The Burden of Being "Model": Racialized Experiences of Asian STEM College Students

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This qualitative study used narrative methodology to investigate what becoming a scientist or engineer entails for Asian and Asian American college students stereotyped as "model minorities." We present the narratives of 23 high-achieving science, technology, engineering, and mathematics (STEM) college students who self-identified as Asian or Asian American as they focused on the social contexts in which they encountered racialized bias in their academic environments. This study was guided by epistemological and methodological assumptions and beliefs, which influence how the data were interpreted, analyzed, and reported and were based on a 5-step phenomenological research design. Results included how these students experienced, negotiated, challenged, and managed distress from externally imposed stereotypes. The students constructed personal narratives mediated by symbolic cultural systems to make meaning of their experiences, which more often disputed than confirmed the model minority stereotype. This research has larger implications for STEM college education programs throughout the United States, which should not simply accept the normalization of successful Asian STEM students without robust understanding of the stereotypes they endure.

Keywords: model minority, racial and ethnic stereotypes, STEM, Asian college students, racial microaggressions

Stereotypically, Asian students are really smart. That's the stereotype.
—Kareena (chemical engineering, South Asian)

Sometimes people look at it like I have two hometowns. Sometimes it feels like I have no hometown.
—Shin (physics, South Korean)

When you're talking to people you just kind of feel . . . it's like discrimination in your mind.
—Sharin (actuarial math, Malaysian)

It's not like all of us here are only very good at math or science—there are Asians really good at humanities.
—Song (actuarial math/economics, Chinese)

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In the United States, Asian people are commonly regarded as the "model minority" because of perceived high levels of education and household income (Chinn, 2002; S. J. Lee, 1994; Wu, 2002). The impact of racial bias on Asian college students in science, technology, engineering, and math (STEM) is becoming an increasingly important topic in educational research. Unlike other non-White minorities, they often are praised for their work ethic, devotion to education, and the cultural value they place on sacrificing personal pleasure for the pursuit of excellence

(Le & Gardner, 2010). Central features of the model minority myth (henceforth, MMM) are that Asians are naturally highly gifted in STEM fields and extremely, if not excessively, hardworking (S. J. Lee, 1994; Trytten, Lowe, & Walden, 2012). However, scholars have criticized these assumptions for obscuring the hidden realities of the many Asian people who are not upwardly mobile or who appear successful but are experiencing significant trauma based on race (Sakamoto, Takei, & Woo, 2012; Sue, Bucceri, Lin, Nadal, & Torino, 2007; Sue, Capodilupo, et al., 2007). The MMM may perpetuate the false assumption that race is not relevant to the mental health of Asians in the United States. As a result they often are believed to be invulnerable to the effects of racial discrimination and prejudice (Wong & Halgin, 2006).

In this article, we challenge the MMM stereotype by offering the counternarratives of 23 high-achieving Asian college students in STEM fields. We use the term *Asian* to refer to people of Asian descent in the United States (Chinese, Filipino, Indian, Korean, Japanese, Vietnamese, and other South Asian and Southeast Asian groups) who have been grouped as Asian in policy and legislation (e.g., S. S. Lee, 2008). The term includes both Asians who come here only to study and people of Asian descent born in the United States or who arrived as children. As a group, these Asians have a collective experience through their common racialized experiences navigating postsecondary institutions. Like other non-Whites, this group regularly encounters slights, condescension, and insults. These Asian students are not numb to the effects of these microaggressions. Instead, they resist, counter, and sometimes accommodate the MMM. This study seeks to broaden the Black–Brown–White paradigm by focusing on the unique experiences of Asians and Asian Americans in STEM training and in society. It also reports on the ways Asian students experience and navigate these imposed stereotypes. By using the accounts of Asian students who have faced and responded to racial stereotypes in nonexperimental conditions, our findings reveal the dynamics of their experiences and how they compare to the experiences of other students of color in STEM education.

Diversity in STEM Education

In 2012, Hispanics (58,146) outnumbered Asians and Pacific Islanders (54,739) in science and engineering bachelor's degrees earned. Hispanics received 10.3% and Asians and Pacific Islanders received 9.7% of all science and engineering bachelor's degrees awarded to U.S. citizens and permanent residents in 2012. Nonetheless, Asians and Pacific Islanders earn STEM degrees at every level at considerably higher rates than their U.S. population estimate of 5%. Their proportions of science and engineering bachelor's and doctoral degrees are almost double those of the college-age population (5%). Asian students continue to display the highest level of academic achievement in STEM fields of all racial groups. Before 2001, African American students showed the highest level of interest in STEM, except for Asian students. Since then, interest in STEM among African American students has plummeted and is now lower than that of any other ethnicity (Chen & Fouad, 2013).

More notably, in 2012, Blacks and Hispanics remained underrepresented at every degree level relative to their proportions in the U.S. college-age population (15% and 21%, respectively). Whites are overrepresented among recipients of science and engineering bachelor's, master's, and doctoral degrees (National Science Board, 2014). In 2010, Hispanics and Blacks made up 5% each of all science and engineering workers. In contrast, Asians made up 19% of all of science and engineering workers, which is more than three times the percentage of their working-age population (5%). Whites constituted 70% of science and engineering workers and 72% of science and engineering degree holders (Beede et al., 2011).

Although Asians in the United States are often treated as one undifferentiated group, Indian immigrants are currently the second-largest immigrant group in the United States, behind Chinese. In 2012, they made up the largest proportion (64%) of temporary immigrants entering this country on H-1B visas for highly specialized STEM workers. Seventy-five percent of all Indian students in U.S. higher education hold visas for STEM degrees or employment (National Science Board, 2014). As members of one of the fastest-growing Asian student populations, Indian Americans have a

noted presence on college campuses, thus we must also work to understand how the MMM has been adapted to include the concept of "Indianness."

Headlines such as "Asian-Americans Dominating Tech?" (Barak, 2012) and "Asian Workers Now Dominate Silicon Valley Tech Jobs" (Nakaso, 2012) and studies with titles such as "Explaining Asian Americans' Academic Advantage Over Whites" (Hsin & Xie, 2014) signal that backlash against Asian STEM students and workers may be intensifying (Rudman & Fairchild, 2004). Asian students who appear to conform to the MMM by being high achievers in STEM are often used as evidence that meritocracy and Asian heritage is all that is required for STEM success. As a result, some high-achieving Asian STEMers strategically hide or minimize their successes, which may prevent hostile responses but damage their self-concept (C. J. Lee, 2014).

Recently another form of racial bias and discrimination has arisen, with Asian students being accused of being "foreign spies" disguised as college students, attempting to gain propriety information for espionage. As a result, "export-controlled" initiatives are severely limiting and in extreme situations denying research assistantships and visiting professorships in areas deemed sacred to U.S. intelligence (e.g., cryptography, cybersecurity; Kshetri, 2013; Stokes, & Hsiao, 2012). This, along with the racial bias in the STEM workplace, can lead to what has been referred to as the bamboo curtain effect (Tan, 2008): Although Asians as a whole are the most highly educated racial group in America, they are the group least likely to be promoted into managerial positions (Lai, 2013).

The Model Minority Myth

In 2010, 5.6% of the U.S. population identified themselves as Asian. In the 21st century, Asians are poised to become the largest recent immigrant population in the United States, and will continue to be an important group to study (e.g., Hoeffel, Rastogi, Kim, & Hasan, 2012; Pew Research Center, 2012). In this article, we use the MMM as a framework to understand the processes by which some Asian students navigate their social experiences in STEM undergraduate training. The model minority stereotype, identified in 1966 by sociologist William

Peterson to describe Japanese Americans (Kitano & Daniels, 2001), alluded to societal perceptions of Asian family values and work ethic. This stereotype grew in popularity during the 1980s, when it was used to position "successful" Asian minorities in contrast to "underachieving" Blacks and Latino Americans (Takaki, 1998). Adding to the MMM, J. Lee's (2013) concept of *stereotype promise* defined the idea that positive stereotypes enhance performance.

However, there are several problems with the MMM (e.g., S. J. Lee, 2009; Sakamoto et al., 2012). For one, the stereotype assumes that success is biological and that all Asians are equally successful. This fails to account for any differences related to region of origin, cultural capital, or individual talent (Wu, 2002). Moreover, this stereotype fails to acknowledge the structural discrimination that Asians and other non-Whites face in U.S. society (e.g., S. J. Lee, 2009; Ngo, 2006; Ngo & Lee, 2007). Specifically, Asians in the United States are still unable to achieve the same economic and professional standing as Whites. Additionally, although it is assumed that Asians have higher levels of household income as a result of these professional advantages, the myth fails to acknowledge a variety of factors. Most Asians live in states with high cost-of-living levels, which limit a family's ability to save. Additionally, Asian households tend to include extended family members and thus have more people in the family working and contributing to household income (Takaki, 1998).

