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# Getting to the Heart of Social and Educational Disadvantage: Exploring the Impact of Social Interactions Across the Class Divide

Ryan M. Pickering

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**GETTING TO THE HEART OF SOCIAL AND EDUCATIONAL  
DISADVANTAGE: EXPLORING THE IMPACT OF SOCIAL  
INTERACTIONS ACROSS THE CLASS DIVIDE**

By

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B.A. University of Maine at Farmington, 2008

A DISSERTATION

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

(in Psychology)

The Graduate School

The University of Maine

May 2014

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An Abstract of the Dissertation Presented  
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Economic inequality between rich and poor in the United States is now at an all-time high. The increasing economic inequality in the United States may have deleterious effects for social interactions across the so-called “class divide.” Individuals from different socioeconomic status (SES) backgrounds may find cross-class interactions stressful or intimidating, particularly when they are from a lower-status group.

Across two studies, I examine the impact of cross-class social interactions on cognitive performance and physiological reactivity. In the first study, individuals from lower-SES backgrounds participate in a social interaction with an individual from either a higher or lower-SES background, or in an interaction where SES background is not made salient. In study 2, individuals from both lower and higher-SES backgrounds participate in these same social interactions. In both studies, performance on a cognitive task and mean arterial pressure (MAP) reactivity were measured. Results indicate that individuals

from lower-SES backgrounds interacting with a higher-status partner, in both Study 1 and Study 2, were significantly more likely to disengage from a verbal performance task and to have higher MAP reactivity after the performance task.

In an additional study, high school students from lower-SES backgrounds (whose parents do not have a four-year college degree) participating in the Upward Bound program were asked about stigma consciousness, achievement motivation, perceived positive role models, “shift-and-persist” strategies, self-esteem, etc. Results indicate that individuals higher in stigma consciousness reported less academic motivation and lower self-esteem.

Fortunately, there may be a number of variables that could increase resilience for these individuals. Further analysis revealed that the negative relationship between stigma consciousness and achievement motivation and the negative relationship between stigma consciousness and self-esteem were both significantly mediated by the perception of positive role models and “shift-and-persist” strategies, which have been found in previous research to have important buffering health effects for individuals from lower-SES backgrounds.

These studies show the importance of one’s SES background and may be useful in improving academic and health outcomes of individuals from lower-SES backgrounds. Recognizing the influence of SES background may be an important first step in improving communication across the class divide.

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# **CHAPTER 1**

## **INTRODUCTION**

"Life...is an infinity of details that are shaped in society by things and ideas, among the most important of the latter the myth that there is an escape from the influence of social class on a person's life experience" (Ryan & Sackrey, 1984, p. 13).

Economic inequality between rich and poor in the United States is now at an all-time high (Stephens, Fryberg, & Markus, 2012) and wider than in any other developed nation in the world (Johnston, 2005). As the gap between the rich and poor continues to grow (Neckerman & Torche, 2007; Shaw & Stone, 2011), tensions between classes have escalated. These tensions were clearly seen on September 17<sup>th</sup>, 2011, in Zuccotti Park, a small park in lower Manhattan, when the Occupy Wall Street demonstration (and resulting movement) began. This movement was formed by individuals motivated to address the increasing economic inequality in the United States and it has become increasingly clear that this economic inequality, sometimes called the "class divide," has potentially deleterious effects not just for the poor, but for everyone. For example, income inequality has been found to negatively impact physical and psychological health; not just for the poor, but at a societal level (Wilkinson & Pickett, 2006).

Another impact of income inequality is the large (and growing) higher education achievement gap in the United States (National Center for Education Statistics; NCES, 2002). This negatively impacts qualified individuals from lower-status environments because they do not receive the positive benefits of attaining a college degree. The higher

education achievement gap negatively impacts society, as well, as higher education is related to less crime, faster economic growth, greater social mobility, greater social capital, political stability, and greater social cohesion, tolerance, and trust within a society (Department for Business, Innovation & Skills, 2013).

Unfortunately, mistrust between individuals from different class backgrounds may foster inequality through everyday interactions (Fiske, Moya, Russell, & Bearns, 2012). For individuals from lower-socioeconomic status (SES) origins, social interactions across the class divide may be characterized by feelings of inferiority, feelings of disrespect, and fear of judgment (Wilkinson, 2011). For individuals from higher-status groups, social interactions across the class divide may be characterized by feelings of contempt, disdain, or disrespect (Fiske, 2011). These feelings may negatively impact cross-class interactions, or potentially even prevent them from happening. For example, an individual from a lower-status background may avoid or disengage from situations or environments in which they would need to interact with someone from a higher-status background (e.g., higher education, selective universities) in order to avoid a situation in which they would be negatively stereotyped because of their group membership. Avoiding these types of cross-class social situations could also maintain positive affect and high levels of self-esteem among both lower and higher status individuals (Fribley, Platt, & Hoey, 1998).

Therefore, the importance of social class origins on social interactions should not be underestimated, and this research will address a number of important questions when considering social interactions across the class divide. For example, what is the impact of social inequality during interpersonal interactions for those lower or higher in

socioeconomic status? Can the psychosocial effects of inequality during these social interactions be measured? How are the experiences and expectations of those who grew up in a lower-socioeconomic status unique?

The poor remain one of the most understudied groups in psychological research (Kraus & Keltner, 2009; Kraus, Piff, & Keltner, 2009; Munley, Anderson, Baines, Borgman, Briggs, Dolan, & Koyama, 2002), perhaps because those involved in conducting research have rarely experienced being poor (Lott, 2002). In fact, a recent meta-analysis of three journals of the American Psychological Association (APA) over 20 years found only 1.4% of theoretical and conceptual research integrated social class as a primary element (Liu, Ali, Soleck, Hopps, Dunston, & Pickett, 2004). This relative lack of psychological research on individuals lower in socioeconomic status has recently inspired the APA to issue the *Resolution on Poverty and Socioeconomic Status* calling for further research that examines the causes and impact of poverty, economic disparity, and the stigma and feeling of shame associated with poverty (American Psychological Association, 2000). Research on social class has recently even been called a “new frontier for psychology” (Kraus & Stevens, 2012). The following dissertation will set out on the frontier that is the class divide by examining the psychosocial effects of inequality during one-on-one interactions, as well as exploring the experiences of individuals preparing themselves for a journey across that divide (into higher education). This research may be particularly important for lower-SES individuals attempting to climb the metaphorical ladder, for higher-SES individuals frequently in contact with individuals from lower-SES origins, and for all individuals interested in reaching across an economically created but socially experienced class divide which continues to expand.

### 1.1. Socioeconomic Status and Social Class

Defining social class is considered a “significant and unmet challenge” (Fiske & Marcus, 2012, p. 2) for a number of reasons. One challenge is the variety of terms used to describe social class (one study found more than 448 different terms; Liu et al., 2004). Terms for defining social class differences include dichotomous groups like the “rich and poor,” “privileged and underprivileged,” or the “fortunate and less-fortunate.” However, the dividing line for these group memberships is vague and subjective, as can be observed in the Occupy Wall Street movement. The Occupy Wall Street slogan “We are the 99%” suggests that 99% of United States citizens are somehow less privileged than the other 1%. To clarify, or complicate, status differences, terms like “socioeconomic status” and “social class” have also been used. However, these terms are poorly defined and inconsistently measured in psychological research (Diemer, Mistry, Wadsworth, Lopez, & Reimers, 2012, Liu et al., 2004, and Williams, 1990).

