  
And:

As a scientist I have to say that...I look...across this country [and see] that there are few places are of this caliber...You know, you want to do something novel, you want to try something new, and chances are that there's somebody on campus that's...doing it and collaborations are really easy. So that, that's what I like about this place, a lot.

*Social identity not important (Insider Standpoint).* Thirty-two participants (78%) indicated that social identities such as race and gender were not an issue in their professional life. References that indicated attempts to not see a person's social identity (e.g. gender) were also coded. For example,

...my personal feeling here, is, it is not really an issue here and I think our department looks at it as, you know, we have Chinese, we have Indians, and... quite diverse group.

And:

I have a different culture and a different background and every time that I speak to my students and I tell about my city, my language, my family, my people, myself, but I never feel like I'm different.

*Friendly and supportive environment (Insider Standpoint).* Twenty-four participants

(59%) made references to the environment as friendly, open and supportive of

collaboration and interdisciplinarity. For example,

my department is very collegial...my colleagues are very ...friendly and helpful and supportive.

And:

I believe that if you start innovating or start a new project, there is a lot of support...people are very supportive.

*Race & Cultural Privilege (Outsider-within Standpoint).* Twenty-three faculty members

(56%) made references to faculty who are majority group members enjoying privileges

related to race/ethnicity, including the sense that some people have an unfair advantage

for being hired because of similarities with current faculty (such as cultural sameness),

unearned authority based on racial identity (e.g. stereotypes associated with being White),

and different standards for different groups (e.g. "the bar" set higher for non-Whites; less

expected of White colleagues). One minority group member described the many

challenges that s/he had encountered because of race and/or gender, pointing out that "I

think that most people do not realize what you had to go through to get where you are

at..." and also,

I think [white] colleagues...have a difficult time understanding that, you know, there are some students who are not ready to take you seriously as a professor.



*Heightened responsibility (Outsider-within Standpoint).* Eighteen participants (44%) referred to a sense of heightened sense of responsibility because of their high visibility as tokens or minorities in their departments. References to feeling like they needed to overcompensate in order to dispel negative stereotypes about their group or a sense that any mistakes made would reflect badly on the group they consider themselves to be a member of were coded. An example:

Being the only one...it sort of either puts me in a position to answer for everyone who may look like me...

And:

I would never, ever say anything like that because...you know, because I'm so distinguishable. That would be, that incident would be....in my case it would be remembered.

*Sense of isolation (Outsider-within Standpoint).* Eighteen participants (44%) referred to feelings of isolation and feeling undervalued. References coded include lack of support for research interests perceived as outside of the main focus of department, lack of mentoring, and difficulty being a member of a minority group in their department. In addition to the sense of isolation, some faculty reported feeling they are "outside the inner circle" and "excluded from key decisions." An example,

I don't expect them to know a lot about the culture, but more so – how can I phrase that? – you feel a little bit like an alien...

And:

I think there's a lot of alone-ness. I think for minority people, we often spend time working in silos. And that's starting to change to a certain extent. But I think people don't necessarily understand our research and they don't understand why we're doing this research. And so you work by yourself.

*Self-censoring (Outsider-within Standpoint)*. Eleven faculty members (27%) made references to feeling as though they could not speak freely or noted that particular others felt they could not speak freely in professional group settings. Also included were references to language barriers and a concern that the meaning of their message might be lost in translation, and ultimately dismissed. For example,

it's as if...do I need to have an agenda? When am I going to ask this? And am I going to upset this person? And you know, it just evolves...

Another example:

...for me, I think of myself [as] Asian...[we] come over here, we try our best...I would wish I could do something, but if the department has that difficulty...I don't want to argue too much, to make the administration work hard...I think most Asian people [are not aggressive]...most of the people tell me I'm too shy.

*Convenient diversity (Outsider-within Standpoint)*. Ten participants (24%) made references to feeling exploited by some administrators and other faculty for the appearance of commitment to diversity by the department. The sense here is that the faculty/administrators are going through the motions to reach quotas or to demonstrate that they are doing the "right thing". For example:

...if the chairman's looking for somebody for MLK day or you know, whatever, all of a sudden my importance will increase...

And:

...I think diversity is a big issue for the university and departments have some pressure to be concerned about diversity...so when those issues come up, my race becomes important because I am...you know, a person they can point to, to say we are making some progress in that area...

### **Testing Hypotheses**

The theme Culture of Excellence was expected to be a shared value and perspective across race and gender for faculty at this institution. We expect that all

participants in our sample will strongly identify with their science fields, and perceive their work environment as promoting a Culture of Excellence.

However, with a focus on insider and outsider-within standpoints, we predicted that faculty who are members of a majority group will be more likely to refer to themes that reflect an insider standpoint, whereas minority group members will refer to themes reflecting an outsider-within standpoint.

We also consider that Asian/Asian American faculty hold a unique position within STEM fields, which we hypothesize will provide them with some "insider" privilege some of the time, while as people of color they may also experience their environments as outsiders-within. With this in mind, we predict for the three race/ethnic groups (White faculty, Asian/Asian American faculty, and URM faculty):

- 1) Because White faculty are majority group members, they will refer significantly more often than Asian/Asian American and URM faculty to themes reflecting insider perceptions of their work environment as Friendly and Supportive, and will express the view that Social Identity is Not Important.
- 2) Equally, we predict that underrepresented faculty members (African American/Black, Latina/o, and Native American) will refer to outsider-within themes significantly more often than Asian/Asian American and White faculty. These themes include Convenient Diversity, Heightened Responsibility, Race & Cultural Privilege, Self Censoring, and Sense of Isolation.
- 3) Because of their complex status, we predict that Asian/Asian American faculty will refer more often to themes related to a privileged standpoint than URM

faculty and less often than White faculty, and more often than White faculty to themes related to an outsider-within standpoint but less often than URM faculty.

For gender, we predict:

- 4) Because men are majority group members in science, they will refer more often than women to themes reflecting an insider standpoint, including the perception of a Friendly and Supportive work environment, as well as assuming that Social Identity is Not Important.
- 5) We also predict that women will refer to outsider-within themes more often than men because of their minority group status; these themes include Convenient Diversity, Heightened Responsibility, Race & Cultural Privilege, Self Censoring, and Sense of Isolation.