Further, Asian students who are considered international students have added challenges, such as managing acculturation, culture shock, newly experienced forms of racial and ethnic discrimination, and language barriers (Nilsson, Berkel, Flores, & Lucas, 2004). Lin, Kwan, Cheung, and Fiske (2005) developed the Scale of Anti-Asian American Stereotypes, which provides evidence of Asian prejudice. Their study posits that all Asian people are considered aggressively and overly competitive, as well as cold and lacking in sociability, which creates negative perceptions of their intellectual versus social competence. Asian American students, born and/or raised in the United States, tend to be lumped together collectively with international students as "forever foreigners," based solely on phenotype (Tuan, 1999). This proves to be important for understanding the

effects of externally imposed stereotypes on personal development.

The Price of Being Stereotyped

Stereotypes and other forms of racism tend to be studied in a Black-versus-White framing. However, as Tuan (1999) pointed out, the racialization of Asians in America has been similar to that of Blacks in America, in that both groups are marginalized for their non-White, non-normative identities. C. J. Kim (1999) coined the term *racial triangulation,* which suggests that Asians form the third point of a triangle with Whites and Blacks in terms of their perceived superiority but outside of both groups in terms of perceived foreignness. Other scholars have also discussed the phenomenon of a triracial hierarchy and its implications (e.g., Bonilla-Silva, 2004; Feagin, 2001). The dynamics associated with physical difference are also significant for Asians. Regardless of U.S. citizenship, immigrant status, or level of assimilation, Asians are seen as "forever foreigners," that is, forever ethnic and unable to join White society and be truly "American" (Tuan, 1999), or (for Asian women in particular), exotified, objectified and marginalized; both are a function of the White gaze. These examples demonstrate that the ostracizing of Asian racial identity further alienates this group by making its struggles against discrimination and racism invisible.

A great deal of research has identified the negative consequences of being in a situation where one is likely to encounter stereotype threat, a well-established factor in the relatively low performance of African Americans on standardized mathematics tests (Steele & Aronson, 1995). Although many scholars have documented the negative effects of stereotype threat on non-Whites (Ng, Lee, & Pak, 2007), other researchers have established the equally deleterious effects of positive stereotypes, which are often associated with Asian people (Ruzek, Nguyen, & Herzog, 2011). For example, Gupta, Szmanski, and Leong (2011) found that Asians who think the stereotype represents Asians accurately and thus identify with the model minority premise are more likely to experience psychological distress as a result of these stereotypes. They argue that these students feel the pressure to succeed from all sides and, as a result, are less likely to break the stereotype by

seeking professional counseling (e.g., B. S. K. Kim, 2007; Shea & Yeh, 2008). However, psychologists and researchers who study the mental health diagnosis and treatment of Asians in the United States describe a common Asian cultural ideology that problems (including physical and mental problems) are not discussed outside of the family structure, all rewards received and successes achieved by individual family members are shared by the entire family. Thus Asian students are socialized with strong prohibitions against revealing experiences that could produce shame and guilt, and with a tendency to put on a mask of behaviors associated with self-control and self-discipline (Leong & Lau, 2001; Paniagua, 2013). This has led to underdiagnosed anxiety and depression among Asian students around feelings of fear, shame, and guilt (Eisenberg, Gollust, Golberstein, & Hefner, 2007).

Few studies have focused on the role that race plays in achievement by Asian STEM students, and these studies tend to rely on characterizations that perpetuate stereotypes. Historically, for example, STEM education research, curriculum design, and assessment have largely reflected a White, male, middle-class orientation (e.g., Lewis, 2004; Mansfield, Welton, & Grogan, 2014). This limited perspective misrepresents the realities of race and racism in the lives of Asian STEM students. Looking solely at test scores and other measures of intellectual ability in isolation distorts the socially constructed operations and views that foster and reinforce racial inequities in STEM. A growing number of researchers have challenged the simplistic, one-size-fits-all characterization of Asian students, thus providing much-needed counternarratives to the model minority narratives that remains so pervasive today (Chinn, 2002; S. J. Lee, 1994; Nadal, Pituc, Johnston, & Esparrago, 2010; Tran & Birman, 2010).

Another focus of the research on stereotypes suggests that dominant groups within a social or educational domain perform better under "biased" test conditions. For example, Shih, Pittinsky, and Ambady (1999) found that when Asian students were prompted to think of themselves in terms of their Asian identity, they earned higher math scores than the Asian students who did not receive such a prompt. This result suggests that, although negative stereotypes can threaten intellectual performance, positive ste-

reotypes can actually boost performance. This phenomenon is known as stereotype lift. Asian students also have been shown to benefit academically even when there is no specific reference to a stereotype (Walton & Cohen, 2003). However, recent research suggests that, although people commonly hold positive stereotypes about Asians' mathematical skills, making these stereotypes salient prior to test performance can cause a student to mentally "choke" under the pressure of high expectations. Other research has found that Asians' endorsement of positive stereotypes (i.e., internalized racialism) might contribute to increased psychological distress and negative attitudes about seeking help (Gupta et al., 2011). Theories of stereotype lift do not account for all the ways Asians might respond to multiple forms of marginalization; thus the actual impact on their performance is not yet fully understood.

Numerous studies have documented how racism operates in educational settings, including the systematic marginalization of Asian students through subtle microaggressions, practices, and policies that reduce them to perceived scientific whizzes without regard for their individual propensity for or interest in other subjects outside of STEM (Sue, Bucceri, et al., 2007; Sue, Capodilupo, et al., 2007; Yosso, Smith, Ceja, & Solózarno, 2009). Microaggressions (Pierce, 1974, 1995) based on race, class, and other forms of oppression can inform analyses of various science-related contexts, such as a teacher assuming that a Chinese boy will perform well in math or a White student saying that the class will be difficult because of the number of Asian students enrolled (Sue, Bucceri, et al., 2007). At first blush one may surmise that being perceived as a high achiever in mathematics is positive; however, it is nonetheless a misrepresentation of Asian Americans that perpetuates the more disturbing trend of minority stereotypes and typecasting (S. J. Lee, 2009; Wu, 2002). The model minority stereotype in the U.S. education system can have damaging effects on teachers' perceptions of Asian students' abilities. Yet the U.S educational system continues to exploit the stereotype by ignoring the variability in this population (e.g., Pan, 2015).

Although they might seem positive, these microaggressions in the classroom can leave students feeling invisible as their experiences are overlooked, distorted, and stereotyped. Among Asian ethnic groups, this invisibility is more severe for Filipinos, Southeast Asians, and Pacific Islanders, who often struggle in the U.S. education system, fail standardized tests and academic classes, and drop out of school at alarming rates (Pang, Han, & Pang, 2011; Singh, Cuyjet, & Cooper, 2011; Teranishi, 2012). Although always present in United States' society, racial microaggressions have been addressed only recently because of the subtle and seemingly ambiguous nature of these racial assaults, which present in routine and familiar ways. This study examines these and other racialized experiences of high-achieving Asian STEM college students in order to challenge dominant racial ideologies that support Asian stereotyping.

Lin et al. (2005) argue that prejudices against Asians have not been thoroughly examined because most psychological theories treat racialization as if it involves only Blacks and Whites. Other scholars argue that Asian students are a unique non-White student group because they are not underrepresented and they do perform well in STEM; they are often excluded from research studies or combined with White students since both groups have comparable attrition rates. This masks, ignores, and minimizes Asian students' distinct barriers to achievement and the culturally unique strategies they negotiate to maintain success in STEM (Lord et al., 2009). These scholars provide evidence that Asians are perceived as cold yet competent, respected but disliked; this reinforces the MMM by assuming that Asians lack interpersonal skills and preserves resentment of the respect accorded to Asians. By analyzing the stories of these Asian college students in STEM programs in terms of their experiences associated with "being Asian" and the larger narratives in which their experiences are embedded, we explore considerations related to how Asian STEM students manage their identities through their training.