In some sense, the terms social class and socioeconomic status (SES) are interchangeable. As some psychology researchers argue, “There is no convention as to when *social class* or *SES* is to be used” (Liu et al., 2004, p. 8). However, it has been argued that “socioeconomic status” should be used when objective, sociological measures of status, like income or occupation, are used. Likewise, these researchers have argued that because “social class” suggests awareness of place in a hierarchy (Liu, 2001) and a collective or group consciousness of others in the same economic position, and that this term should be used when discussing subjective measures of status. This separation of objective and subjective socioeconomic status is a relatively novel approach to psychological research on inequality (Adler, Epel, Castellazzo, & Ickovics, 2000). It is

important to recognize the fact that someone can be objectively higher or lower in socioeconomic status (usually a composite including two or more of income, education, and occupation) but not experience lower-status subjectively. If a person is objectively lower-SES (e.g. a lower-than-average income) and lives in a poor neighborhood, that person may perceive themselves as relatively better off than those around them. Therefore, they may be identified as objectively poor by others but not feel subjectively poor themselves.

Complications again arise when attempting to define a “cut-off” for lower- and higher-status individuals. This adds subjectivity, and potential inaccuracy, to hypothetically objective measurement. For example, many economists contend that the current federal poverty threshold is outdated, unrealistic, (Citro & Michael, 1995; Economic Policy Institute, 2005; Urban Institute, 2010) and even nonsensical (Blank, 2008). The current equation for the federal poverty threshold was created in 1963 and is based on the amount of subsistence food consumed by a family of four (Blank, 2008). At the time this equation was created, it was assumed that every family had a housewife who was “a careful shopper, a skillful cook...who [would] prepare all meals at home” (Weissmann, 2014). The federal poverty threshold has been adjusted for inflation over the years, but nothing else.

Using the current federal threshold for poverty, in 2008, lower-SES individuals made up about 13.2% of the current U.S. population (U.S. Census Bureau, 2008). This leaves millions on the edge of poverty every year who struggle to feed their families and pay the bills. Because of this, poverty experts and researchers often double the poverty line to arrive at a more accurate threshold (Economic Policy Institute, 2009). If 200

percent of Federal Poverty Level is used, 31.9% of people lived in poverty in 2008 (Economic Policy Institute, 2009).

A common misconception in the United States is that there are more people of color living in poverty than Non-Hispanic Whites. Although a larger proportion of individuals from these racial groups tend to be living in poverty, the largest single group of impoverished individuals in the United States is Non-Hispanic Whites (Socioeconomic Status & Health Fact Sheet, 2012). Lower-SES families are also commonly mischaracterized as plagued by unemployment. However, in most poor families, there is at least one employed adult (Page & Simmons, 2000). Misconceptions about the poor may come from the disproportionate reporting of specific lower-SES groups in the media. For example, one study by Gilens (1996) found that, in three major news magazines, stories about poverty pictured African Americans 62% of the time, even though they only made up 29% of the poor when the study was conducted.

Social status is therefore a complex construct. One's social status is impacted by adverse material conditions, which is often measured using objective outcomes (e.g., income). Importantly, social status is also impacted by adverse or subordinate social conditions, which can be measured using subjective outcomes (i.e., where one would be ranked compared to others). Many SES researchers have been clear about the importance and promise of accounting for both objective and subjective measures of SES in psychological research (Kraus & Stephens, 2012; Noll, 2013; for a discussion see Bialowolski & Weziak-Bialowolska, 2013).

Research on the social status of high-school and college-aged students adds another layer of complexity. Youth self-reports of family socioeconomic status (e.g., income, occupational prestige) tend to be biased, unreliable, or inconsistent (Diemer et al., 2012; Hill & Duncan, 1987). It is therefore important to consider using subjective measures, like the MacArthur Scale of Subjective Social Status (Adler et al., 2000), in order to better measure the perceived experiences of college-aged students. The MacArthur Scale asks individuals to place themselves on a picture of a ten rung ladder to denote their current social status compared to other individuals in the United States, but can be easily adapted to assess students' perceived family social standing compared to other U.S. households when they were growing up. In this way, the subjective social status for college-aged individuals can be more effectively identified, especially in combination with other subjective measures.

Psychological research on the effects of socioeconomic status, and particularly of socioeconomic status background or class of origin, is relatively sparse. However, almost a third of the population of United States is currently living in or near poverty. It is therefore critical to consider the impact of socioeconomic status on physical and psychological health and the role of the stigma associated with lower socioeconomic status.

### **1.2. Impact of Lower-Socioeconomic Status**

The negative relationship between SES, as well as SES background (or “class of origin”), and a number of important health, academic, and social outcomes is well established.

### **1.2.1. Health and Lower-Socioeconomic Status**

Research on the link between relative socioeconomic status and health has existed for over a hundred years. As Engels wrote in 1845, “In Liverpool in 1840 the average life-span of the upper classes, gentry, professional men, etc., was thirty-five years; that of the business men and better-placed handicraftsmen, twenty-two years; and that of the operatives, day-labourers, and serviceable class in general, but fifteen years” (p. 75). In 1924, Chapin and Fellow analyzed United States Census data from 1865 and found that mortality rates were higher among non-taxpayers (lower income people who were exempted from income tax obligations) compared with taxpayers in that city.

The link between lower status in the United States and higher rates of morbidity and mortality compared to those from higher social classes is well-established (Adler, Boyce, Chesney, Folkman, & Syme, 1993; Haan, Kaplan, & Syme, 1989; Marmot, Kogevinas, & Elston, 1987). For example, the poor have been shown to have higher rates of obesity (Kahn, Williamson, & Stevens, 1991; Marmot et al., 1991; Sobel & Stunkard, 1989), diabetes (Everson, Maty, Lynch, & Kaplan, 2002), metabolic syndrome, arthritis, tuberculosis, respiratory disease, gastrointestinal disease (Adler & Ostrove, 1999), and cardiovascular disease (Phillips & Klein, 2010), which is the leading cause of death for men and women in the United States (American Heart Association, 2012). The poor have also been shown to have higher rates of health risk behaviors (e.g., poor diet, physical inactivity, tobacco use, alcohol use; Lantz & Pritchard, 2010; Cauley, Donfield, LaPorte, & Warhaftig, 1991; Ford et al., 1991; Jones-Webb, Hsiao, & Hannan, 1995). What’s worse, this inverse relation between SES and mortality may be increasing (Pappas, Queen, Hadden, & Fisher, 1993).

A negative relationship also exists between mental health outcomes and social class (for a review see Yu & Williams, 1999). People from lower social and economic classes more often report psychological distress than do their more advantaged counterparts (Basic Behavioral Science Task Force, 1996; Belle, 1990; Corcoran, Duncan, Gurin, & Gurin, 1985). They are known to have a higher prevalence of self-reported anxiety (Himmelfarb & Murrell, 1984; Black & Krishnakumar, 1998), a lower sense of optimism and control over their lives (Chen, Matthews, & Boyce, 2002), and higher rates of psychopathology, including depression (Lorant, Deliege, Eaton, Robert, Philippot, & Ansseau, 2003), schizophrenia, antisocial personality disorder (Eaton, Muntaner, Bovasso, & Smith, 2001), anxiety disorders, and substance abuse disorders (Kohn, Dohrenwend, & Mirotznik, 1998; Wheaton, 1978). These negative consequences of one's socioeconomic status may also begin early in life, and they may not easily be undone.

### **1.2.2. Health and Lower Socioeconomic Status Background**

A negative relationship between family poverty and child physical, mental, emotional, and behavioral health is also well-established (Akee, Copeland, Keeler, Angold, & Costello, 2010; Gennetian & Miller, 2000; Huston et al., 2003). In one study, children from poor families in the United States were found to miss more days of school and spend more days in bed than their higher-class counterparts (Egbounu & Starfield, 1982). Similar to findings for adults, socioeconomic status has also been found to predict mortality among children (Ostberg & Vagero, 1991). For example, it has been found that children from families who received federal aid are more likely to die of influenza or pneumonia compared to those who do not receive federal aid (Nelson, 1992).