These analyses only address one factor (race or gender) at a time. Moreover, grouping people together based on race and/or ethnicity suggests that the groups are homogeneous; however, we do not assume homogeneity within these broad social categories. Therefore, on an exploratory basis (given the small numbers of individuals with particular combinations of race and gender features), we take an intersectional approach to our analyses as suggested by feminist scholars who argue that a person's experience in a given context is changed as a function of the intersection of multiple identities (Acker, 2006; Cole & Stewart, 2001; Crenshaw, 1995). Based on the demographic patterns in STEM fields showing that White men constitute the majority of science practitioners whereas URM women are nearly absent in these fields, we hypothesize that the intersection of race and gender will have a substantial bearing on their standpoints. Specifically, we predict:

- 6) White men will be significantly more likely to refer to themes related to an insider standpoint than all other groups combined including White women, and URM men who both hold one majority status and one subordinate status, Asian/Asian American women and men who hold a complex status, and URM women who hold two minority statuses.
- 7) Conversely, we predict that URM women will be significantly more likely than all other groups combined including White women, URM men, Asian/Asian American women and men, and White men, to refer to themes related to an outsider within standpoint.

## **Results**

### **Quantitative Analyses**

Our data are non-parametric; thus, chi-square comparisons were run for all themes for race/ethnic and gender differences between White faculty and faculty of color, and between men and women. Alpha levels of .05 were used for all statistical tests.

We did not anticipate differences for race/ethnicity or gender for faculty perceiving their work environments as a Culture of Excellence, and we did not find differences for race/ethnicity,  $\chi^2 (1, N=41) = 2.42, p = .30, V=.24$ , or gender,  $\chi^2 (1, N=41) = .87, p = .48, V=.15$ .

We hypothesized that White faculty would refer more often to themes related to an insider standpoint than Asian/Asian American faculty and URM faculty. We found no significant differences among the three race/ethnic groups for Friendly and Supportive Environment,  $\chi^2 (1, N=41) = .02, p = .99, V=.02$ , but we did find significant differences for Social Identity not Important,  $\chi^2 (1, N=41) = 8.52, p = .01, V=.46$ . However, our

prediction that White faculty would refer more often to this category than URM faculty was confirmed, but not that they would refer to it more often than Asian/Asian American faculty. Instead, we found that Asian/Asian American faculty (100%) actually reported this theme more often than both White faculty (93%) and more than URM faculty (58%). Chi-square comparisons of each group to each other group revealed several significant differences among them. There were significant differences between Asian/Asian Americans and URMs,  $\chi^2 (1, N=26) = 4.26, p = .06, V=.41$ , and between Whites and URMs,  $\chi^2 (1, N=34) = 5.41, p = .05, V=.48$ , but not between Asian/Asian Americans and Whites,  $\chi^2 (1, N=22) = 0.49, p = 1.00, V=.15$ .

We also predicted that URM faculty would refer more often to outsider-within themes than White faculty and Asian/Asian American faculty, and there were significant differences for the categories Convenient Diversity,  $\chi^2 (1, N=41) = 15.31, p = .00, V=.61$ , Heightened Responsibility,  $\chi^2 (1, N=41) = 9.05, p = .01, V=.47$ , and Race and Cultural Privilege,  $\chi^2 (1, N=41) = 8.33, p = .02, V=.45$ . For Convenient Diversity, chi-square comparisons for Asian/Asian Americans and URMs, Whites and URMs, and Asian/Asian Americans and Whites revealed significant differences among these groups. There were significant differences between Asian/Asian Americans (0%) and URMs (53%),  $\chi^2 (1, N=26) = 5.99, p = .02, V=.48$ , and Whites and URMs (0%),  $\chi^2 (1, N=34) = 11.18, p = .00, V=.57$ , but not between Asian/Asian Americans and Whites because no members of either group reported feeling like Convenient Diversity.

Chi-square comparisons for Heightened Responsibility for Asian/Asian Americans (57%) and URMs (62%) revealed no significant differences,  $\chi^2 (1, N=26) = .08, p = 1.00, V=.06$ , but there were significant differences between Whites and URMs

(13%),  $\chi^2 (1, N=34) = 8.59, p = .01, V=.50$ , and Asian/Asian Americans and Whites,  $\chi^2 (1, N=22) = 4.62, p = .05, V=.48$ . For Race & Cultural Privilege, chi-square comparisons run for Asian/Asian Americans (57%) and URMs (62%) revealed no significant differences,  $\chi^2 (1, N=26) = .01, p = 1.00, V=.02$ , but there were significant differences between Whites and URMs,  $\chi^2 (1, N=34) = 7.44, p = .01, V=.47$ , and between Asian/Asian Americans and Whites,  $\chi^2 (1, N=22) = .396, p = .07, V=.42$ . There were no significant differences for race for Self Censoring,  $\chi^2 (1, N=41) = .59, p = .75, V=.12$  or Sense of Isolation,  $\chi^2 (1, N=41) = .08, p = .96, V=.04$ .

We predicted that men would refer more often than women to the insider categories across all groups, but we found no significant differences for the categories Friendly and Supportive Environment,  $\chi^2 (1, N=41) = .17, p = .75, V=.06$ , or Social Identity not Important,  $\chi^2 (1, N=41) = .16, p = 1.00, V=.06$ .

We predicted that women across all groups would be more likely to refer to the outsider-within standpoint themes than men across all groups. We did not find significant gender differences for the categories Convenient Diversity  $\chi^2 (1, N=41) = .45, p = .71, V=.11$ , Heightened Responsibility,  $\chi^2 (1, N=41) = .00, p = 1.00, V=.00$ , Race & Cultural Privilege,  $\chi^2 (1, N=41) = .44, p = .54, V=.10$ , or Self Censoring,  $\chi^2 (1, N=41) = 2.75, p = .15, V=.26$ . The category Sense of Isolation approached significance, with 56% of women compared to 25% of men referring to a Sense of Isolation,  $\chi^2 (1, N=41) = 3.81, p = .06, V=.31$ .

### **Intersectional Analyses: Gender Within Race**

On an exploratory basis, we ran chi-square analyses to test for intersectional differences for two key intersections of race and gender in this particular context: White

men as holding two privileged statuses and URM women as holding two subordinate statuses in STEM fields. We expected that White men would be more likely than all other groups (URMs, White women, and Asian/Asian Americans) to refer to themes related to an insider standpoint. There were no significant differences for Social Identity not Important,  $\chi^2 (1, N=41) = .197, p = .31, V = .22$ , but we did find a significant difference for white men describing a Friendly and Supportive Environment more often than all other groups combined,  $\chi^2 (1, N=41) = 4.98, p = .03, V = .35$ . We also hypothesized that URM women would be more likely to refer to themes related to an outsider-within standpoint. We found significant differences for Convenient Diversity,  $\chi^2 (1, N=41) = 5.33, p = .03, V = .36$ , with more URM women referring to this theme than all other groups. There were no significant differences for Heightened Responsibility,  $\chi^2 (1, N=41) = 1.62, p = .33, V = .20$ , Race & Cultural Privilege,  $\chi^2 (1, N=41) = 1.71, p = .22, V = .20$ , Self Censoring,  $\chi^2 (1, N=41) = 1.52, p = .29, V = .19$ , or Sense of Isolation,  $\chi^2 (1, N=41) = .40, p = .75, V = .10$ .