The phenomenon of stereotype threat is a well-documented social-psychological mechanism that can impede the academic performance and persistence of historically underrepresented students, especially in the highly racialized and gendered fields of STEM (Blackwell, Snyder, & Mavriplis, 2009; Perna et al., 2009). However, recent research shows that high-achieving

STEM students rely on strategies to substantiate their intellectual and academic value or credibility to their teachers, families, peers, and the larger educational community (McGee, 2015). Some non-White students can succeed in STEM disciplines while overcoming the challenges associated with a racialized STEM identity. McGee and Martin's (2011) research has shown that some high-achieving students can figure out that they are being stereotyped and rearticulate and manage the stereotypes on their own terms, at least to some degree. This strategy, called stereotype management, is both a process and a learned competency that enables students to recognize and negotiate social-psychological threats to their identities in ways that aid their STEM achievement. Thus, some students have learned to reinterpret and reconceptualize these situations in ways that protect their STEM identities.

As we suggest, Asian students experience different levels of discrimination from other groups and thus have different responses. For example, although Asian students are perceived as academically advanced, this seemingly positive stereotype can have negative psychological effects. Additionally, the practice of stereotyping in itself is problematic and exemplifies discrimination, mostly against nondominant groups. Thus, the framework of stereotype management seems useful in the investigation of this uniquely marginalized student population.

Research Questions

Our primary goal with this analysis is to understand how Asian students articulate their experiences in relation to the MMM, specifically in the context of STEM college education. Through this research, we aimed to identify specific ways that the stereotype complicates the experiences of these Asian students and to give voice to these experiences. Several interrelated questions have shaped this study:

1. How do these high-achieving Asian STEM college students make sense of the MMM and the other ways in which they are stereotyped?
2. In what ways do these students define or describe their STEM identities so as to contradict or support the notion of being "model"?

3. How does being perceived as a model student or naturally smart in STEM influence Asian students' experiences in STEM training?

To answer these questions, we investigated the following relationships: (a) the students' perceptions of opportunities and constraints in STEM-based contexts based on their racial group; (b) how these students managed racial stereotypes and other forms of racialization within and beyond STEM contexts; (c) the strategies these students used to negotiate successful participation in STEM that either supported or challenged the MMM; and (d) the ways these students interpreted and responded to their socially constructed meanings of race and/or gender while negotiating the STEM pipeline.

Two forces affect these students: the stereotypes imposed on them and the stereotypes they may (intentionally and unintentionally) reproduce. Many scholars have addressed the discriminatory and unequal ways Asian students are treated in the U.S. education system through both individual and larger-scale discrimination (e.g., Chen & Fouad, 2013; Museus & Kiang, 2009; Wei, Ku, & Liao, 2011), and the pervasive role that stereotypes play in these interactions has also been well-documented. However, little research has been done on how Asian students experience and perceive the imposition of stereotypes upon them.

Method

This qualitative study was guided by epistemological and methodological assumptions and beliefs that colored the lenses through which we interpreted, analyzed, and reported the data. We sought to understand the social and psychological phenomena associated with the MMM from the perspectives of the students involved. This can lead to a better understanding of these students' experiences in their STEM environments, some of which are socially constructed in ways that damage their academic performance and mental health. (e.g., Trytten et al., 2012). Our analytic approach was phenomenological, as our aim was to describe and come to a better understanding of participants' experiences. This approach guided our data analysis by foregrounding participants' perceptions and

meaning-making about their lived experiences (Strauss & Corbin, 1998).

Over the course of the academic years from 2010 to 2012, the first and third authors interviewed 23 high-achieving Asian STEM students (advanced sophomores, juniors, and seniors) from four universities: "Southern Technical University" (8 students), "University of Upper Midwest" (10 students), "University of Texas Border" (2 students), and "Midsouth University" (3 students). Students established their academic criteria for participation with unofficial transcripts that verified the following: (a) participants' advanced sophomore, junior, or senior status; (b) indication of enrollment in a STEM major; and (c) at least a 3.0 grade point average (on a 4.0 scale) in STEM courses. Each participant who completed the interview process received a $25 gift card to redeem at a national bookstore chain. The 23 participants—11 men and 12 women—ranged in age from 18 to 23, with a mean age of 20.3 (for more demographic information, see Table 1). All respondents were assigned pseudonyms that reflect their ethnic background. The research methods and tools used in this study were ap-

proved by the Institutional Review Board of Northwestern University's Feinberg School of Medicine.

Participants were recruited with the assistance of directors of undergraduate diversity STEM programs at these universities. Many U.S. colleges and universities house these kinds of programs, which are used to boost U.S. competitiveness by leading and supporting programming to increase the number of successful "underrepresented" women and men in STEM education and careers. However, standard definition of underrepresentation in STEM includes Blacks, Hispanics, and Native Americans specifically, thus excluding Asian students from participating in these programs. So, we identified programs that included Asian students, and asked program directors to send e-mails directly to students who they knew fit the criteria for participation in this study. The selection criteria included self-identification as Asian or Asian American, along with standard measures of high academic and mathematics achievement.

At this point, it is important to note that although we use the term *Asian* in this study to describe both Asian Americans (born here) and

Table 1
Demographic Information for a Sample of Asian STEM Students (n = 23)

First name	Gender	College year	Country of birth	Age of U.S. residency	Major	Undergrad GPA
Akasa	Male	Junior	India	13	Physics/math	3.7
Chao Fah	Male	Sophomore	Thailand	18	Chemical engineering	3.98
Claire	Female	Junior	U.S.	Birth	Statistics	3.76
Dae-Ho	Male	Senior	South Korea	23	Engineering	3.11
Edward	Male	Senior	Taiwan	15	Chemical engineering	3.68
Jahnavi	Male	Junior	India	10	Pharmacy	3.88
Jiya	Female	Senior	India	8	Secondary math education/physics	4.0
Kareena	Female	Junior	U.S.	Birth	Chemical engineering	3.485
Larry	Male	Senior	U.S.	Birth	Aerospace engineering/math	3.92
Lydia	Female	Sophomore	U.S.	Birth	Chemical engineering	3.6
Maha	Female	Junior	U.S.	Birth	Mathematics	3.4
Malcolm	Male	Senior	U.S.	Birth	Chemical engineering	3.0
Mark	Male	Senior	China	9	Computer science/math	3.97
Sharin	Male	Junior	Malaysia	20	Actuarial math	4.0
Shin	Male	Senior	South Korea	4	Physics	3.89
Shreela	Female	Senior	India	14	Biology/chemistry minor	3.5
Song	Female	Senior	China	20	Actuarial math/economics	4.0
Ting	Female	Senior	Taiwan	17	Economics/applied math	3.48
Ya	Female	Sophomore	China	12	Biomechanical engineering/music	3.97
Yalda	Female	Sophomore	Pakistan	7	Chemistry	2.45
Yi Min	Female	Junior	China	18	Applied math	3.94
Ying	Male	Junior	China	19	Material science/engineering	3.93
Yue	Female	Junior	China	19	Financial math	3.5

Asians born outside the United States, we are cognizant of the nuances within a panethnic Asian identity (e.g., Espiritu, 1993; Waters, 1994). For example, a United States-born Indian American student will likely have a different racial identity than a student who was raised in India and has recently come here for education; both will have identities distinct from Chinese and Chinese American students in the United States. However, the stereotypes associated with Asian students in the United States, such as presumed innate talent in STEM and other attributes associated with the MMM, tend to be applied to Asian students of all nationalities, ethnicities, and cultures. As a result, we posit that U.S.-born Asian and foreign-born Asian STEM majors may have common experiences based on these shared stereotypes.

Additionally, in labeling our respondents, we did not distinguish students as foreign-born or U.S.-born because of the misconceptions attached to the international label with regard to traditional values and ideologies. The characterization of international students is situated in otherness and includes stereotypes about linguistic and cultural deficiencies, isolation from family, temporary residence for purposes of obtaining a U.S. degree, and culture shock (S. Kim & Kim, 2010; J. J. Lee, 2010). In our study, we also found other complications of the international student label. For example, some students were given the international designation although they had been living in the United States since their preteenage years. Thus, Table 1 includes a column that provides the age that the participant arrived in the country.

Semistructured life-story interviews were conducted with all 23 participants (average interview time: 79 min). The interview protocol consisted of a series of open-ended questions and a two-page demographic questionnaire. The questions were designed to elicit rich accounts of the students' experiences in their homes, schools, neighborhoods, and STEM classroom contexts. This study also explored their emerging identities—racial, STEM, and otherwise—and the interconnections and coconstructions of these identities that informed the students' individual and collective sense of being Asian in the United States. Each student was asked more or less the same series of questions to capture variability across respondents (Patton, 1990). We took measures to increase the internal reliability of the interview data, such as asking more than one question about a particular construct, which allowed us to observe any inconsistencies in responses.