Childhood SES has also been found to affect adult health, independent of adult socioeconomic level (Hertzman, 1999). Lower SES in childhood increases risk for heart disease (Hagger-Johnson, Möttus, Craig, Starr, & Deary, 2012; Kaplan & Keil, 1993; Kaplan & Salonen, 1990), hypertension (Daniels, Meyer, & Loggie, 1990), and depression later in life (Gilman, Kawachi, Fitzmaurice, & Buka, 2003a, 2003b). Singer and Ryff (1999) found that parental income when respondents were in high school predicted increases in systolic and diastolic BP and waist-to-hip ratio 35 years later. Childhood SES even predicts adult stress responsivity during laboratory stressors (Gump, Matthews, & Raikkonen, 1999; Treiber, Harshfield, Davis, Kapuku, & Moore, 1999; Jackson, Treiber, Turner, Davis, & Strong, 1999).

Importantly, one study found that adults from lower-SES backgrounds who displayed this heightened cardiovascular reactivity during a stressor had greater atherosclerotic progression (Lynch, Everson, Kaplan, Salonen, & Salonen, 1998). This is especially worrisome because of the link between exaggerated cardiovascular reactivity to stressful experiences and adverse health outcomes (e.g., Everson, Kaplan, Goldberg, & Salonen, 1996; Kamarck et al., 1997; Light, Dolan, Davis, & Sherwood, 1992).

### **1.2.3. Academic Achievement**

Class of origin has also been called “the best predictor of adult educational and occupational achievement” (Jones, 2003, p. 804), despite American beliefs to the contrary and our adherence to the myth of class permeability. Although education is thought to be the great equalizer, more often it is used to maintain the current class structure across generations (Fine & Burns, 2003)—what Ostrove and Cole (2003) call “class maintenance” (p. 684). Not only are students from lower SES families

(operationalized in a number of ways by researchers, including parental income, education, and/or occupation) less likely to graduate high school, these students are also significantly underrepresented in higher education (McDonough, 1997).

Students from lower-status backgrounds are less likely to attend college (Astin, 1993; Hearn, 1990). A congressional committee found that in 2002, among qualified lower- and moderate-income high school graduates, nearly half did not enroll in any college (Gaus, 2003). This disparity cannot be explained simply by academic preparedness. For example, one study found that, among students with high test scores, those from families with the highest income finished college at more than twice the rate of those from lowest-income families (Hong, 2005). This disparity also cannot be simply explained by an aspirations gap that once existed between students from different SES backgrounds. The Educational Longitudinal Study of 2002 has shown that, among 10<sup>th</sup> graders from lower-socioeconomic families, 66% aspired to a bachelor's degree or higher, a number three times higher than that of 10<sup>th</sup> graders from lower-SES families 22 years earlier (Bowen, Chingos, & McPherson, 2009).

If individuals from lower-SES backgrounds do go to college, they are far less likely to graduate than are their higher-SES counterparts (Bowen, Kurzweil, & Tobin, 2005). In fact, the chances of getting a college degree before age 24 in one study varied from 1 in 2 for those from families earning more than \$90,000 a year, to 1 in 3 for those families earning \$60,000 to \$90,000 a year, to 1 in 10 for those from families earning \$35,000 to \$60,000, to 1 in 17 for someone from a family earning less than \$35,000 (Brooks, 2005). According to the U.S. Department of Education's National Center for Education Statistics (NCES, 2002), the percentage of lower-SES students who had

bachelor's degrees when they were 8 years beyond high school (6.9%) is much smaller than the corresponding percentage for higher-SES students (51.0%). Surprisingly, degree attainment for students from lower-status families is actually decreasing. The High School and Beyond longitudinal study by Ellwood and Kane (as cited in Bowen et al., 2009) found that bachelor's degree attainment has fallen from 12.3% in 1972 to 11.1% in 1982 to 9.5% in 1992 for first-generation college students from the bottom income quartile. These graduation rates remained after controlling for pre-college test scores.

Additionally, students from lower-status families are much less likely to graduate college in four years, on average, compared to those from higher-status families, even after including controls for academic preparation (high school GPA, SAT/ACT scores; Bowen et al., 2009). The additional time these students take to graduate both increases their college expenses and delays their entry into the job market, which may both already be particularly challenging for these individuals relative to their high-status peers.

Individuals from lower-SES backgrounds are also less likely than their higher-SES peers to attend selective institutions if they go to college (Hossler, Schmit, & Vesper, 1999). The large number of senior high school students who qualified to attend selective four-year colleges but instead choose less selective (or no) college is, to some researchers, known as the “undermatch phenomenon” (Bowen et al., 2009, p. 88). Students in the lowest economic quartile were found in one study to make up only 3% of the students at 250 of the most selective 4-year colleges compared with 74% from the highest economic quartile (Kahlenberg, 2004). Although there has been growing interest by selective institutions in diversifying their student population based on socioeconomic

status background, the proportion of students from upper-income-families at these institutions continues to grow (Scott & Leonhardt, 2005).

Ironically, the wealthiest colleges receive significantly more federal financial aid than do schools that have greater numbers of poor students (Winter, 2003). In addition, at most colleges, the discounts that lower full tuition costs are more likely to be given to wealthier than to poorer applicants (Zernike, 2003) because colleges use discounts to attract particular categories of students. For example, the College Board reported that in 2006-07, only 44 percent of student grant aid at public, four-year institutions went to students who had financial need. Thirty-eight percent went to non-need students, and 18 percent went to recruited athletes (Bowen et al., 2009, p. 191). As one researcher states, “There has been a noticeable shift in student aid from need-based grants and loans which has placed an unusually heavy burden on students from lower-income backgrounds” (Bowen et al., 2009, p. 262). However, costs alone cannot explain the large (and growing) inequality of degree completion. Researchers have shown that, even with the offer of free tuition, disadvantaged students will continue to drop out of college at a rate higher than advantaged students (Dynarski, 2007).

Torche (2011) has also recently found that the intergenerational associations of social class, occupational status, earnings, and family income are strong among those with less than a college degree, is substantially weaker for those who attain a college degree, but that these associations reemerge among advanced-degree holders. This strong intergenerational association among those with advanced degrees appears to be a recent phenomenon, and “sharply departs from the substantial mobility opportunities of those who attained an advanced degree a quarter century ago” (Torche, 2011, p. 790). Although

the explanation for this U-shaped distribution is unclear, she argues that field of study and type of advanced degrees sought may be important mechanisms. It may be that individuals from lower-status backgrounds are more “pragmatic and vocationally oriented” when attaining their bachelor’s degrees (Armstrong & Hamilton, 2013, p. 12), but are less so when attaining an advanced degree.

Torche’s data suggest that those from lower-class backgrounds tend to choose less selective graduate programs, less “lucrative professional degree” programs, and more master’s degree programs than their upper-class counterparts (Torche, 2011, p. 796). These patterns lead to less prestigious and/or economically rewarding jobs for these individuals. An even more interesting finding was the significant within-occupation earning gaps that existed among those who obtained professional degrees. A male professional with an advanced degree and lower-class origins in this dataset earned only about 60% of what his upper-class background counterparts made. Torche (2011) argues these disadvantages among those from lower-class backgrounds may be due to “educational and occupational preferences, social networks, cultural capital, and employers’ discriminatory practices” (p. 800).