## **Discussion**

Our study contributes to the research on faculty in STEM fields in several ways. First, there is limited research on faculty of color, and particularly underrepresented groups, in STEM fields. Our study includes women and men of color drawn from three underrepresented minority groups (African American/Black, Latina/o, and Native American) along with Asian/Asian American faculty who are considered a majority minority in STEM fields, and White faculty. Second, we used standpoint theory (Harding, 1991; Hartsock, 1983; Hill Collins, 2000) to guide our analysis of how holding a majority or minority status is associated with how scientists experience their work environments at a research university. Considering an outsider-within perspective, we



identified themes in the interviews that call into question whether inclusion actually translates to a sense of belonging, power or legitimacy. Finally, intersectional analyses allowed us to examine how holding one or more privileged or subordinate statuses relate to a person's standpoint. Our findings confirm previous research on faculty of color in academe and women in STEM fields. We also present new findings that highlight the standpoint of outsiders-within and the value of intersectional analyses.

We expected that all faculty members – regardless of race or gender – would have a common institutional standpoint about their work environments as being a Culture of Excellence. As predicted, there were no significant differences for race or gender, highlighting the importance for all groups of people of belonging to an academic science community that strives for excellence. Considering the cultural importance that society places on science practitioners and the prestige that comes with this type of work, those drawn to these fields are likely to be invested in maintaining a high standard that will be acknowledged by others (Traweek, 1988).

For themes related to an insider standpoint, we predicted that White faculty as compared to faculty of color, and men compared to women, would be more likely to perceive their environments as Friendly and Supportive, and to report that Social Identity is Not Important. We found no significant differences for race (Asian/Asian American, URM, and White faculty) or gender (men and women) in perceptions about a Friendly and Supportive Environment. It may be the case that intervention efforts at this particular institution are making substantial headway toward creating positive work environments for all members of the science community. Alternatively, collapsing race across gender and gender across race provides only a very gross test of our standpoint hypotheses.

On the other hand, we did find significant differences for the categories Social Identity Not Important and Convenient Diversity. For Social Identity Not Important, we found that 100% of Asian/Asian American faculty and 93% of White faculty described social identity as not important in their professional context. Perhaps viewing social identity as irrelevant is related to the broader belief that neutrality, objectivity, and meritocracy are crucial elements of the science culture. In this instance, White and Asian/Asian American faculty shared a perspective associated with the insider standpoint. However, White faculty and Asian/Asian American made somewhat different kinds of references that were captured by this theme. White faculty tended to discuss social identities as if they were held only by other people. For example, one White faculty member described social identity as something that others held, and when asked what role race played in her daily life, she responded with “I’ve got a student who is African American...I don’t really think of him that way. He’s just my student.” Asian/Asian American faculty were more likely to understand racial/ethnic identity as referring to themselves, although they interpreted their racial/ethnic identity through a cultural lens, explaining that “on a day to day basis, I don’t think of myself as a particular minority because...[I’m] just from my own background and the country I come from” or “you can call it...this racial or ethnic group is an issue. I don’t think it’s an issue, personally. I think it’s more about culture.” Although both groups report that social identity is not important, Whites generally report that it is not important for others, while Asian/Asian Americans minimize its importance for themselves.

In contrast, URM faculty were more likely to understand race as a salient feature of their social identity, and that social identity does matter in a professional context:

...what is good enough when you're a woman, and what is good enough when you're a man is not necessarily the same. And what is good enough when you're the African American woman in the department and what is good enough when you are not. (URM woman)

In this, case, then, there is a divergence among people of color, and particularly between URM and Asian/Asian American science faculty standpoints.

Convenient Diversity is another theme related to the outsider-within standpoint and here we also found significant differences, with URM faculty more likely to refer to this theme than both Asian/Asian American and White faculty. In other instances, we found that White faculty were different from both URM and Asian/Asian American faculty. For example, we found significant differences for Heightened Responsibility and Race & Cultural Privilege, with both URM faculty and Asian/Asian American faculty referring more often than White faculty to these themes. For Convenient Diversity, our results are consistent with research on faculty of color in the academy and demonstrate how URM faculty, who are often tokens in their departments, are called upon for public demonstrations of a racially diverse workforce (Sotello Viernes Turner, Gonzalez, & Wood, 2008; Sotello Viernes Turner, 2002). Other researchers have documented that faculty of color are likely to feel highly visible (Sotello Viernes Turner, Gonzalez, & Wood, 2008; Sotello Viernes Turner, 2002), and our findings show that URM and Asian/Asian American science faculty share an outsiders-within perspective in feeling a Heightened Responsibility as representatives of their groups. Asian/Asian American and URM faculty also perceive privilege based on racial and cultural similarities shared by majority group members (i.e White faculty), unearned authority based on racial identity, and different standards for different groups of people (Hill Collins, 1998).

It is notable that at times Asian/Asian American faculty share an insider standpoint with White faculty and at other times they share an outsider-within standpoint with URM faculty. Although Asian/Asian American faculty may sometimes be considered faculty of color, they occupy a unique position in science and math fields because they are assumed to be naturally talented in these fields, a stereotype that insulates them from some of the challenges to authority, legitimacy and belonging that underrepresented minority faculty face. According to exemplar-based models of social judgment (Smith and Zárate, 1992), specific persons or attributes become prototypes in a particular context. However, even with the stereotype that Asians are naturally talented in science and math, White men are the numerical majority and therefore the expected and prototypical practitioners of science. Self-categorization (Turner, 1987) as a prototypical exemplar is dependent upon meeting the criteria for group membership and if a person is unable to meet all criteria, others will consider them less prototypical. Understanding identity denial as a fear of not being seen as part of the in-group (Cheryan and Monin, 2005) sheds light on why Asian/Asian American faculty (like URM faculty) report that White faculty have Race and Cultural Privileges that they do not. Asians who strongly identify as scientists may perceive themselves as fitting into their professional environments, but may still experience feeling like outsiders-within because of cultural practices within these environments that are based on things other than science.