The interviewers (a Black woman and a White woman) each interviewed one set of students over the course of the study, and thus developed an increased rapport with the students over time. Their racial differences from the Asian respondents, however, suggest potential effects of researcher bias on the data. Researchers made all attempts to avoid any respondent bias by developing unbiased data collection tools and maintaining an objective and welcoming attitude with the student to facilitate a safe space. Although any effects of bias may be inevitable, the richness of the data gathered here would suggest that students felt comfortable sharing their ideas with the interviewers on these sensitive topics. It is important to note that the objective of qualitative research is not the accumulation of information, but the growth of understanding about phenomena of concern—the experiences of racial exclusion and stereotyping for Asians in STEM training. That is, qualitative findings provide idiographic knowledge about human experiences to readers, who can apply qualitative findings to understand the experiences of Asian STEM college students in situations similar to those in our sample. These experiences will become increasingly important to understand how Asians integrate into colleges and universities in metropolitan areas around the United States.

Analysis

We have employed phenomenological research methodology to identify firsthand perspectives on the ways in which these high-achieving Asian students made sense of their stereotyped experiences. By using this method, we focused on commonalities in students' individual experiences in order to understand particular phenomena that affect the human experience (e.g., Van Manen, 1990). As researchers applying phenomenology, we are not detached from our own presuppositions and we do not pretend otherwise, a perspective that Smith (2015) and others have addressed. Thus, we intentionally attempt to bracket our own preconceptions and enter into these students' ra-

cialized worlds to formulate ourselves as experienced interpreters.

Qualitative data were coded using NVivo software (QSR International Pty Ltd., 2012). The coding process began with a list of codes related to microaggressions, perceptions of the model minority construct, and well-being (academic and psychological), based on the research questions and as key variables in the data. Data explication was adapted from Groenewald's (2004) article on phenomenological research design, which lists five steps: (a) bracketing and phenomenological reduction; (b) delineating units of meaning; (c) clustering of units of meaning to form themes, (d) summarizing each interview, validating it, and where necessary modifying it; and (e) extracting general and unique themes from all the interviews to make a composite summary. We revisited the data separately, then collectively, which led to an agreement on final themes, with an interrater coder reliability of 92%.

The work of Sue, Capodilupo, et al. (2007) was particularly useful for our initial coding development and analysis, especially their nine microaggression categories with distinct themes: "alien in one's own land, ascription of intelligence, colorblindness, criminality/assumption of criminal status, denial of individual racism, myth of meritocracy, pathologizing cultural values/communication styles, second-class status, and environmental invalidation" (p. 275). After multiple iterations, we were left with eight codes that are used for the discussion here: racial/ethnic stereotypes (intelligence-based and general), counterstereotypes (responses to racial/ethnic stereotypes), forever foreigner, cultural clashes, how MMM operates in STEM, denial of racism/colorblindness (internalized racism), myth of meritocracy, and other (including statements about eating different foods or dressing differently).

Findings

The critical centering of racial stereotypes and the MMM showcased the challenges Asian students face in their racially contentious college environments. The study participants identified and critiqued particular discriminatory practices affecting their college lives and experiences as STEM students, which included their responses to being perceived as model minori-

ties. The results explicate the ways Asian students both embody and challenge these assumptions, how this informs their identities, and how it influences ownership of their educational and professional pursuits. Our findings are limited to the experiences of the students in our sample, and we included no students who identified as multiracial. For this analysis, we do not distinguish experiences of Asian men and Asian women with the MMM, although this is discussed briefly in the section on South Asian students' experiences. Our research highlights traditional forms of college STEM success, identified through GPAs in the participants' majors, in the spirit of problematizing the "cost" of STEM success, but we know there is much to learn from Asian students who are not experiencing high levels of achievement.

The Asian students in this study discussed their unique position as STEM majors. In one sense they agreed with the statistics that purport they are overrepresented in most STEM fields. However, the stereotyping and discrimination they faced gave them some commonalities with traditionally underrepresented groups, namely, Blacks and Hispanics. Sixteen of the 23 students discussed the MMM in relation to their STEM success in terms of its being harmful because it masked the many ways they are discriminated against.

Experiences of Categorization

Eleven students brought up the notion that some Asian students are encouraged to pursue STEM-based fields because the perception is that they will not be successful in other fields, such as English, religion, or history. They discussed being pigeonholed into majoring in STEM in spite of their many diverse life and career interests. Song (actuarial math/economics, Chinese) spoke frankly about changing the perception that Asian students are only good at mathematics and science:

> The one thing I would like to change about perceptions of Asian students in academics in general is just not all of us are very good at math or science . . . there are Asians that's really good at humanities, art, and music. I know students from China in the music school, that's studying filmmaking.

Song listed a number of other Chinese students who were pursuing degrees in non-STEM fields. She was critical of this push toward

STEM and wanted others to have a more expansive view of her Asian identity. She encouraged her younger siblings and their friends to pursue their passions rather than being socialized to believe that the only viable options for them are the STEM disciplines. Choa Fah (chemical engineering, Thai) explained that just because he is in a science field does not mean he only loves science:

> I think with being an Asian in the scientific field, a lot of people assume I'm doing really well. And a lot of people assume that I love it so much and that I'm just a nerd, and I just love, love science and nothing else, and as you know, it's not true at all.

Choa Fah placed his science identity alongside other personal identities important to him, but felt bound by the perception that Asians are inherently smart in science and mathematics. Although he strongly wanted to minor in theater, he feared that no one would take his interest seriously. Thinking that he would be seen as a fake in the theatrical world, he did not attempt to engage in this passion formally. Edward (chemical engineering, Taiwanese) explained that even within the STEM disciplines, some students are bound to the more traditional majors and careers in STEM:

> When I first came to college, I wanted to major in human interface technology because I had a desire to build technology for people in my home village [a remote town in Taiwan] to use technological advancements to manage the local crops and livestock. Well, it seemed like every time I told someone about my career goals, they were very discouraging, like, "Asians don't really do that," "You don't strike me as a people person," "You should focus more on software design," and stuff like that. So after a while I just changed my major. I'm really good at chemical engineering, but I'm not happy. I just did it because I got sick of my peers, my professors, and even other Asians doubting me.

Edward felt obligated to choose his major based on what other peers and mentors thought of him, which typifies the mistaken directions people can take because of the MMM; it does not acknowledge individual interests and identities (e.g., Thakore, Naffziger-Hirsch, Richardson, Williams, & McGee, 2014).

Overall, the students said they want people to appreciate their whole selves, not just their STEM abilities. They spoke of the problem of being confined to STEM to the detriment of their other interests. Although Asians said that some had praised them for accepting these stereotypes, these students felt their diverse interests and characteristics remained hidden.

Connections with the Racialization of Black Students

The experiences of Black and Asian STEM college students overlap significantly, in that both are bound by society's misrecognition of their race and ability. While discussing the barriers they have confronted, some students expressed empathy with Black people in their historical marginalization and stereotyping resulting from flawed social constructions of racial ability. A smaller portion of respondents felt conflicted about stereotypes surrounding Black students' ability to succeed in STEM because their STEM college experiences actually served to confirm the stereotypes. Claire (statistics, Asian American) spoke forthrightly about the unequivocal evidence that intelligence based on race/ancestry has no genetic roots:

> I'm sure you've heard the model minority stereotype: Asians are just good at math and Black people are good at sociology and social work. But it's, I mean even though it seems like it's a compliment, it's very bad because it just says that this is because of your genetics or something, but actually intelligence and race has no genetic basis. They've proved that, but people still believe it does.

Claire's words demonstrate the staying power of stereotypes despite consistent scientific evidence that demonstrates otherwise. Yue (financial mathematics, Chinese) also noted that Asians are seen as innately talented in STEM, whereas Blacks are perceived as having innate athletic ability. Yue mentioned the plight of African American males and the connection she feels with them, saying that the misrepresentation of her demographic (i.e., Chinese STEM college students) is somewhat similar to how Black male college athletes who excel in athletics are perceived. She believed that the stereotype that Black men are naturally athletic is as limiting as the stereotype that all Chinese are good in STEM.

Self-Awareness of the Effects of the Model Minority Myth

These students were not immune from believing in the stereotypes and biases about their own race, even as they recognized that these stereotypes might be harming them. By realiz-

ing that Asians neither created nor controlled the MMM, six students had discovered over the course of their academic careers how this myth can be debilitating. Lydia (chemical engineering, Indian) questioned the ideologies she had once accepted about the smartest students in her high school being Indian:

> I think it's gotten to where being Indian, no, it doesn't make me better at engineering or anything. I'm like one of the lower ones in the class and it's—it makes me realize . . . sometimes when I was younger, like in high school, I thought . . . the smartest kids in the class ahead of me were Indian, but they were not all Indian. It's like an unfair credit given to Indian students that some of us do not deserve. But back then it was easier to for me to accept because I wanted to be seen as smart. I mean, who wouldn't?