#### **1.2.3.1. Social Impact of Lower-Status Background on Academic Achievement**

Students from lower-status backgrounds are likely to have different experiences at college than do their peers. Because college is essentially a middle-class environment, it can “privilege and reward the cultural styles of the middle class over those of the working class” (Lareau & Calarco, 2012, p. 63). Students from lower-status backgrounds may be completely unfamiliar with things like networking, making connections, or applying for or completing internships. Family contacts and parental (monetary) support may give

students from higher-income backgrounds an unintentional leg-up in the ability to complete internships because they have no work or family obligations (Coplin, 2005). Students from lower-status backgrounds may also find, or have been taught to believe, that behavior related to “savvy self-promotion,” like networking, is distasteful and/or inauthentic (Williams, 2012, p. 48). This lack of support and/or knowledge of “unspoken rules” may create unexpected hurdles for those from lower-status backgrounds.

Higher education may also be a setting where class differences become especially salient. Students may develop an acute awareness of their own status and come to struggle with its meaning and their class identity (Ostrove & Cole, 2003). In fact, students from lower-status backgrounds have been found to be both aware of and sensitive to the fact that they differ from their peers in relative privilege in an academic setting (Johnson, Richeson, & Finkel, 2011). As these researchers argue, “as individuals’ family income declines, so too do their perceptions of fitting in academically at the university” (p. 841). The sheer expense of social life in college, including “sorority and fraternity fees...booze, dining at restaurants, spring break vacations, study abroad, fashionable clothing and accessories, and the grooming necessary to achieve the right personal style” may be enough to isolate individuals who do not have “high levels of parental funding” (Armstrong & Hamilton, 2013, p. 11). For a student from a lower-status background in academia, daily life may prove to be “a constant effort to acculturate and adapt to new middle class rules of engagement” (Miller, 2006, p. 19). Some may choose to disengage altogether.

Policy makers in the United States have responded to the discrepancy of lower-status and higher-status college students by setting a national education goal to raise the rate of enrollment, retention, and attainment of lower-SES students in postsecondary education (National Education Goals Panel, 1999). Academia is becoming increasingly unaffordable and inaccessible for students from lower-SES backgrounds, and many end up with lower-paying jobs and few possibilities for the future (Lott & Bullock, 2007). College graduates receive earnings about 90% higher than their high school graduate counterparts (Autor, Katz, & Kearney, 2008), and graduating college is also related to longevity, happiness, and better health (Pallas, 2000; Ross & Mirowsky, 1999; Rowley & Hurtado, 2003). Bachelor's degree attainment has also been found to remove some of the negative effects of socioeconomic background (Torche, 2011). Therefore, the importance of reducing this educational attainment gap is tremendous. However, there may be some hesitance, and even some family and community pressure, for those from lower-SES backgrounds to avoid academic and/or financial success. The transition from one social class to another can be difficult. At times, it can be more traumatic than rewarding for many individuals.

### **1.3. Impact of Upward Intergenerational Mobility**

Although beliefs about "The American Dream" and permeability of social class in this country abound, the truth is, while income differences in the United States have widened, upward social mobility, or the transition from ones' parents' class or status to a higher status, is extremely limited (Fiske et al., 2012; Blanden, Gregg, & Machin, 2005). Families' earnings tend to be correlated across generations (Bowles & Gintis, 2002; Mazumder, 2005). For example, a recent report from the Organization for Economic Co-

Operation and Development (OECD) reports that 47 percent of the economic advantage of high-earning fathers in the U.S., compared to their lower-earning counterparts, is transmitted to their sons. This figure represents one of the highest percentages of social immobility among twelve countries studied, behind only Italy and Great Britain (Froomkin, 2010).

As upward social mobility decreases in the U.S., the experiences of those entering other classes become more and more unique. These experiences are not well understood and not commonly researched, especially in the current economic context. Most research on upward social mobility, sometimes called “mobility effects research” in the past (e.g., Bean, Bonjean, & Burton, 1973) focused on individuals during a historical context when social class mobility was more the norm, like during the move away from farming during the 1950s and ‘60s. For example, research on individuals who graduated from high school in the ‘50s has found that moving up the social ladder, especially for those moving “off the farm” and into less physically strenuous occupations, tended to reduce psychological distress (Houle & Martin, 2011). Another study, specifically on Swedish men, has found upward mobility led to better perceived health (Peck, 1992).

However, these findings may be limited by context (especially geographical or historical context) and by the focus on those who have successfully transitioned into a new class system, and less on the process itself. Research on the potentially stressful consequences of upward intergenerational social mobility should also focus on short-term consequences before individuals are able to a) integrate into the new class system or b) be affected enough by the anxiety or distress that may accompany upward social mobility to leave that higher class (downward), voluntarily or involuntarily.

The consequences of traversing social classes are numerous and complicated, and it is often the movement from one class position to another that exposes the discriminatory nature of the class system which individuals may not be aware of until they become socially mobile (Russell, 1996). “Gateway interactions,” or social interactions involving individuals from different class backgrounds, are critical for social mobility, but often leave those from lower-class backgrounds feeling uncomfortable (Fiske & Markus, 2012, p. 6). As Ridgeway and Fisk (2012) explain, “When people enter into a class context other than their own, they enter as an implicit minority in a setting that operates according to a different set of class rules that are taken for granted and enforced by the largely homogeneous majority. They are put in the position of a nonadept who must interact with adepts” (p. 144).

These “class migrants” (Williams, 2012) are faced with the challenges of environments with different norms, expected behaviors, and cultures. For example, the nationwide job market for professionals might clash with the lower-class cultural obligation to “remain near the clan” (Williams, 2012, p. 48). Lower-class youth who are upwardly mobile have been found to feel out of place in their clothing and in interactions with middle-class peers in certain social settings (Lareau & Calarco, 2012). A qualitative study of 24 college professors from working-class backgrounds discusses three themes surrounding the unique struggles of upwardly mobile individuals. They describe the “dual estrangement” theme as the feeling as though these upwardly mobile persons are living in two very different worlds (also called “double consciousness;” Williams, 2012, p. 40).

Although one might learn the rules and practices of a new social status later in life, much like learning a second language, it is argued that one will always lack the ease and fluency of “native inhabitants” of a given social class culture (Lareau & Calarco, 2012, p. 64).

The second theme explores “internalized class conflict,” in which pressure from both class cultures seem as though they are in serious conflict with each other. For example, upwardly mobile individuals from lower-status backgrounds may feel they must travel multiple times geographically in order to pursue their career and yet feel pressure from their lower-status family members to stay near home (Stephens et al., 2012). Finally, the “impostor phenomenon” theme describes the feeling that the upwardly mobile person must survive each new environment by becoming someone else all the time (Ryan & Sackrey, 1984). By conforming to the upper or middle class ideal, individuals essentially become “one of them,” potentially invoking feelings of betrayal or loss (Miller, 2006; Ross, 1995; Baker, 1989). One author argues that the transition toward privilege can be powerful enough to initiate feelings like one is committing treason against your current status by holding on to lower-class roots (hooks, 1989).

The concern with abandonment of one’s social class, and those who remain in it, is a unique and powerful consequence for those moving up the metaphorical ladder. As one might expect, upward mobility has been found to have a negative effect on family relationships (Azam & Amman, 1985). Upward mobility through education may not always be an altogether positive experience. Working-class parents may even fear their child’s entry into higher education, “Intuiting perhaps that (they) might learn to be ashamed of where (they) had come from, that (they) might never return home, or come

back only to lord it over them” (hooks, 1989, p. 75). Parents from poor backgrounds may also want to protect their children from, or fear they might adopt, the negative stereotypes associated with the poor.

#### **1.4. The Stigma of Lower-Socioeconomic Status**

Lower-SES has a number of unique challenges, including a number of negative stereotypes that may lead individuals to try to conceal their status or status background. However, choosing to actively conceal a negative stereotype has been found to have its own negative consequences, particularly for those more aware, or conscious, of those negative stereotypes.