Identity denial is not always experienced as complete exclusion from the group but instead is often experienced in partial or subtle ways, signaling that some group members are less prototypical than others. Identity denial for Asian/Asian American faculty for reasons unrelated to their performance as scientists may lead to several

responses. One response to identity denial is identity assertion on the part of the person whose identity is denied. By asserting one's identity, the person aims to convince others of their legitimacy as a group member. Some ways to demonstrate identity assertion include changing one's attitudes (Jetten, Branscombe, Spears, & McKimmie, 2003) or distancing oneself from an identity that is incongruent with the in-group identity (Ellemers, Spears, & Doosje, 2002). For Asian/Asian American faculty, these attitudinal or behavioral changes may motivate acceptance of norms practiced by in-group members, such as reporting that Social Identity is Not Important, as well as not seeing themselves as Convenient Diversity.

Contrary to research findings that report a chilly climate for women in STEM fields, we found no gender differences for many of the themes related to insider or outsider-within standpoints. We did find near significant differences for Sense of Isolation with more women referring to this than men. It is important to note that even when men mentioned isolation, they described it differently than women. For men, the sense of isolation was related to a perceived lack of mentorship such as "I'm a junior faculty...and would appreciate if someone would take time to mentor [me]," or being left out of the inner circle because of race differences, such as "I couldn't believe how quickly he learned what took me four years to figure out...because it informally came to him through his buddies here." For women, it was most often related to the reality of being the only woman ("I'm the only woman") and in many cases the only woman of color ("there's no one else like me") in their unit or department.

It is important to note that researchers have found that women in STEM fields report Self-Censoring (Settles, et al, 2007; Sotello Viernes Turner, 2002), yet we did not find

significant gender differences for this category. Here too, though, there are distinctions in how men and women in our study describe how they practice self-censoring. Generally, women tended to describe self-censoring as something they did as a protective strategy (“I feel a little threatened”) or as a means to prevent being perceived as stepping out of line (“I don’t want to argue too much...to make the administration work hard”), whereas men described self-censoring in terms of hiding their racial identity in order to earn their positions based on merit (“[I] actually made it a point of not signaling my race in any way...and my chair likes to joke that...when I first showed up, he was expecting some blond Norwegian...”) or their observations about women in their unit (“Half the time...[men]...are just pontificating on their own concepts...but usually women are a lot more insecure about either their work or even talking about it...and so, they tend" [to be silent]”).

Although the key groups are very small and our analyses exploratory, we examined differences between White men and all others, as well as for URM women and all others. We predicted that White men would be more likely than all other groups to refer to themes related to insider status, and that URM women would be more likely to refer to themes related to an outsider-within status than all other groups. We found that 100% of White men reported a Friendly & Supportive Environment. As proposed by other researchers, most work environments are constructed in the likeness of White men (Acker, 2006), and it is White men who report a greater fit in academia in particular (Piasentin & Chapman, 2007), resulting in positive work attitudes (Piasentin & Chapman, 2007; Roberts & Robins, 2004). From an insider standpoint, the environment may appear especially Friendly and Supportive to White men because of the overt efforts of this

particular institution to recruit women and people of color, but these efforts may also obscure from them the challenges faced by women and people of color (Harding, 1991; Hartsock, 1983; Hill Collins, 2000).

Our hypothesis that URM women would be more likely than all other groups to refer to themes related to outsider-within standpoints was partially confirmed. Underrepresented minority women were indeed more likely to report feeling like Convenient Diversity, suggesting that they are particularly vulnerable to feeling they are viewed as "counting" in science as bringing two kinds of diversity (gender and racial-ethnic) and therefore being particularly "convenient." It is notable and not surprising that White men did not refer to this theme at all, as they personally do not provide "convenient diversity" and apparently also do not notice it. It is a bit more surprising that 100% of White and Asian/Asian American faculty (including the women in these groups) do not report this theme. These findings indicate how holding a privileged status seems to protect these groups of faculty from feeling like Convenient Diversity. We only found differences between URM women and all other groups in this one theme; perhaps intersectional analyses using a larger sample size would identify additional differences as a function of the number of majority and minority statuses faculty held.

### **Future Directions and Conclusions**

Our results raise many questions that are related to insider and outsider-within status in particular settings. Does change happen when the numbers increase from "token" to minority? Does the overall work climate change for scientists who are members of these groups, and if yes, how? Although we hypothesized that women as a group would be more likely than men to refer to themes related to an outsider-within

standpoint, this was only indicated for the theme Sense of Isolation. Although women constitute half of the general population, within STEM fields women scientists are in the minority. Women scientists are complicated as a group because despite their minority status in terms of numbers, whiteness provides some privilege to some members of this larger social category, and may buffer some White women from experiences reported by faculty of color, and women of color in particular. On the other hand, prior research reveals that White women do indeed experience a chilly climate in STEM field environments, suggesting that our sample of White women may have been too small to detect important aspects of their experience. Nonetheless, the demographic patterns showing that women are more likely to pursue careers in biological science fields as compared to engineering or computer science (NSF, 2007; Nelson, 2004) suggests differences in cultural practices that are experienced as welcoming or hostile to different groups. Our efforts to include equal numbers of faculty from across science and engineering fields may give a false sense that all science and engineering fields have work climates that are experienced similarly by everyone. A larger sample would not only allow for further examination of different intersections of race and gender within STEM fields, but the comparison of particular fields such as biology, astronomy, physics, and engineering would allow for a closer examination of cultural practices and how different groups perceive their fit within these environments (Bell, Sherman, Iserman, & Logel, 2003).

Additionally, samples that include larger numbers of men and women of color would allow for the examination of how gender can serve as a privileged status for men of color in some instances, whereas race may provide some privileges for women in others. For



example, a Latina scientist may not be viewed as having as much legitimacy in her field as her Latino counterpart because of gender norms, but a Latina who is read as “White” may experience more privilege based on her perceived racial identity than her male counterpart who is perceived as being “of color.” Additionally, our findings related to Asian/Asian American faculty also point to the complexity of social identities, such that a social identity status that is privileged in one sense may not translate to privilege in another. Future studies should focus on the particular experiences of Asian/Asian American faculty and URM faculty to understand how holding both privileged and subordinate statuses change a person’s sense of fit within the same context.

Considering issues of acculturation may also be helpful for explaining why some groups were split on some of the categories related to social identity (Stone & Stone-Romero, 2004). The recruitment of talent from other countries to US institutions will likely contribute to changes in cultural practices in professional environments, as well as how the work environment itself is perceived. Therefore, a larger sample would allow for the examination among American born faculty of color and foreign born faculty of color.

Overall, we found more differences as a function of race-ethnicity than gender. This may be due to White women in STEM fields experiencing some privilege based on race, or differences in the fields sampled for White women and the other groups. In any case, the experience of men and women of color in these science departments suggests that they face real burdens in negotiating an environment that may include them in some ways, but does not yield a sense of belonging along the many dimensions of academic life. Moreover, this study suggests that science faculty who feel like they belong--White men and to some extent White women--are not aware of the privilege they have, or the

ways in which faculty of color feel unvalued. Creating a truly inclusive scientific community requires that the "insiders" recognize these realities that are so visible to the outsiders within.