Lydia said the more she learned about other cultures through her relationships with peers outside of her racial group, the more she began to rethink her understanding of who is smart. She also mentioned that, as she matured, some of the perceptions she took for granted seemed questionable, problematic, and even stupid. Ya (biomedical engineering/music, Chinese) echoed Lydia's sentiments, having once believed that all Asians are good at math and science:

> But I do not think so anymore. I think it varies for each person, and coming to college I've realized it doesn't . . . help me at all. Like my race isn't what determines what, like, I'm good at, at all. Yeah, because I did see a lot of Asian students doing really well in math and science classes. I do not know if there's a correlation, like, because you're Asian, you do well in math.

Ya is still a bit unsure about the correlation between Asian students' success in mathematics and science and the overrepresentation of Asian students in her classes. The K-12 STEM opportunity gap is instrumental in fewer Blacks and Latino/a students being adequately prepared to pursue college-level STEM majors, thus STEM classrooms are representative of those who had the opportunity and resources to embark on college STEM (Museus, Palmer, Davis, & Maramba, 2011). Most of the students in this study did not speak of the opportunity gap inequities but were apt to understand the damage that the MMM could create (e.g., the expectations associated with perceived lack of fluency in English, females being more passive and submissive, the backlash associated with Asians in STEM fields). This heightened aware-

ness can also affect the identity management of Asian students, who ranged from feeling mentally conflicted to experiencing depression. The added cultural stigma associated with mental health issues in the Asian American community can also have negative effects for these students (B. S. K. Kim, 2007; Shea & Yeh, 2008), and the connection between the MMM and wellness issues for Asian STEM college students deserves further exploration.

Capitalizing on and Negotiating the Model Minority Myth

Five students in this study discussed using the MMM and their high achievement in STEM to capitalize on or take advantage of the stereotype. Mark (computer science/mathematics, Chinese) noted that many Chinese students are not achieving exemplary grades in mathematics, but these lower-achieving Asian students are more or less invisible, whereas the high-achieving groups are seen as the norm. Lew's (2004) research on urban Korean American high school dropouts demonstrates that Asians who behave unlike the "model" Asians are rendered invisible, in part to maintain the ideology of the MMM. Although most of the students did not believe in the full definition of the MMM, they have used it to their advantage. Mark explained:

> Not all of us are the same. I guess, yeah, mostly it's—you know, there's lots of Asians who do not like math, who are bad at math. But people might not be so quick to acknowledge that. However, I do not think there's any need to change the perception that Asians are perhaps gifted at math.

The contradiction in Mark's comments—that is, he is refuting the stereotype but at the same time suggesting that it might do him and others some good—shows the internal conflict some students feel. Some participants saw the MMM as working both for and against them. For example, Park's (2012) study of Asian American women in sororities illustrates how these women had ambivalent attitudes on race, recognizing its significance but also denying it at the same time. One participant, Ting (economics/applied math, Taiwanese), reflected:

> I am Asian. This is who I am. And somehow I feel like I'm kind of being proud because people will pretend to think—people will have this really weird presumption that, oh, she's smart because she's Asian. And I feel

like it's a head start. So that's an advantage. Also, well, being Asian is me, I guess.

It appears that Ting does not view stereotyping as negative. Critical race theory is helpful in explaining how Asian students can sometimes be affected by their own racialization, particularly in a racialized system that does not label these stereotypes as problematic (Park, 2012; Yosso et al. 2009). *Internalized racism*, the conscious or subconscious acceptance or partial acceptance of the dominant society's racist views, stereotypes, and biases about one's ethnic group, can also help to explain behaviors that result in discriminating, minimizing, criticizing, finding fault, and invalidating oneself while simultaneously valuing the dominant culture (Gupta et al., 2011).

Akasa (physics/mathematics, Indian) acknowledged the benefit of his strong work ethic, but he also said that in a mathematics class where he served as a teacher's assistant, the "American students" (whom he later defined as White) were doing better than the Chinese.

> The stereotype gives me more attention in academic situations. It does hurt sometimes, where you accomplish something and people are just like, "He's bound to do it, he's Indian." I'm like, "No, I worked hard for it." . . . I'm grading a math class right now, this semester, and there are some Chinese students in that class and I do not think they perform like—I think they perform, like, just average, not particularly better than or a higher standard than the American students. Actually, I think the smartest students in that class are all American students. If I weren't grading that class, I would think like every other Chinese student. I would think the Chinese student—the math class is already easy to Chinese students.

Although Akasa had seen White students performing at higher levels than their Asian peers, as measured by test scores, he rationalized this as an anomaly. Akasa's statement shows that the data of test scores contradict the MMM: the generalizations flowing from the MMM turn out to not be true. On an individual level, Asian students were sometimes exposed to myriad experiences in college that challenged the stereotypes they had internalized as children and young adults.

South Asian Students and the Model Minority Myth

Seven students in the sample identified as South Asian (Indian or Pakistani). From the data, it was evident that these students in particular have similar experiences that differ from those of East Asian students. Many women in this sample talked about the salience of skin tone discrimination in their lives and its effects on their academic performance. For example, Shreela (biology/chemistry, Indian) moved to the United States as a high school freshman and was amazed at the number of people who were the same color as her, including Blacks and Latinos/as. She soon learned that skin color dynamics in the United States are similar to India's colorism.

> It was like, my teachers thought I am smart, but I was also beginning to be viewed much more suspiciously than my non-Indian Asian peers. And that's when I started pushing myself harder, to just—I guess most of it, or at least 50% of it was probably, "Oh, I'll prove them wrong." I was feeling good about the grades, but I have always felt that because I'm dark that I would never be able to be seen as all good. It's like a stigma will always be associated with me no matter how much I achieve.

Shreela's experiences highlight the effects of skin tone discrimination within the larger Asian American community. She felt as though she was being perceived as less intelligent than other Asians solely because of her skin color. Her experience implies complicated intragroup relations of people from different Asian countries. In fact, lighter skin tones are favored and privileged in most of the world (McGee, Alvarez, & Milner, 2015). Shreela's determination to "prove them wrong" by pushing herself toward high academic achievement is a form of stereotype management that Black students also use frequently (McGee & Martin, 2011).

Some of the South Asian students talked about the discrimination they perceived in a post-9/11 climate. Stereotyping of dark-skinned Muslims by others as terrorists has been established as influencing bias against this group (e.g., Harpalani, 2013; Selod & Embrick, 2013). All the South Asian students in this study expressed fear and anxiety associated with their being cast as potential terrorists or proponents of terrorism, which is given special force by their technical abilities. Yalda (chemistry, Pakistani) discussed this:

> Sometimes, like, if I do not know the person and they come up to me and they're like, "You're [a] terrorist," I'm just like, "What are you talking about?" Or someone would say, "You're doing chemistry to build a

bomb to destroy the U.S." or "You're going to blow up this campus." Like, that has nothing to do with it, or if it's like a debated topic they'll bring up something about the religion, then I'll immerse myself in that topic and I'll, like, try to prove it wrong.

Yalda was personally attacked for her religion and ethnicity, and her interest in STEM was seen as suspicious. She described the pressure and anxiety she feels from being perceived as a terrorist:

> [People will accuse me of being] like, jihad or something. When people do not really know much about that, they think it's bad when it's kind of not and so I'll explain myself to them. And instead of being satisfied, they ask me if I am planning chemical warfare on the university.

In short, the impact of these kinds of accusations can cause a great deal of anxiety, propelling Asian and South Asian college students to adopt more coping strategies in self-defense.

In many ways, the stereotypes rooted in South Asian culture are also used among South Asians to discriminate against each other through perpetuation of skin color, regional, caste, and religious differences. In the United States, the MMM and other forms of racial and ethnic bias have added to the difficulties of these high-achieving Asian STEM students. South Asians have also had to respond to multiple forms of marginalization with an unrelenting motivation to assimilate and succeed, which has cost them significantly.