##### **1.4.1. Negative Stereotypes of Lower-Socioeconomic Status**

Negative stereotypes about the poor are well documented (e.g., Bullock, Wyche, & Williams, 2001). Researchers have shown that the poor are labeled as uneducated, lazy, criminal, stupid, immoral, and violent (Chafel, 1997; Cozzarelli, Wilkenson, & Tagler, 2001; Hoyt, 1999). One study found that middle-class students rated lower class women as more dirty, hostile, confused, illogical, impulsive, incoherent, irresponsible, inconsiderate, and superstitious than their higher-class counterparts (Cyrus, 1997). Individuals living in, or close to, poverty are frequently misrepresented by cultural stereotypes, including the “white trash” stereotype. In the United States, the “white trash” stereotype presents lower-SES whites as stupid, coarse, violent, dirty, and sexually unrestrained (Spencer & Castano, 2007; Wray, 2006). A study by Loughnan, Haslam, Sutton, and Spencer (2013) found that the “white trash” stereotype is also characterized

by the “infracommunitization effect” (Leyens et al., 2000), or a representation of individuals as less human/more bestial, with a lower capacity to experience human emotions.

There is also a consistent view from higher classes that the poor are personally responsible for their plight (Chafel, 1997). Interestingly, and contrary to what one might expect, these negative attitudes toward the poor have been found to *increase* as level of education increases (Brantlinger, 2003; Jackman & Muha, 1984). These negative stereotypes are also thought to contribute to depression and anxiety among the lower class (Murphy, Olivier, Monson, & Sobol, 1991).

Classism, or the “oppression of the poor through a network of everyday practices, attitudes, assumptions, behaviors, and institutional rules” (Bullock, 1995, p. 119), is an everyday experience for lower-SES individuals, and those from lower-SES backgrounds may be vigilant for classist experiences. Importantly, perceptions or awareness of status may be an important mediator for all research on socioeconomic status. For example, Dashiff and colleagues (2009) found that the effects of poverty on social adjustment, quality of life, and suicide risk occurred through perceptions of family economic hardship, or *subjective* socioeconomic status. In fact, subjective perceptions of social status have been found to predict health, including self-rated health, fat distribution, susceptibility to infection, heart rate, and cortisol habituation to repeated stressors, independently of objective measures of socioeconomic status (Singh-Manoux, Marmot, & Adler, 2005; Adler et al., 2000; Cohen, 1999; Ostrove, Adler, Kuppermann, & Washington, 2000). Self-reported perceptions of economic insufficiency in parents have even been related to higher levels of cortisol (a physiological measure of stress) in young children (Blair, Raver, Granger, Mills-Koonce, & Hibel, 2011).

Research has found that children and adolescents are attuned to social class and classism experiences, independent of measures like income and occupation which may mean little to them. In fact, Tudor (1971) has found that children as early as the first grade (the youngest age group in his study) are aware of social class. This underlines the importance of subjective experiences of social class and their influences on future intergroup contact or experiences.

#### **1.4.2. Socioeconomic Status Background as a Concealable Stigma**

Most cross-class interactions occur at work or other public, goal-oriented institutions (e.g., hospitals, schools). In general, cross-class socially oriented interactions are rare in the United States. Most individuals have limited contact with those outside of their social class (Ridgeway & Fisk, 2012; Lareau & Calarco, 2012). This may be because, in general, Americans find class-based interactions awkward, uncomfortable, or even shameful. This gives individuals from lower-status backgrounds in a cross-class interaction incentive to hide or conceal their class background (Ridgeway & Fisk, 2012). However, concealing a socially devalued trait (e.g., class background, sexual orientation, eating disorder, etc.) can have a number of negative consequences.

A concealable stigma is a socially devalued trait (Jones et al., 1984) that can be concealed to an extent through cosmetic, behavioral, or impression management strategies (Crocker, Major, & Steele, 1998). Researchers have noted the many difficulties involved in openly discussing or revealing a working-class background (e.g., Reay, 1996). One noteworthy study by Abel (1989) found that law school graduates from lower-status backgrounds are less likely to be hired at prestigious law firms if they discuss their SES background or leak clues of their disadvantaged upbringing. Other

researchers have documented discrimination of lower-status children and their parents at public schools (Lott & Rogers, 2005).

Not only does revealing one's lower-SES background usually involve anxiety about negative perceptions from others, what Lott and Bullock (2007) call "income-related embarrassment," it also involves feelings of alienation and a lack of shared experiences. As Liu et al. (2004) argue, this lack of shared experiences of members from different social class backgrounds may contribute to poorer interactions and poorer expectations for future interactions.

Interactions with peers from wealthy families can underscore how different those from lower class families' experiences have been. As one social psychologist from a lower-status background writes, "During the summers, they traveled to Europe or spent time at their vacation homes, while I worked 60 to 70 hours per week as a waitress and restaurant manager" (as cited in Lott & Bullock, 2007, p. 28). Feelings of alienation of college students from lower-status backgrounds have been well-documented (Stewart & Ostrove, 1995; Ritz, 2003), and it is difficult to ignore the implications of these feelings on college retention and graduation rates. The stigma that is associated with coming from a lower-SES background may be a significant stressor. A qualitative study of 23 working-class law students found that these individuals reported anxiety related to poor social skills and etiquette, lower social class status of family members or partners, and feeling like a "sell-out" in order to make their way up the social class ladder. These students viewed their working-class background as something with which to contend and also reported engaging in a number of coping behaviors because of the stigma related to their class background (Granfield, 1991).

Individuals with concealable stigmas, as opposed to those with visible stigmas, are often uncertain as to whether others are aware of the stigmatizing characteristic (Kleck & Strenta, 1980). Like those with visible stigmas, individuals with concealable stigmas face a high degree of attributional ambiguity, or uncertainty about whether behavior toward them is related to stigma-related prejudice (Crocker, Voelkl, Testa, & Major, 1991; Snyder, Kleck, Strenta, & Mentzer, 1979). This uncertainty is often warranted because of previous interactions or experiences with non-stigmatized individuals who expressed anxiety or uncomfortable feelings when interacting with an individual with a socially devalued trait (Shelton, 2003; Hebl, Tickle, & Heatherton, 2000; Devine, Evett, & Vasquez-Suson, 1996).

Those with concealable stigmas are able to choose whether or not to conceal their identity, and when and to whom to disclose their stigmatized identity (Quinn, 2006). Interestingly, individuals with concealable stigmas, including students from lower-status families, have been found to have lower self-esteem and higher rates of negative emotions, as well as a number of negative physical and mental health outcomes, than individuals without stigma and even those with visible stigmas (Frable et al., 1998; Cole, Kemeny, Taylor, & Visscher, 1996; Major & Gramzow, 1999; Pachankis, 2007). These negative outcomes may lead to avoidance of intergroup interactions as they may feel more respected and have better mood when around similar others (Frable et al., 1998).

In fact, interactions with in-group members have been found to have a number of positive benefits, including more positive perceptions of group membership (Jones et al., 1984), better information about how to negotiate social interactions successfully, and higher perceived moral support when difficulties are encountered (Goffman, 1963; Mest,

1988; Padden & Humphries, 1988; Wright, 1983). Therefore, interactions with similar others can help protect against negative outcomes (Frible et al., 1998). However, for those with concealable stigmas, including coming from a lower-SES background, it may be exceptionally difficult to find similar others within their environment in order to form social support systems. Frible et al. (1998) argue that college students especially may find it difficult to search out similar others because they are working constantly and have limited time to do so. College students from lower-SES backgrounds, for example, may therefore have very limited in-group social support systems while at school.