Table 7

*Chi-Square Comparisons of Three Race/Ethnic Groups: Underrepresented Minority Faculty, Asian/Asian American Faculty, and White Faculty For All Themes*

Themes	URM faculty N = 19		Asian/Asian American faculty N = 7		White faculty N = 15		$\chi^2$	p	V
	Freq.	%	Freq.	%	Freq.	%			
Culture of excellence	16	84	4	57	10	67	2.42	.30	.24
Friendly and Supportive Environment	11	58	4	57	9	60	.02	.99	.02
Social identity not important	11	58	7	100	14	93	8.52	.01	.46
Convenient diversity	10	53	0	0	0	0	15.31	.00	.61
Heightened responsibility	12	63	4	57	2	13	9.05	.01	.47
Race & cultural privilege	14	74	5	71	4	27	8.33	.02	.45
Self-censoring	6	32	2	29	3	20	.59	.75	.12
Sense of isolation	8	42	3	43	7	47	.08	.96	.04

Table 8  
*Chi-Square Gender Comparisons For All Themes*

Themes	Women N = 25		Men N = 16		$\chi^2$	p	V
	Freq.	%	Freq.	%			
Culture of excellence	17	68	13	81	.87	.48	.15
Friendly and Supportive Environment	14	56	10	63	.17	.75	.06
Social identity not important	19	76	13	81	.16	1.00	.06
Convenient diversity	7	28	3	19	.45	.71	.11
Heightened responsibility	11	44	7	44	.00	1.00	.00
Race & cultural privilege	13	52	10	63	.44	.54	.10
Self-censoring	9	36	2	13	2.75	.15	.26
Sense of isolation	14	56	4	25	3.81	.06	.31

Table 9  
*Chi-Square Comparisons For White Men and All Other Faculty (URM Women, URM Men, and White Women) For Insider Standpoint Themes*

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Insider Themes	White men N = 6		All others N = 35		$\chi^2$	p	V
	Freq.	%	Freq.	%			
Friendly and Supportive Environment	6	100	18	51	4.98	.03	.35
Social identity not important	6	100	26	74	1.97	.31	.22

Table 10

*Chi-Square Comparisons For URM Women and All Other Faculty (URM Men, White Women, and White Men) for Outsider-Within Standpoint Themes*

Outsider-Within Themes	URM women N = 16		All others N = 25		$\chi^2$	p	V
	Freq.	%	Freq.	%			
Convenient diversity	7	44	3	12	5.33	.03	.36
Heightened responsibility	9	56	9	36	1.62	.33	.20
Race & cultural privilege	11	69	12	48	1.71	.22	.20
Self-censoring	6	38	5	20	1.52	.29	.19
Sense of isolation	8	50	10	40	.40	.75	.10

## Appendix III

### *Interview Protocol for Faculty of Color in STEM fields*

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As you know, the focus of this project is to document the experiences of faculty of color in science and engineering at the University of Michigan. We hope to use these interviews to create an aggregate picture of what that experience is like, as a basis for conversation about how to improve the environment at a conference in Winter 2007. We'd like to build up our picture partly by having you describe your experience as an individual and a member of a particular racial-ethnic group, and partly by getting your impressions of how things work for members of your group and faculty of color more generally.

Let's begin with some facts about your position here:

6. How long have you been employed at the University of Michigan? Could you describe your position for me? (School, College, Title)
  - 1a. How would you compare the racial diversity at the University of Michigan  
with institutions you had experience with before coming here?
7. Where do you spend most of your time on campus?
8. What are the best aspects of working there?
9. What are the worst aspects of working there?
10. Do you feel like you are a member of a racial or ethnic group? [if yes]
  - 5a. Which? What does that mean to you?
11. What role do you think race or ethnicity has played in your daily life?
  - 6a. What role has it played in your life at the University of Michigan?
  - 6b. Do other people here find your race or ethnicity to be important? How? In what ways? Under what circumstances?

I'd like to focus now on your observations about your department

12. What does it take to succeed in your department? Is it different for faculty of color? How about women and men?
13. Are there things you can or can't get away with or are there things you can or can't do more easily because of who you are (in terms of race, gender, status)?
  - 8a. Are there things others can do or get away with that you can't?
14. I'd like to get a sense of how you think some of the basic processes work in your department with respect to faculty. I'm interested in your view of how those processes work for faculty in general, for members of your group, for faculty of color, and where it's relevant, specifically for you. For example,
  - 9a. How do you think recruitment and hiring work?
  - 9b. What about tenure and promotion reviews? Annual reviews?
  - 9c. Handling of outside offers?
  - 9d. Assignment of courses, space and equipment resources, etc?

- 9e. Dealing with tensions or difficulties between particular faculty members?
  - 9f. Dealing with conflicts between faculty and students?
  - 9g. Professional relationships with staff
  - 9h. Mentoring? (both giving it and receiving it)
  - 9i. Informal or social relationships with people in your department?
15. Are you aware of any policies or practices in the department/school/college/university that you think may work against the success of racial or ethnic minorities?
  16. Are there particular policies or practices that the department/school/college/university could adopt that might improve things for faculty of color?
  17. Are there particular things about being a faculty of color that are difficult for your colleagues to understand? What are your strategies for dealing with this?
  18. Have you ever considered leaving your position? If so, why? Why did you decide to stay?
  19. What features of your department's functioning do you think are important to preserve or avoid changing?
  20. If you have identified any problems or concerns with your unit, what changes do you think would help to address them?
  21. Are there any other things that we did not discuss that make being faculty of color more difficult?
  22. What advice would you give a new faculty member of your race/ethnicity at Michigan about the kind of issues we've been talking about?



## Appendix IV

### *Interview Protocol for White Faculty in STEM fields*

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As you know, we are conducting interviews with faculty to try to get a good sense of the work environment for faculty in science and engineering at the University of Michigan. We'd like to build up our picture partly by having you describe your experience as an individual and partly by getting your impressions of how things work more generally and for members of various groups.

Let's begin with some facts about your position here:

1. How long have you been employed at the University of Michigan? Could you describe your position for me? (School, College, Title)
1. Where do you spend most of your time on campus?
2. What are the best aspects of working there?
3. What are the worst aspects of working there?

#### I'd like to focus now on your observations about your department

4. What does it take to succeed in your department? Is it different for faculty of color? How about women and men?
5. Are there things you can or can't get away with or are there things you can or can't do more easily because of who you are (in terms of race, gender, status)?
  - 6a. Are there things others can do or get away with that you can't?
6. I'd like to get a sense of how you think some of the basic processes work in your department with respect to faculty. I'm interested in your view of how those processes work for faculty in general.