Conclusion and Implications

Success in the STEM disciplines in college does not render Asian students immune to racial stereotyping in either subtle or overt ways. Although the model minority stereotype originated in the 1960s and was used to describe individuals from East Asia, it has become a catchall for most Asian groups. The myth was manufactured in part to challenge the African American civil rights struggle, in that the myth of a racial group of color being passive, hard-working, and successful upholds the meritocratic rhetoric that if one just works hard enough, keeps quiet, and obeys laws (legal and ideological), one will succeed (Hartlep, 2013a). This myth disguises economic inequality and educational disparities, dismisses mental health and other psychological issues, and homogenizes Asian people into a perceived problem-

free population (Hartlep, 2013b; Suzuki, 2002). The assumption is that Asian students are the people of color to emulate, and are thus an acceptable buffer between Whites and Blacks. However, Asian students still face the challenges and stereotypes associated with being non-White.

These Asian STEM students' narratives disrupt and deemphasize Whiteness, which situates being model as being "almost White" or an "honorary" White (C. J. Kim, 1999; Wu, 2002). As we challenge the traditional narrative of being a high-achieving Asian STEM student in the United States, we also suggest ways to support the identities of this typecast population. The demeaning stereotype of the MMM continues to marginalize Asian students who have been identified as talented in STEM while making non-STEM Asian students invisible or anomalous. However, our research supports the conclusion that the stereotype of high expectations and a proclivity toward STEM can create systematic stress in students from being pigeonholed into STEM disciplines and having the stressful and unrealistic expectation of always being perfect. Thus, this research can help colleges gain a critical understanding of the MMM and provide programs that address Asian STEM students' lived experiences, including the insidious role of racial microaggressions.

The majority of Asian students in this study challenge the stereotype, even as some of them found some benefit in its assumptions. At times the model minority characterization can be a source of motivation (both adaptive and maladaptive), driving these students to live up to expectations of high achievement in STEM subjects. Some students said they appreciated the credit the MMM gives them in academic circles, even as it hampers some of their social interactions. Hartlep (2013b) argues that some Asian Americans actively resist or at least are not complicit in perpetuating the model minority stereotype. Recent books such as *Top of the Class: How Asian Parents Raise High Achievers—and How You Can Too* (Abboud & Kim, 2005) and *Battle Hymn of the Tiger Mother* (Chua, 2011) reinforce the MMM with parallel narratives, providing little room for counternarratives. In order to combat the stereotype, Asians need to critique those peers who are reifying false stereotypes of Asians in U.S. higher education.

Other students reflected on the many ways the stereotype is more damaging than helpful, and how it discounts much of their life experience. Some students describe their momentum into STEM fields as a result of being channeled into majors and professions on the basis of a stereotype. These students had developed a delicate balance of their myriad other identities and their STEM identity (Thakore et al., 2014). Many participants reflected that they had been missing out on important aspects of life because others perceived them as incapable of achieving in fields not associated with Asians' "natural" abilities. They discussed others' willingness to place them in stereotypical categories and ignore their unique qualities, interests, and desires as individuals. Asian student communities should be given additional opportunities to challenge rather than passively accept hateful and discriminatory stereotypes imposed on them by their college STEM experiences. Institutional leaders should recognize that stereotyping, and pigeonholing Asian students results in an assault to their identities. Institutional leaders could serve as the catalyst for change by making bold initiatives that reset the college discourse about race and diversity and by moving forward in robust discussions about race, with less stereotyping, less generalization, and more appreciation.

Most students in this study identified negative aspects of the model minority stereotype, which suggests that a racialized social structure that discriminates against non-Whites has influenced their lives. The stereotype implies that Asian students perform in STEM with relative ease, which ignores the sometimes hostile climate of racial discrimination and bias that these students endure. This is especially relevant for South Asian students, who occupy a unique racialized niche. For the Asian students in this study and for those they represent, such limiting stereotypes can cause psychological pain that is ignored or perceived as unjustified. The emotionally troubling experiences resulting from imposition of the MMM are hard to dispute because they are often challenging to identify and difficult to discuss. For some students, internalization of the MMM or a lack of strategies to counter it can lead to depression and other unhealthy outcomes (B. S. K. Kim, 2007; Shea & Yeh, 2008).

This research has larger implications for the impact of the model minority stereotype and for race relations in the United States. The model minority stereotype is a problematic concept because it limits what it means to be Asian American. Despite the perceived and real advantages, Asians in this country face social and economic barriers comparable to other non-White groups. The systematized racial hierarchy in which Whites are rewarded and favored over non-Whites also affects the long-term success of students and families of Asian descent. Although some Asian students may see immediate advantages in being perceived as smart, this perception often fades as they experience the structured discrimination that prevents Asians from enjoying equal access to opportunities in the STEM arena, such as fellowships, faculty positions, and management-level STEM employment.

Our research also points to the need for increased understanding of the MMM's effect on students' experiences in STEM programs. Additional support should be put behind providing on-campus trainings to develop more culturally sensitive mentors and administrations (Thakore et al., 2014; Williams, Thakore, & McGee, 2015). Program directors would be well advised to seek out such training in order to help recognize the internalization of the MMM on Asian students' experiences in college, as well as the negative effects that are the by-product of stereotype management (e.g., depression, other mental health issues). Increased awareness of the ethnic and cultural differences that exist among countries in Asia would also help, specifically the degree to which racialization affects South Asian students in STEM. Finally, given that mentoring continues to be important in the development and socialization of STEM professionals, mentors should be trained in cultural awareness of the unique experiences of their Asian students, especially for mentors who may not even realize that there are differences between Asian cultures and U.S. culture.

The MMM maintains its pervasive hold on the institutional and societal treatment of Asian students in the United States. The model minority stereotype puts Asian students in a racially vulnerable position, where they are both admired and scorned for their success in STEM. The pain that many Asian students endure as a result of how they are positioned by the MMM

creates unnecessary pressure to live up to the model minority image, even while having conflicting thoughts about what it means and the consequences of "being model." We should not continue to overlook and minimize the stress and strain that accompanies achieving under this form of stereotyping. Such success causes too many students, including the ones in this study, to become exhausted, depressed, or emotionally drained, and to question their placement in STEM. As Asian STEM students strive to fulfill their STEM educational and career trajectories, they should do so without the weight of living up to the expectations of satisfying the biased ideologies of the model minority stereotype.

References

Abboud, S. K., & Kim, J. (2005). *Top of the class: How Asian parents raise high achievers–and how you can too*. New York, NY: Penguin Press.

Barak, S. (November 21, 2012). Asian-Americans dominating tech? [Blog post]. Retrieved from *West Coast Online Reporter*.

Beede, D. N., Julian, T. A., Khan, B., Lehrman, R., McKittrick, G., Langdon, D., & Doms, M. E. (2011). Education supports racial and ethnic equality in STEM. *Economics and Statistics Administration Issue Brief, 5*–11.

Blackwell, L. V., Snyder, L. A., & Mavriplis, C. (2009). Diverse faculty in STEM fields: Attitudes, performance, and fair treatment. *Journal of Diversity in Higher Education, 2,* 195–205. http://dx.doi.org/10.1037/a0016974

Bonilla-Silva, E. (2004). From bi-racial to tri-racial: Towards a new system of racial stratification in the USA. *Ethnic and Racial Studies, 27,* 931–950. http://dx.doi.org/10.1080/0141987042000268530

Chen, Y. L., & Fouad, N. A. (2013). Asian American educational goals: Racial barriers and cultural factors. *Journal of Career Assessment, 21,* 73–90. http://dx.doi.org/10.1177/1069072712454700

Chinn, P. W. U. (2002). Asian and Pacific Islander women scientists and engineers: A narrative exploration of model minority, gender, and racial stereotypes. *Journal of Research in Science Teaching, 39,* 302–323. http://dx.doi.org/10.1002/tea.10026

Chua, A. (2011). *Battle hymn of the tiger mother*. New York, NY: Penguin Press.

Eisenberg, D., Gollust, S. E., Golberstein, E., & Hefner, J. L. (2007). Prevalence and correlates of depression, anxiety, and suicidality among university students. *American Journal of Orthopsychiatry, 77,* 534–542. http://dx.doi.org/10.1037/0002-9432.77.4.534

Espiritu, Y. L. (1993). *Asian American panethnicity: Bridging institutions and identities*. Philadelphia, PA: Temple University Press.

Feagin, J. R. (2001). *Racist America: Roots, current realities, and future reparation*. New York, NY: Routledge.