Relatedly, perceptions of positive role models may also play an important protective role for individuals from low-status backgrounds. For example, research has shown that urban adolescents with identifiable role models receive higher grades and have higher self-esteem than those without identifiable role models (Yancey, Siegel, & McDaniel, 2002). Positive role models have been found to be important specifically for individuals from lower-status backgrounds for resilience in the face of adversity, or what Werner (1995) calls “successful adaptation” (p. 84). However, because of the limited number of college students/graduates from lower-SES backgrounds, positive role models of college attainment may be few and far between, especially for first-generation college students.

Together, these challenges may make individuals from lower-SES backgrounds feel like they are alone among individuals who would potentially judge them negatively if they found out who they really were. They are aware of the negative stereotypes associated with their group membership and may be especially concerned with avoiding

confirming those negative stereotypes, and therefore may avoid or disengage from these stigmatizing domains (Major & Schmader, 1998).

### **1.4.3. Stereotype Threat**

Research has shown that fear of confirming a negative stereotype about your group leads individuals to perform poorly on stereotype related tasks (Steele & Aronson, 1995). For example, when women are primed with a relevant stereotype before a mathematics test (i.e., women are bad at math), they will perform worse on the test than women in a situation in which the stereotype is not primed, whereas men will perform equally well in both conditions (Spencer, Steele, & Quinn, 1999). It has also been found that revealing a concealable, stereotyped social stigma can lead to heightened stereotype threat (Quinn, Kahng, & Crocker, 2004).

As described earlier, poor people and those from lower-status backgrounds have been stereotyped as stupid and lazy, and have generally lower educational attainment. Lower-socioeconomic status and lower-SES background group membership are also concealable stigmas. Revealing this group membership may therefore lead to heightened stereotype threat for these individuals. Importantly, research by Croizet and Claire (1998) and Spencer and Castano (2007) has replicated stereotype threat research with those from lower-SES backgrounds.

Croizet and Claire (1998) showed that students from relatively poorer families (based on parents' occupational status) performed worse on an intellectual task than higher SES participants, but only when the instructions described the task as a measure of intellectual ability. When the test was not presented as diagnostic of intellectual ability, performance for lower SES participants did not suffer. In an extension of this study,

Spencer and Castano (2007) were interested in whether stereotype threat based on socioeconomic status would only impact performance when socioeconomic identity is made salient (i.e., when participants are asked to report parents' income and occupation before versus after taking a test). Like Croizet and Claire (1998), when a test was presented as diagnostic of intelligence, lower-SES students tended to perform worse, and reported much lower self-confidence, than lower-SES participants in a non-threatening (non-diagnostic) condition.

Interestingly, Spencer and Castano (2007) found that lower-SES students performed significantly worse on a test when SES was made salient compared to lower-SES students whose SES was not made salient during the experiment. Both of these studies importantly extend previous research on stereotype threat to individuals from lower-SES backgrounds. Stereotype threat based on social class has even been found to impact lower-SES children as young as six years old (Désert, Préaux, & Jund, 2009). However, none of these researchers have studied the presence of a cross or same-status partner on performance, nor physiological reactivity due to stereotype threat which has been studied in research on cross-race interactions (Blascovich, Spencer, Quinn, & Steele, 2001).

It is also important to note that there may be no need to directly present people with a stereotype about their group in order to elicit stereotype threat (Spencer et al., 1999). Instead, researchers contend that stereotype threat “may be evoked by any factor that increases saliency of group stereotypes” (Inzlicht & Ben-Zeev, 2000, p. 365). Therefore, asking participants questions that make socioeconomic status background salient may therefore be enough to activate a stereotype threat response. However, I

contend that the presence of a higher-status individual during an intellectual task may be a more threatening intellectual environment for individuals from lower-SES backgrounds, as their minority status may be more salient and/or devalued within these cross-class interactions. These cross-class interactions would therefore more likely activate, or make participants from lower-SES backgrounds more conscious of, the stigma related to being poor or coming from a poor background.

#### **1.4.4. Social Identity Threat**

In their conceptualization of social identity threat, an extension of stereotype threat, Steele and colleagues argue that cues from a particular environment can signal the devaluation of one's social group membership, or social identity, within that environment (Murphy, Steele, & Gross, 2007; Purdie-Vaughns, Steele, Davies, Dittmann, & Crosby, 2008; Steele & Aronson, 1995; Steele, Spencer, & Aronson, 2002). For example, women in a math, science, and engineering environment experienced more cognitive and physiological vigilance, and reported a lower sense of belonging and less desire to participate in a task when they were primed with a video depicting an unbalanced ratio of men to women compared to women shown a gender-balanced video (Murphy et al., 2007). This theory contends that these cognitive and affective/physiological responses can influence performance on tasks in which the negative stereotype is made salient (Inzlicht & Ben-Zeev, 2000, 2003; Sekaquaptewa & Thompson, 2003; Murphy et al., 2007).

Furthermore, social identity threat is believed to lead to "belonging uncertainty" (Walton & Cohen, 2007), or a sense of social rejection based on one's social identity, which may also influence performance within the specific context or domain in which

one's social identity is devalued. One particular environment that may signal the devaluation of lower-SES group membership, and activate social identity threat for individuals from lower-SES backgrounds, is higher education. It is well-established that college students from lower-SES backgrounds report more feelings of alienation and lower emotional and social well-being than their higher-SES counterparts (Ostrove & Long, 2007; Ostrove, 2003; Granfield, 1991). As Granfield (1991) wrote, students from working-class backgrounds are "initially proud of their accomplishments" but eventually come to define themselves as different. They have even been known to describe their economic background as a burden (p. 336). Stereotype and social identity threat underline the important implications for group membership in stigmatized groups within specific social interactions where those stereotypes may be salient. There are also important individual differences in how much individuals perceive prejudice or stigma against their group to impact their everyday lives.

#### **1.4.5. Stigma Consciousness**

Stigma consciousness refers to the extent to which a member of a stigmatized minority group focuses on their stereotyped status and believes it pervades their life experiences (Pinel, 1999). Individuals high in stigma consciousness tend to believe that they cannot escape their stereotyped status, and that the stereotypes about their group impact interactions with members from outside of their group (Pinel, 2004). They are therefore more likely to perceive a negative interaction with an out-group member as being a result of their stigmatized group membership. Higher levels of stigma consciousness have also been linked higher levels of stereotype threat (Brown & Pinel, 2003).

Furthermore, individuals high in stigma consciousness are more likely to psychologically or physically disengage from stigmatizing domains (Major & Schmader, 1998; Major, Spencer, Schmader, Wolfe, & Crocker, 1998). For example, individuals who are members of groups negatively stereotyped in the academic domain (e.g., African Americans, Latinos and Latinas) deemphasize the importance of school, and perform worse in school, perhaps because of the negative stereotypes they might encounter in that domain (Major & Schmader, 1998; Major et al., 1998; Schmader, Major, Eccleston, & McCoy, 2001; Pinel, Warner, & Chua, 2005). Because individuals from low-SES backgrounds are also stigmatized in the academic domain (e.g., lazy, stupid), the relationship between stigma consciousness and academic achievement motivation should exist for them, as well.

Stigma consciousness has also been associated with lower self-esteem (Pinel, Warner, & Chua, 2005; Link, Struening, Neese-Todd, Asmussen, & Phelan, 2001). Lower self-esteem is related to worse health outcomes (Steptoe, Dockray, & Wardle, 2009; Ross, Liu, Tomfohr, & Miller, 2013). Although this relationship is beyond the scope of the current research, it is important to note that stigma consciousness not only plays an important role in academic outcomes (through disengagement in stigmatized domains), it may also be an important factor in predicting health outcomes. In general, the burden of a devalued social identity can feel quite heavy, and can weigh on individuals not only mentally and emotionally, but also physically.