I'd also like to know how you think they work for women/men, for faculty of color, and where it's relevant, specifically for you. For example,

- 7a. How do you think recruitment and hiring work?
- 7b. What about tenure and promotion reviews? Annual reviews?
- 7c. Handling of outside offers?
- 7d. Assignment of courses, space and equipment resources, etc?
- 7e. Dealing with tensions or difficulties between particular faculty members?
- 7f. Dealing with conflicts between faculty and students?
- 7g. Professional relationships with staff
- 7h. Mentoring? (both giving it and receiving it)
- 7i. Informal or social relationships with people in your department?
7. Are you aware of any policies or practices in the department/school/college/university that you think may work against the success of racial or ethnic minorities?  
Women/men?
8. Are there particular policies or practices that the department/school/college/university could adopt that might improve things for faculty of color? Women/men?

9. Are there any particular things about being a woman/man that are difficult for your colleagues to understand? What are your strategies for dealing with this?
10. Are there any particular things about *not* being a faculty of color that are difficult for your colleagues to understand? What are your strategies for dealing with this?
11. Have you ever considered leaving your position? If so, why? Why did you decide to stay?
12. What features of your department's functioning do you think are important to preserve or avoid changing?
13. If you have identified any problems or concerns with your unit, what changes do you think would help to address them?
14. What advice would you give a new faculty member at Michigan about the kind of issues we've been talking about?
15. What advice would you give to a new faculty member of a racial/ethnic minority group at Michigan about the kinds of issues we've been talking about?
16. How would you compare the racial diversity at the University of Michigan with institutions you had experience with before coming here?
17. Do you feel like you are a member of a racial or ethnic group? [if yes]
  - 18a. Which? What does that mean to you?
18. What role do you think race or ethnicity has played in your daily life?
19. What role has it played in your life at the University of Michigan?
20. Do other people here find your race or ethnicity to be important? How? In what ways? Under what circumstances?

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## CHAPTER V

### DISCUSSION AND CONCLUSION

*Marginality [is] much more than a site of deprivation...it is also a site of radical possibility, a space for resistance...it offers one the possibility of radical perspective from which to see and create, to imagine alternative, new worlds.*  
*(bell hooks, 1990)*

In this quotation, bell hooks (1990) reminds us that it is possible to use the margins of spaces like the academy to shift the central tendency of power; at the margins innovation can – and does - occur. The academy shares many of the features of the total institution that Goffman (1956) describes including socialization processes through which members learn the values, norms, and shared cultural practices. However, unlike Goffman’s total institution that forces a fit based on an assigned role for the member of the institution, the academy is a complicated space where change can be launched and people can grow into identities that they choose for themselves. Results from the studies in this dissertation document that margins do exist in the academy, but there *are* spaces for interventions that are negotiated by those at the margins, and at times members of marginalized and dominant groups work together to transform cultural practices in the academy. At the same time, not all groups experience the dominant culture of the academy in the same way. Considering minority status in context, we were able to see that gender matters in a political psychology course, and a parallel study that considers the role of race in politics could demonstrate that race matters, too. For graduate students and faculty in STEM

fields, results demonstrate that gender and race matter for how different groups describe their experiences in the academy. In sum, socialization in and to the academy – whether through curriculum or in practice – is experienced differently by groups of people, differences that are also dependent on many factors such as the intersection of race and gender, and privileged and subordinate statuses that inform a person’s standpoint on the academy.

### **From the Margins to the Center**

The results from the study “Thinking She Could be the Next President’: Why Identifying With the Curriculum Matters” demonstrate the importance of an inclusive curriculum in mainstream courses. Diversity is only partially achieved through the diversification of a student body or faculty composition, and providing curricular content for different groups of students to identify with is as important as diversifying the population of the academy. Part of the socialization process for citizens of any realm is to inform them of possible life choices and what skills, attitudes or behaviors are necessary to achieve their goals. The findings from this study indicate that presenting information about women leaders in a class that typically focuses on male political activity provided female students an opportunity to identify with leadership themselves; in this way students positively benefit from identity-matched exemplars in the curriculum.

There is the question of the possible risk of providing a "thinner" educational experience to some students for the purpose of collecting comparative data (gender-inclusive vs. traditional curricula) to assess whether introducing women exemplars where they are not anticipated does indeed matter, at least for some students. However, the results of this study should be weighed against the possible gain of generating truly

comparative data that might persuade those currently offering a non-inclusive experience that it is indeed "thinner." With this in mind, it is worth noting another positive outcome: along with references to female leaders presented in the gender-inclusive curriculum, female students used additional examples of women leaders not presented in class. This suggests that they applied their expanded idea of what a leader looks like by generating their own examples, including imagining themselves in leadership roles (Dasgupta & Asgari, 2004; Killeen et al., 2006; Lips, 2000; Lockwood, 2006; Ruvolo & Markus, 1992).

I expected that male students who learned the gender-inclusive curriculum would also be positively influenced and would write more frequently about women as good leaders and holding more positive attitudes about women leaders. However, men in the gender-inclusive curriculum discussion sections were not more likely than men in the traditional curriculum sections to refer to women leaders or about positive attitudes toward women leaders. These results deserve further examination because positively affecting the attitudes and beliefs of male students is as important as changing those of female students because sexist attitudes not only limit women's access to positions of leadership, but also influence negative evaluations of women in leadership roles (Eagly, 2007; Rudman & Glick, 2001; Wyer et al., 2007). Positively influencing men's attitudes about women's leadership capabilities may require more consistent and sustained exposure to gender-inclusive material (Case, 2007; Sevelius & Stake, 2003; Standing & Huber, 2003), or perhaps earlier exposure in a student's academic career (Weisgram & Bigler, 2007).

This study on curricular content also demonstrates how collaborations are possible between those who occupy positions at the center (i.e. David Winter, a white

male professor) and at the margins (i.e. me, a Latina graduate student). Unlike a total institution, there are spaces in the academy where those at the margins can make interventions. Aside from female students benefiting from the gender inclusive curriculum, this study has the potential to positively influence the course beyond the semester when it was conducted. The overall course was informed and changed by these results, with the faculty lecturer including more female exemplars in lectures and subsequent graduate student instructors using the gender inclusive lesson plans designed for this quasi-experiment. The changes in behaviors by those at the center are a reflection of the influence of someone at the margins, and these new behaviors will benefit female students who enroll in this course in the future.