Groenewald, T. (2004). A phenomenological research design illustrated. *International Journal of Qualitative Methods, 3,* 1–24. Retrieved from http://www.ualberta.ca/~iiqm/backissues/3_1/pdf/groenewald.pdf

Gupta, A., Szymanski, D. M., & Leong, F. T. L. (2011). The "Model Minority Myth": Internalized racialism of positive stereotypes as correlates of psychological distress, and attitudes toward help-seeking. *Asian American Journal of Psychology, 2,* 101–114. http://dx.doi.org/10.1037/a0024183

Harpalani, V. (2013). DesiCrit: Theorizing the racial ambiguity of South Asian Americans. *69 NYU Annual Survey of American Law 77, Chicago-Kent College of Law Research* (Paper No. 2013–30). Retrieved from http://ssrn.com/abstract=2308892

Hartlep, N. D. (2013a, April 29). The model minority myth: What 50 years of research does and does not tell us. *Diversity: Issues in Higher Education*. Retrieved from http://diverseeducation.com/article/52979/#

Hartlep, N. D. (2013b). *The model minority stereotype: Demystifying Asian American success*. Charlotte, NC: Information Age.

Hoeffel, E. M., Rastogi, S., Kim, M. O., & Hasan, S. (2012). *The Asian population: 2010*. Washington, DC: U.S. Department of Commerce, Economics and Statistics Administration, U.S. Census Bureau.

Hsin, A., & Xie, Y. (2014). Explaining Asian Americans' academic advantage over Whites. *Proceedings of the National Academy of Sciences of the United States of America, 111,* 8416–8421. http://dx.doi.org/10.1073/pnas.1406402111

Kim, B. S. K. (2007). Adherence to Asian and European American cultural values and attitudes toward seeking professional psychological help among Asian American college students. *Journal of Counseling Psychology, 54,* 474–480. http://dx.doi.org/10.1037/0022-0167.54.4.474

Kim, C. J. (1999). The racial triangulation of Asian Americans. *Politics & Society, 27,* 105–138. http://dx.doi.org/10.1177/0032329299027001005

Kim, S., & Kim, R. H. (2010). Microaggressions experienced by international students attending US institutions of higher education. In D. W. Sue (Eds.), *Microaggressions and marginality: Manifestation, dynamics, and impact* (pp. 171–191). Hoboken, NJ: Wiley.

Kitano, H. H. L., & Daniels, R. (2001). *Asian Americans: Emerging minorities* (3rd ed.). Upper Saddle River, NJ: Prentice Hall.

Kshetri, N. (2013). Cybercrime and cyber-security issues associated with China: Some economic and institutional considerations. *Electronic Commerce Research, 13,* 41–69.6.

Lai, L. (2013). The model minority thesis and workplace discrimination of Asian Americans. *Industrial and Organizational Psychology, 6,* 93–96.

Le, T., & Gardner, S. K. (2010). Understanding the doctoral experience of Asian international students in the science, technology, engineering, and mathematics (STEM) fields: An exploration of one institutional context. *Journal of College Student Development, 51,* 252–264. http://dx.doi.org/10.1353/csd.0.0127

Lee, C. J. (2014). Asian Americans, positive stereotyping, and philosophy. *American Philosophical Association Newsletter on Asian and Asian-American Philosophers and Philosophies, 14,* 2–7.

Lee, J. J. (2010). International students' experiences and attitudes at a US host institution: Self-reports and future recommendations. *Journal of Research in International Education, 9,* 66–84. http://dx.doi.org/10.1177/1475240909356382

Lee, J. (2013, August 27). From unassimilable to exceptional. *The Society Pages,* August 27. Retrieved December 1, 2013 from http://thesocietypages.org/specials/from-unassimilable-to-exceptional/

Lee, S. J. (1994). Behind the model-minority stereotype: Voices of high- and low-achieving Asian American students. *Anthropology & Education Quarterly, 25,* 413–429. http://dx.doi.org/10.1525/aeq.1994.25.4.04x0530j

Lee, S. J. (2009). *Unraveling the model minority stereotype: Listening to Asian American youth* (2nd ed.). New York, NY: Teachers College Press.

Lee, S. S. (2008). De-minoritization of Asian Americans: A historical examination of the representations of Asian Americans in affirmative action admissions policies at the University of California. *Asian American Law Journal, 15,* 129–152.

Leong, F. T., & Lau, A. S. (2001). Barriers to providing effective mental health services to Asian Americans. *Mental Health Services Research, 3,* 201–214. http://dx.doi.org/10.1023/A:1013177014788

Lew, J. (2004). The "other" story of model minorities: Korean American high school dropouts in an urban context. *Anthropology & Education Quarterly, 35,* 303–323. http://dx.doi.org/10.1525/aeq.2004.35.3.303

Lewis, A. E. (2004). *Race in the schoolyard: Negotiating the color line in classrooms and communities*. New Brunswick, NJ: Rutgers University Press.

Lin, M. H., Kwan, V. S., Cheung, A., & Fiske, S. T. (2005). Stereotype content model explains prejudice for an envied outgroup: Scale of anti-Asian American Stereotypes. *Personality and Social Psychology Bulletin, 31,* 34–47. http://dx.doi.org/10.1177/0146167204271320

Lord, S. M., Camacho, M. M., Layton, R. A., Long, R. A., Ohland, M. W., & Wasburn, M. H. (2009). Who's persisting in engineering? A comparative analysis of female and male Asian, Black, Hispanic, Native American, and White students. *Journal of Women and Minorities in Science and Engineering, 15,* 167–190. http://dx.doi.org/10.1615/JWomenMinorScienEng.v15.i2.40

Mansfield, K. C., Welton, A. D., & Grogan, M. (2014). "Truth or consequences": A feminist critical policy analysis of the STEM crisis. *International Journal of Qualitative Studies in Education, 27,* 1155–1182. http://dx.doi.org/10.1080/09518398.2014.916006

McGee, E. O. (2015). Robust and fragile mathematics identities: A framework for exploring racialized experiences and high achievement among Black college students. *Journal of Research in Mathematics Education, 46,* 599–625. Online version http://www.nctm.org/Publications/Journal-for-Research-in-Mathematics-Education/2015/Vol46/Issue5/Robust-and-Fragile-Mathematical-Identities_-A-Framework-for-Exploring-Racialized-Experiences-and-High-Achievement-Among-Black-College-Students/

McGee, E. O., Alvarez, A., & Milner, H. R. (2015). Colorism as a salient principle of race in teacher preparation. *Theory into Practice, 55,* 1–10.

McGee, E. O., & Martin, D. B. (2011). "You would not believe what I have to go through to prove my intellectual value!": Stereotype management among academically successful Black mathematics and engineering students. *American Educational Research Journal, 48,* 1347–1389. http://dx.doi.org/10.3102/0002831211423972

Museus, S. D., & Kiang, P. N. (2009). Deconstructing the model minority myth and how it contributes to the invisible minority reality in higher education research. *New Directions for Institutional Research, 142,* 5–15. http://dx.doi.org/10.1002/ir.292

Museus, S. D., Palmer, R. T., Davis, R. J., & Maramba, D. C. (2011). *Racial and ethnic minority students' success in STEM education. ASHE-Higher Education Report Series*. San Francisco, CA: Jossey-Bass.

Nadal, K. L., Pituc, S. T., Johnston, M. P., & Esparrago, T. (2010). Overcoming the model minority myth: Experiences of Filipino American graduate students. *Journal of College Student Development, 51,* 694–706. http://dx.doi.org/10.1353/csd.2010.0023

Nakaso, D. (November 30, 2012). Asian workers now dominate Silicon Valley tech jobs. *Mercury News*.

National Science Board. (2014). *Science and engineering indicators 2014*. Arlington, VA: National Science Foundation.

Ng, J. C., Lee, S. S., & Pak, Y. K. (2007). Contesting the model minority and perpetual foreigner stereotypes: A critical review of literature on Asian Americans in education. *Review of Research in Education, 31,* 95–130. http://dx.doi.org/10.3102/0091732X07300046095

Ngo, B. (2006). Learning from the margins: The education of Southeast and South Asian Americans in context. *Race, Ethnicity and Education, 9,* 51–65. http://dx.doi.org/10.1080/13613320500490721

Ngo, B., & Lee, S. J. (2007). Complicating the image of model minority success: A review of Southeast Asian American education. *Review of Educational Research, 77,* 415–453. http://dx.doi.org/10.3102/0034654307309918

Nilsson, J. E., Berkel, L. A., Flores, L. Y., & Lucas, M. S. (2004). Utilization rate and presenting concerns of international students at a university counseling center: Implications for outreach programming. *Journal of College Student Psychotherapy, 19,* 49–59. http://dx.doi.org/10.1300/J035v19n02_05

Pan, J. (2015, July 14). Beyond the model minority myth. *Jacobin*. Retrieved from https://www.jacobinmag.com/2015/07/chua-changelab-nakagawa-model-minority/

Pang, V. O., Han, P. P., & Pang, J. M. (2011). Asian American and Pacific Islander students: Equity and the achievement gap. *Educational Researcher, 40,* 378–389. http://dx.doi.org/10.3102/0013189X11424222

Paniagua, F. A. (2013). *Assessing and treating culturally diverse clients: A practical guide*. Thousand Oaks, CA: Sage.