### **1.5. Status and Physiological Reactivity**

Advances in physiological recording equipment has allowed for the exploration of the physical burden of lower-status group membership. Research has found a number of

important, and unfortunate, consequences of being the member of a lower status group that might help explain some of the health issues faced by these individuals.

### **1.5.1. Allostatic Load**

This heavy burden of the stigma associated with SES, and the physiological responses to stress that may accompany it, may help explain the impact of lower-SES on health. A short-term, heightened physiological response to a stressor is usually described as adaptive and protective (e.g., increased heart rate when one encounters a bear in the woods; Baum, Garofalo, & Yali, 1999). This is known as allostasis. However, when one experiences a long-term, continued physiological response to stress (e.g., heightened vigilance in a threatening environment), it can have damaging effects to one's health. This is known as allostatic load. Therefore, blood pressure (BP) reactivity to environmental stress can be protective, but if this reactivity does not stop, over time it may become damaging.

Exaggerated blood pressure reactivity to environmental stress is thought to be a result of a combination of hypothalamic-pituitary-adrenal (HPA) and sympathetic nervous system (SNS) activation. Both human and animal studies have shown that exposure to acute or chronic stress stimulates HPA activity (e.g., increased cortisol secretion) and increased SNS activity (e.g., increased norepinephrine release; see Shively, 2000 for review). Collectively, these changes attenuate sodium excretion and enhance systemic vasoconstriction resulting in increased blood pressure (Anderson, McNeilly, & Myers, 1991). Although activation of these systems has been found to be adaptive in the short-term, failure to shut off this system in the long-term can accelerate the progression

of atherosclerosis, Type II diabetes, obesity, and/or hypertension (McEwen, 1998; Brindley & Rolland, 1989; Bjorntorp, 1990) as well as compromise immune function (Lundberg, 1999). Overactivity of these systems have also been found to reduce neuronal excitability, cause neuronal atrophy, and even cause death of brain cells (McEwen, 1997, 1999).

### **1.5.2. Lower-Socioeconomic Status and Physiological Reactivity**

The general assumption is that there is an association between lower-SES background and increased physiological stress reactivity compared to higher-SES individuals. However, studies on lower-SES individuals are mostly on children, mostly on African American or mixed-race samples, and vary widely in their stress manipulations. When one looks closely at these studies, the associations between SES and cardiovascular reactivity are generally weak. Although Gump et al. (1999) found the expected inverse association with BP and heart rate reactivity to stress tasks (e.g., forehead cold stimulation) in 8-17 year old African Americans, their findings are an exception among researchers.

In a study by Kapuku, Treiber, and Davis (2002) of African American males, no statistically significant correlations were found between family SES and resting BP or BP reactivity. Chen and Matthews (2001) found at Time 1 of a longitudinal study of Black and White youth (aged 8-21) that lower family SES was related to greater cardiovascular reactivity in response to stress. However, they showed no other physiological reactivity to stress during Time 1 and their Time 2 study showed no relationship between family SES and physiological reactivity. A study by Jackson et al. (1999) actually found greater BP

reactivity among upper-SES adolescent African Americans compared to their lower-SES counterparts during a stressor (e.g., video game challenge).

Researchers argue these discrepancies in findings may be related to methodological differences in measuring SES and inducing stress (Kapuku et al., 2002). Cultural factors may also be important in explaining these discrepancies as effects of SES on HPA activation have been found to be partially culturally dependent (Decker, 2000; Marmot, 1983). For example, as Anderson and Armstead (1995) argue, it is important to recognize the possibility that there may be ethnic group differences in the experience and nature of socioeconomic status. In fact, it is important to recognize that the nature of socioeconomic status is different for everyone, and everyone experiences socioeconomic status differently. Perceptions of status may be an important force for interactions across the class divide. Individuals from lower-status groups may not perceive themselves as lower-status until they enter an interaction with someone from a higher-status group. In this case, the comparison made to the higher-status other, or perceived relative inequality, may need to be present in order to create an environment where their social identity is devalued. This type of interaction, in which individuals perceive themselves to be relatively lower-status than their interaction partner, may be particularly (physiologically) stressful for individuals.

### **1.5.3. Perceptions of Relative Inequality and Physiological Reactivity**

A number of researchers have looked at stress (physiological stress reactivity) during interactions in which relative status inequality is manipulated. However, the methodology used varies and is sometimes questionable. In a study by Long, Lynch, Machiran, Thomas, and Manilow (2004), blood pressure during verbal communication

was found to increase significantly when speaking with a “high-status” (nicely dressed “doctor”) compared to when speaking with an “equal status” (casually dressed “experimenter”) interviewer. Similar heart rate and systolic blood pressure increases occurred with individuals interacting with a “high-status” (nicely dressed “graduate student”) compared to those interacting with an “equal-status” (casually dressed “college sophomore”) interviewer (Kleinke & Williams, 1994).

Other studies show increased blood pressure of military personnel when measured by a physician compared to when measured by an enlisted person (Reiser, Reeves, & Armington, 1955) and increased blood pressure of those measured by a physician versus a nurse (Richardson, Honour, Fenton, Stott, & Pickering, 1965). Most of these studies, however, contained status confounds. The “equal-status” individuals could still have been perceived as higher-status than participants because of older age or other factors (manipulation checks confirmed only that equal-status experimenters were perceived as lower status than high-status experimenters). Experimenter bias may also have influenced results since the experimenter was sometimes directly involved in collecting the data. Also, because there was a specific dress-code for status-of-interviewer roles, blindness to condition would have been impossible. Beyond that, none of these studies looked specifically at socioeconomic status, nor did they directly study *peer* social interactions.

Some researchers have investigated the effects of experimentally inducing social status of the participant instead of the interaction partner. Mendelson, Thurston, and Kubzansky (2008), for example, induced dominant and subordinate social status in two groups of women. They did so by manipulating confederate behavior as either deferential (i.e., hesitant speech, lack of certainty and confidence) or assertive (i.e., confident and

domineering). They found that those in the subordinate group showed greater increase in negative affect relative to the dominant group at a number of time points as well as a greater increase in systolic blood pressure in the subordinate group compared to the dominant group at a number of time points. However, it is difficult to map their status manipulation directly to socioeconomic status. This study is more related to interpersonal interaction style (dominant vs. submissive) and how participants responded to these different interaction styles.

There may be distinct individual differences between those who have had their social status manipulated for a short-term experiment and for those who have experienced the negative effects of lower-status for many years. For example, could coming from a lower-status background create learned interaction styles or expectations during cross-class interactions? Would those from lower-status backgrounds experience similar increases in negative affect and decreases in positive affect if they expected the interaction to go badly from the start? The researchers admit that experimentally-induced social status is sure to have weaker effects than the multiple adverse material and social conditions associated with lower SES over a lifetime (Mendelson et al., 2008). In fact, they argue that future research should evaluate “the impact of preexisting status” on psychological and physiological responses (p. 487).

Research with nonhuman primates has also shown the adverse physiological effects of subordinate social status (Abbott et al., 2003; Sapolsky, Alberts, & Almann, 1997). For example, the psychosocial stress involved with the formation of dominance hierarchies has been found to impair cognitive function of lower ranking animals (McEwen & Seeman, 1999). Female cynomolgus monkeys showed higher cortisol

secretion and increased risk for atherosclerosis when experimentally manipulated to be in a subordinate status. These animals also showed increased fear vigilance and decreased affiliative behavior in these studies (Kaplan et al., 1996; Shively, Laber-Laird, & Anton, 1997). It is therefore important to note the impact of not only objective measures of social status, but also feelings of perceived relative status, particularly subordinate social status, when researching socioeconomic status in humans.