### **Diversity in Motives and Why An Expected Fit is Not Enough**

The information we gather about the world in college can motivate different groups of people to pursue a particular career or line of work because they believe themselves to be a good fit within that domain. This is differentially true for different groups of people who choose doctoral study; in some ways they believe the academy to be a good fit intellectually as well as for identity-based reasons. The results from the study “Fitting In and Going With the Flow: Motives for Graduate Study and Completion of the Doctorate” indicate that graduate students from minority/subordinate groups are often motivated to pursue doctoral study based on marginal statuses, whereas students who are members of privileged/dominant groups are more likely to refer to motives that reflect their privileged status. As predicted, students of color were more likely to report the need to Dispel Myths about their groups and White students were more likely to report motives that reflect a privileged standpoint, including Intellectual Satisfaction and

Sense of Fit. Notably, motives that were related to minority/subordinate statuses did not predict attrition, including Dispelling Myths, indicating that graduate students who are motivated to challenge negative stereotypes or modify the canon do not necessarily suffer as a result.

Intersectional analyses revealed that White men were more likely than all others to report Intellectual Satisfaction as a motive for going to graduate school, but not Sense of Fit. Unlike members of other groups, no White men reported a need to Dispel Myths about their group. Although this was not a predicted outcome, this supports previous claims that White men hold a privileged status in this context of the academy where they are the majority and where stereotypes about their group are positive and rooted in the history of the academy itself (Stewart & Dottolo, 2005; Gonzalez, 2006, Nagayama-Hall, et al, 2006). As noted above, main effects for race revealed that white students as a group were more likely to report an expected Sense of Fit as a motive, and it may be the case that White women benefit along with White men from race privilege in the academy (Nettles, Perna, & Bradburn, 2000).

It is clear that many factors contribute to a person's success in any context, and specifically in the academy at the doctoral student level. Race was consistently a significant predictor of attrition (with white students more likely to complete their degrees than students of color), whereas gender was not. It cannot be known from the data in this study precisely what factors underlie the attrition of students of color, but of course it is possible that one underlying cause is the difference in the motivations for graduate study. In addition, though, as other studies have shown, there are many other aspects of the graduate school experience that may contribute to the attrition of students

of color, including the absence of faculty role models and mentors, a chilly climate, and lack of encouragement and support (Deem, 2000; Ellis, 2001; Gay, 2004; Golde, 2005; Nettles & Millet, 2006; ).

Understanding race as one predictor, motives were also examined as predictors of attrition. With race controlled, two motives predicted attrition and did not interact significantly with race: Sense of Fit (negatively) and Serendipitous Events (positively). References to Serendipitous Events were associated with successful degree completion. Thus, students who described themselves as benefiting from unintended events and encouragement were more likely to complete their graduate programs. This belief may reflect the fact that students were in fact encouraged and supported by undergraduate mentors to pursue graduate study; at the same time, it may indicate that students who approach graduate school in this way are more likely to approximate a state of identity moratorium in which they are open to influence. In contrast, Sense of Fit was associated with *not* finishing, indicating that perhaps the expectation of fit is counterproductive, and may result in a relatively less open stance toward graduate education, as a result of identity foreclosure. Although commitment to a field of study is one aspect of successfully completing a PhD program, a person who is foreclosed makes an identity commitment without active exploration and that commitment may then be brittle or fragile.

These combined findings suggest that although a given group of students may feel marginalized in some respects, other reasons for pursuing a doctorate may provide the motivation to finish their programs of study. It is also true that an expected sense of fit is



not sufficient to carry a graduate student through the challenges of doctoral study, especially when the expected fit is not as imagined.

### **Faculty Outsiders-Within: Shifting Locations of Privilege and Marginality**

For those who find that the academy is a good fit, pursuing a career as an academic reflects further commitment. In study three of this dissertation, “Race and Gender in Science and Engineering Fields: The Experiences of Faculty Outsiders-Within,” I considered how majority or minority status relates to how scientists experience their work environments at a research university. Themes identified in the interviews call into question whether inclusion on the faculty actually translates to a sense of belonging, power or legitimacy. These same themes also provide some insight into how locations of privilege shift for some groups, and that race and gender do matter both to inform a person’s standpoint as well as to obscure things from their view.

There were no differences among faculty members – regardless of race or gender – in reporting that their environment was a Culture of Excellence. This finding highlights the fact that all groups of people who strongly identify as scientists in this setting attach importance to working in an environment that strives for excellence. Here we see that race or gender alone do not have a bearing on how groups of scientists perceive their work environments. There were also no significant differences for race or gender in perceptions about a Friendly and Supportive Environment, suggesting again that there is some successful inclusion of all groups of faculty scientists.

However, there were significant differences for some categories related to insider and outsider-within statuses. For two themes, Asian/Asian American and White faculty shared a standpoint that differed from URM faculty. There were group differences for

Social Identity Not Important, with all Asian/Asian American faculty and the majority of White faculty describing social identity as not important in their daily professional lives, suggesting that the standpoints of Asian/Asian American and White faculty obscure some of the challenges faced by URM faculty. There were also differences for the theme Convenient Diversity, with URM faculty reporting feeling like Convenient Diversity more than Asian/Asian American and White faculty. These two categories define two ways in which Asian/Asian American scientists share with White faculty an “insider” experience that URM faculty do not share.

At the same time, Asian/Asian American and URM faculty shared an outsiders-within perspective in some cases, with Asian/Asian American and URM faculty referring more often than White faculty to Heightened Responsibility and Race & Cultural Privilege. In these cases, results indicate that the standpoint of Asian/Asian American and URM faculty is informed by their perception of pressure to be outstanding representatives of their race group (i.e. Heightened Responsibility), while White faculty do not recognize or feel this special sense of obligation. White faculty are also unaware of the Race and Cultural Privilege they have, or that others lack it, but both URM faculty and Asian/Asian American faculty notice it.

There were no gender differences for many of the themes related to insider or outsider-within standpoints, suggesting that in many ways women and men in the STEM fields share standpoints. However, these findings are somewhat surprising in the context of a substantial amount of research that has documented the chilly climate experienced by women in STEM fields (Grauerholz, 1996; Settles, Cortina, Stewart, & Malley, 2007; Sotello Viernes Turner, 2002). To examine these non-significant findings more closely, a

qualitative analysis of themes for this study was conducted and distinctions were found in the precise ways that men and women perceived isolation and self-censoring in the workplace, even though they did not differ in overall references to them. For men, the sense of isolation was related to a perceived lack of mentorship or being left out of the inner circle because of race differences. It may be the case the men feel more entitled to mentoring and inclusion and an absence of this attention may be experienced as isolating for them. For women, a Sense of Isolation was related to the reality of being the only woman, and in many cases the only woman of color, in their unit or department.