Park, J. J. (2012). Asian American women's perspectives on historically White sorority life: A critical race theory and cultural capital analysis. *Oracle: The Research Journal of the Association of Fraternity/Sorority Advisors, 7,* 1–18.

Patton, M. Q. (1990). *Qualitative evaluation and research methods*. Thousand Oaks, CA: Sage.

Perna, L., Lundy-Wagner, V., Drezner, N. D., Gasman, M., Yoon, S., Bose, E., & Gary, S. (2009). The contributions of HBCUs to the preparation of African American women for STEM careers: A case study. *Research in Higher Education, 50,* 1–23. http://dx.doi.org/10.1007/s11162-008-9110-y

Pew Research Center. (2012). *The rise of Asian-Americans*. Retrieved from http://www.pewsocialtrends.org/2012/06/19/the-rise-of-asian-americans/

Pierce, C. (1974). Psychiatric problems of the Black minority. In S. Arieti (Ed.), *American handbook of psychiatry* (pp. 512–523). New York, NY: Basic Books.

Pierce, C. M. (1995). Stress analogs of racism and sexism: Terrorism, torture and disaster. In C. Willie, P. Rieker, B. Kramer, & B. Brown (Eds.), *Mental health, racism and sexism* (pp. 277–293). Pittsburgh, PA: University of Pittsburgh Press.

QSR International Pty Ltd. (2012). NVivo qualitative data analysis software (Version 10) [Computer software]. Doncaster, Victoria, Australia: QSR International.

Rudman, L. A., & Fairchild, K. (2004). Reactions to counterstereotypic behavior: The role of backlash in cultural stereotype maintenance. *Journal of Personality and Social Psychology, 87,* 157–176. http://dx.doi.org/10.1037/0022-3514.87.2.157

Ruzek, N. A., Nguyen, D. Q., & Herzog, D. C. (2011). Acculturation, enculturation, psychological distress and help-seeking preferences among Asian American college students. *Asian American Journal of Psychology, 2,* 181–196. http://dx.doi.org/10.1037/a0024302

Sakamoto, A., Takei, I., & Woo, H. (2012). The myth of the Model Minority Myth. *Sociological Spectrum, 32,* 309–321. http://dx.doi.org/10.1080/02732173.2012.664042

Selod, S., & Embrick, D. G. (2013). Racialization and Muslims: Situating the Muslim experience in race scholarship. *Social Compass, 7,* 644–655. http://dx.doi.org/10.1111/soc4.12057

Shea, M., & Yeh, C. J. (2008). Asian American students' cultural values, stigma, and relational self-construal: Correlates of attitudes toward professional help seeking. *Journal of Mental Health Counseling, 30,* 157–172. http://dx.doi.org/10.17744/mehc.30.2.g662g5l2r1352198

Shih, M., Pittinsky, T. L., & Ambady, N. (1999). Stereotype susceptibility: Identity salience and shifts in quantitative performance. *Psychological Science, 10,* 80–83. http://dx.doi.org/10.1111/1467-9280.00111

Singh, A. A., Cuyjet, M. J., & Cooper, D. L. (2011). Asian American and Pacific Islander college students. In M. J. Cuyjet, M. F. Howard-Hamilton, & D. L. Cooper (Eds.), *Multiculturalism on campus: Theories, models, and practices for understanding diversity and creating inclusion* (pp. 117–141). Sterling, VA: Stylus Publishing.

Smith, J. A. (Ed.), (2015). *Qualitative psychology: A practical guide to research methods*. Thousand Oaks, CA: Sage.

Steele, C. M., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of African Americans. *Journal of personality and social psychology, 69,* 797–811. http://dx.doi.org/10.1037/0022-3514.69.5.797

Stokes, M. A., & Hsiao, L. R. (2012). *Countering Chinese cyber operations: Opportunities and challenges for US interests*. Arlington, VA: Project 2049 Institute.

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Procedures and techniques for developing grounded theory*. Thousand Oaks, CA: Sage.

Sue, D. W., Bucceri, J., Lin, A. I., Nadal, K. L., & Torino, G. C. (2007). Racial microaggressions and the Asian American experience. *Cultural Diversity & Ethnic Minority Psychology, 13,* 72–81. http://dx.doi.org/10.1037/1099-9809.13.1.72

Sue, D. W., Capodilupo, C. M., Torino, G. C., Bucceri, J. M., Holder, A. M. B., Nadal, K. L., & Esquilin, M. (2007). Racial microaggressions in everyday life: Implications for clinical practice. *American Psychologist, 62,* 271–286. http://dx.doi.org/10.1037/0003-066X.62.4.271

Suzuki, B. H. (2002). Revisiting the model minority stereotype: Implications for student affairs practice and higher education. *New Directions for Student Services, 97,* 21–32. http://dx.doi.org/10.1002/ss.36

Takaki, R. (1998). *Strangers from a different shore: A history of Asian Americans* (Rev. Ed.). Boston, MA: Back Bay Books.

Tan, J. (2008). Breaking the "bamboo curtain" and the "glass ceiling": The experience of women entrepreneurs in high-tech industries in an emerging market. *Journal of Business Ethics, 80,* 547–564. http://dx.doi.org/10.1007/s10551-007-9454-9

Teranishi, R. T. (2012). Asian American and Pacific Islander students and the institutions that serve them. *Change: The Magazine of Higher Learning, 44,* 16–22. http://dx.doi.org/10.1080/00091383.2012.655233

Thakore, B. K., Naffziger-Hirsch, M. E., Richardson, J. L., Williams, S. N., & McGee, R., Jr. (2014). The Academy for Future Science Faculty: Randomized controlled trial of theory-driven coaching to shape development and diversity of early-career scientists. *BMC Medical Education, 14,* 160. http://dx.doi.org/10.1186/1472-6920-14-160

Tran, N., & Birman, D. (2010). Questioning the model minority: Studies of Asian American academic performance. *Asian American Journal of Psychology, 1,* 106–118. http://dx.doi.org/10.1037/a0019965

Trytten, D. A., Lowe, A. W., & Walden, S. E. (2012). "Asians are good at math. What an awful stereotype": The model minority stereotype's impact on Asian American engineering students. *The Journal of Engineering Education, 101,* 439–468. http://dx.doi.org/10.1002/j.2168-9830.2012.tb00057.x

Tuan, M. (1999). *Forever foreigners or honorary Whites? The Asian ethnic experience today*. New Brunswick, NJ: Rutgers University Press.

Van Manen, M. (1990). *Researching lived experiences: Human science for an action sensitive pedagogy*. Albany, NY: SUNY Press.

Walton, G. M., & Cohen, G. L. (2003). Stereotype lift. *Journal of Experimental Social Psychology, 39,* 456–467. http://dx.doi.org/10.1016/S0022-1031(03)00019-2

Waters, M. C. (1994). Ethnic and racial identities of second-generation black immigrants in New York City. *International Migration Review, 28,* 795–820. http://dx.doi.org/10.2307/2547158

Wei, M., Ku, T.-Y., & Liao, K. Y. H. (2011). Minority stress and college persistence attitudes among African American, Asian American, and Latino students: Perception of university environment as a mediator. *Cultural Diversity & Ethnic Minority Psychology, 17,* 195–203. http://dx.doi.org/10.1037/a0023359

Williams, S. N., Thakore, B. K., & McGee, R. (2015). Coaching to augment mentoring to achieve faculty diversity: A randomized controlled trial. *Academic Medicine*. Advance online publication. http://dx.doi.org/10.1097/ACM.0000000000001026

Wong, F., & Halgin, R. (2006). The "model minority": Bane or blessing for Asian Americans? *Journal of Multicultural Counseling and Development, 34,* 38–49. http://dx.doi.org/10.1002/j.2161-1912.2006.tb00025.x

Wu, F. (2002). *Yellow: Race in America beyond Black and White*. New York, NY: Basic Books.

Yosso, T., Smith, W., Ceja, M., & Solórzano, D. G. (2009). Critical race theory, racial microaggressions, and campus racial climate for Latina/o undergraduates. *Harvard Educational Review, 79,* 659–691. http://dx.doi.org/10.17763/haer.79.4.m6867014157m707l