Although main effects for gender did not reveal significant differences for any of the categories, intersectional analyses for race and gender did reveal differences for two themes. White men were more likely than all other groups to refer to a Friendly & Supportive Environment, while URM women were more likely than all other groups to report feeling like Convenient Diversity. These results suggest that for White men who hold an insider standpoint, the environment may appear especially Friendly and Supportive because of the overt efforts of this particular institution to recruit URMs; their awareness of these efforts may also conceal from them the challenges faced by women and people of color (Harding, 1991; Hartsock, 1983; Hill Collins, 2000). The results for women of color reporting that they feel like Convenient Diversity suggests that they are particularly vulnerable to feeling like they are viewed as "counting" in science because they bring two kinds of diversity (gender and racial-ethnic) and therefore being particularly "convenient."

In sum, the findings from this study indicate that majority and minority statuses operate in complicated ways in science fields with URM faculty often feeling like

outsiders-within, people of color overall (including Asian/Asian Americans and URMs) reporting a heightened responsibility for being good representatives of their groups and perceiving that White faculty enjoy privileges based on common racial and cultural practices. Additionally, the intersection of race and gender indicates that holding two privileged statuses or two subordinate statuses significantly influences a person's standpoint within science fields.

### **Future Directions**

Results across these studies suggest that social identity matters in the academy. We were able to measure outcomes for gender across all studies, and found that gender does matter for how a person experiences the academy at all levels. In our graduate and faculty studies where race was examined, we found that race also matters. At the undergraduate level, exemplars are important in the curriculum for learning about viable career choices (among other things) for female students. For graduate students, a growing investment in the academy and an attraction to the professorial lifestyle provides an initial motivation for pursuing a PhD. The process of socialization during graduate school requires both flexibility and openness to many new experiences, but also provides graduate students an opportunity to gain a sense of whether they fit in the academy. Sense of fit is informed by all these factors, with exemplars informing us of where and how we fit in the academy specifically and the world more broadly. Privileged standpoints are complicated by intersections of race and gender, such that holding one or more majority or minority/subordinate statuses makes a difference in how a person experiences the academy. For those who choose the academy as their professional domain, the academy

provides a space to pursue intellectual endeavors as well as opportunities to socialize and mentor subsequent generations of students and faculty members.

As noted in the introduction of this dissertation, the academy has diversified in many ways, including its student body, faculty composition, and curricular content. However, assuming that the academy is a space where anyone can explore their life choices without constraint ignores the experiences of racial/ethnic minorities and women in some fields, who describe the culture of the academy as not always inclusive. The combined findings in this dissertation suggest that the achievement of diversity within the academy is indeed a work in progress.

Additionally, all studies were conducted within the particular context of an elite research institution. The size of an institution, student body and faculty composition, type of institution, location, and ranking of an institution are factors that are likely to have a bearing on their own or in combination with each other on the outcomes of studies such as the ones presented in this dissertation. For example, studies conducted at institutions whose faculty composition is commensurate with the national population might produce different results for how students perceive both women in leadership positions, as well as people of color in leadership positions. A minority serving institution located in a large city with a diverse population might also produce different results for issues related to race and sense of fit in the academy for both students and faculty. The combined findings from these studies inform us about minority status, privilege and socialization practices at an elite research institution, but future research should consider how these social contexts are different or similar in different types of institutions. Future directions should explore the potential of educational curricula for influencing beliefs about possible selves as well

as positively influencing beliefs about minority groups. Future studies can address the outcomes of including diverse exemplars for students, not only to engage them in critical thinking about how course topics are applicable to different real world contexts, but also to familiarize them with diverse groups participating in particular activities. Consistent exposure to diverse exemplars has the potential to disrupt automated assumptions about different groups of people and where they fit in society. For example, although the representation of women in politics is increasing, women who enter into this competitive male-dominated domain must manage the added burden of backlash (Carroll, 2009). This is also true for women in science, with the ongoing debate of cognitive capability and what different groups of people are “naturally” good at (“Daring to Discuss Women in Science,” 2010). Therefore, preparing students – who will one day be the employers and employees in various professional contexts – by familiarizing them with diverse groups of people in diverse roles has the potential to disrupt automatic assumptions about who fits where.

Women and racial/ethnic minorities entering into domains where they have been traditionally underrepresented (or absent altogether) contribute in positive ways as role models for others as well as diversifying scholarly lines of inquiry, but their participation also raises many issues about how they experience the socialization in the academy. Results from the graduate and faculty studies in this dissertation suggest that holding one or more privileged or subordinate statuses makes a difference in how a person experiences the environment. Social identity statuses that are privileged in one sense may not translate to privilege in another, and how a person perceives their fit in a particular context may be based on salience of these statuses. Therefore, samples that include larger

numbers of men and women of color in addition to White men and women would allow for the examination of how gender can serve as a privileged status for men of color in some instances, whereas race may provide some privileges for women in others.

Finally, future research should examine how people make meaning of what is absent from their environments as well as how conscious attitudes held by privileged group members about subordinate group members may matter. This was partially addressed in the study on faculty in STEM fields where some faculty members were unable to answer questions about the meaning of belonging to a race/ethnic group. Often they were able to answer about the meaning of race for others, but not for themselves. Documenting how privileged groups make sense of not having any members from minority groups in their particular department or unit is important to understand for diversifying the workplace because there may (or may not) be underlying biases that they are not aware of. The inclusion of different groups requires that all members of the academy reconsider some practices that may inhibit people who occupy the margins from sharing their perspectives (hooks, 1990). This also requires acknowledging privileges held (McIntosh, 1989) in order to address practices that are exclusionary or challenging for some groups.

## **Conclusion**

The academy is a complicated space where its members routinely negotiate the center and the margins in their intellectual endeavors and production of innovative scholarship. As a total institution, the academy provides a structure in which intellectual pursuits can flourish, but it is the members of the institution that bring these visions to life. The results from this dissertation demonstrate that the academy is a space that attracts many different groups of people who seek to learn about themselves and the

larger world. However, if attitudes held by those at the center with the most power assume that those at the margins are less capable, diverse perspectives may be lost and the case of convenient diversity becomes a reality for some. Understanding the positive aspects of a diverse society will bring people together by teaching the skills necessary to collaborate in a global society (Gurin, Nagda, & Campanella, 2010). The work that remains to be done in the academy includes many elements: ongoing recruitment efforts to ensure that talented people from all groups have the opportunity to be educated; creating a curriculum that reflects this diversifying student body and that provides exemplars for all students; broadening our understanding of what brings graduate students to their programs in the first place and how these motives provide the energy to complete their doctoral programs of study; and creating an inclusive environment for all groups of people who see the academy as a place where they fit.



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