### **1.6. Resilience**

Not everyone from a lower-SES background develops significant health problems. Nor does everyone from a lower-SES background disengage from academics or other stigmatizing domains. What is it that makes these individuals resilient in the face of adversity? How have they been able to rise above the impact of their lower-SES background? Resilience is described as “a dynamic process wherein individuals display positive adaptation despite experiences of significant adversity” (Luthar & Cicchetti, 2000, p. 858). This “significant adversity” includes experiences of poverty in childhood (Chen, Lee, Cavey, & Ho, 2013). Researchers specifically focused on resilience in individuals from lower-SES backgrounds have identified two important factors: positive role models and adaptive strategies (Chen et al., 2013).

Generally, the perception of positive role models has been identified as important for academic outcomes (e.g., grades) as well as psychological health (e.g., self-esteem; Hurd, Zimmerman, & Xue, 2009). Role models have also been found to buffer against cardiovascular risk specifically for low-socioeconomic status youth (Chen et al., 2013).

The second factor identified as protective for individuals from lower-SES backgrounds are “shift-and-persist” strategies. According to Chen and Miller (2012),

“shifting” involves “acceptance of stressors and the use of strategies aimed at adjusting oneself to the external environment” (p. 139). This “shifting” is similar to the cognitive emotion regulation strategy of cognitive reappraisal, which involves reevaluating or reinterpreting a stressful situation in order to reduce its emotional impact (Wrosch, Heckhausen, & Lachman, 2000). Researchers have shown that cognitive reappraisal is an effective emotion regulation strategy, and that people differ in the extent they typically use this strategy to regulate their emotions in daily life (Hermann, Keck, & Stark, 2014). Importantly, lower-income children with better self-regulatory skills in general have been found to be more resilient to adverse health outcomes (Blair, 2010; Blair & Raver, 2012).

“Persistence,” on the other hand, involves “enduring adversity with strength, holding oneself steady and finding meaning in life, and maintaining optimism about the future” (p. 140). This involves long-term maintenance of positive emotion and stresses the lasting impact of cognitive reappraisals. Chen and Miller argue that it is not sufficient to shift *or* persist, and that the combination of shifting *plus* persisting is important for buffering against the negative consequences of lower-SES background, including chronic disease.

Research by Chen and colleagues has found that higher levels of shift-and-persist strategies in adults from lower-SES backgrounds are related to lower levels of allostatic load (Chen, Miller, Lachman, Gruenewald, & Seeman, 2012). Allostatic load in this study was measured using the activity of seven different physiological systems including cardiovascular (resting systolic and diastolic blood pressure, resting pulse rate), sympathetic nervous system (overnight urinary measures of epinephrine and norepinephrine), parasympathetic nervous system (heart rate variability), hypothalamic-

pituitary-adrenal axis (cortisol), inflammation (C-reactive protein, fibrinogen, and interleukin-6), lipid and general metabolic (HDL and LDL cholesterol, triglycerides, body mass index, and waist-to-hip ratio) and glucose metabolism (levels of glycosylated hemoglobin, fasting glucose, and insulin resistance) activity. Again, those from lower-SES backgrounds who were higher in shift-and-persist strategies were at lower risk for allostatic load on these seven physiological systems. No benefits were seen for those from higher-SES backgrounds.

Higher levels of shift-and-persist strategies have also been found to eliminate the association between lower socioeconomic status and higher BMI for middle school children, between the ages of 9 and 15 (Kallem et al., 2013). This research shows that learning shift-and-persist strategies can be a very successful tool for improving health, even at an early age.

It is therefore important for research in socioeconomic status to recognize the potentially important influence of both perception of positive role models and shift-and-persist strategies in reducing the negative impact of coming from a lower-SES background. It is also important to note that there is resilience in the face of adversity, and that many individuals from lower-SES backgrounds can and do rise above their situation. However, reminders of one's lower socioeconomic status background may bring individuals right back to feeling uncomfortable or out-of-place, especially in a domain where negative stereotypes about that background may be particularly salient (e.g. work, school).

## **1.7. Overview of the Current Research**

Within this dissertation, I attempt to illuminate the impact of SES background on individuals as they approach interactions across the class divide. In an egalitarian society, cross-class interactions are permitted, and should be commonplace. Unfortunately, this is not the case. It is therefore important to elucidate the impact of social class interactions, particularly in stigmatizing domains. Social class is more than just a number on a chart, it is a part of our social identity and a driving force for whom we talk to and in which environments we feel comfortable or uncomfortable. This research attempts to further understand this force.

Across three studies, I test the consequences of peer social interactions across the class divide for individuals from both lower and higher socioeconomic status backgrounds. In the first study, I test the physiological and performance consequences for participants from lower-status backgrounds interacting with a peer from a higher-status background compared to a partner from a similarly lower-status background or a control partner (whose status background is not disclosed). Based on research described above, I hypothesize that individuals paired with a partner from a higher-status background will perform worse on a verbal task and will have higher and longer-lasting physiological reactivity than those individuals paired with either a similarly lower-status or control partner.

In Study 2, I will attempt to replicate the findings for participants from lower-status backgrounds from Study 1 (lower performance and heightened physiological reactivity for those with a higher-status partner). I will also incorporate individuals from higher-status backgrounds. Because downward social comparisons tend to be less

stressful than other types of social comparisons (Reisch-Osterman, 1996), I hypothesize that these higher-status individuals will not vary across condition (higher-status partner, lower-status partner, and control partner) on performance and physiological reactivity measures. I also hypothesize that these individuals will not differ significantly from lower-status individuals in both the lower-status and control partner conditions. Therefore, I hypothesize that negative consequences (worse performance, heightened stress reactivity) will only occur for those lower-status individuals participating with a perceived higher-status partner.

In Study 3, I studied the potential impact of stigma consciousness, the extent to which targets of widespread stereotypes focus on their stereotyped status (Pinel & Paulin, 2005), on self-esteem, achievement motivation, positive role models, and shift-and-persist strategies, for high-school students from lower-status backgrounds who intend to become first-generation college students. I predict that individuals who are more conscious of stigma based on their socioeconomic status background will show less achievement motivation and lower self-esteem than those who are less stigma conscious. I also predict the important mediating effects of shift-and-persist strategies (Chen & Miller, 2012) and of positive role models (Hurd, Zimmerman, & Xue, 2009; Chen et al., 2013). Finally, I will examine the impact of the Upward Bound program over time on important variables for academic success (e.g., perception of positive role models) and psychological health (e.g., self-esteem).

## CHAPTER 2

### STUDY 1

The first goal of Study 1 is to explore whether one-on-one cross-class interactions are stressful for individuals from lower-status backgrounds. When interacting with a partner from a higher-status background, I hypothesize that individuals from lower-status backgrounds will have increased physiological reactivity (i.e., blood pressure) relative to baseline, consistent with stress, whereas individuals interacting with a partner from a lower-status background or a control partner (whose socioeconomic status is not disclosed) will not show this increased physiological reactivity from baseline. I hypothesize that the cross-class interaction partnership will also result in decreased performance on a verbal performance test compared to same-class and control interaction partnerships. It is common for research on socioeconomic status differences to use verbal performance tests as indicators of cognitive performance (e.g., Croizet & Claire, 1998; Spencer & Castano, 2007). Specifically, a revised version of the Remote Associates Test (RAT; Mednick, 1962; Appendix A) was used in order to directly compare results to previous research on blood pressure reactivity and performance (Blascovich et al., 2001).

#### 2.1. Participants

Lower-SES undergraduate participants ( $N = 63$ ; 64% female), drawn from the psychology department subject pool, were invited to participate in a study on how people form first impressions. Participants who reported family income less than or equal to \$50,000 a year ( $M = \$33,833$ ,  $SD = \$12,635$ ) and who reported a subjective social status (Singh-Manoux, Adler, & Marmot, 2003) below the midpoint on the 1-10 MacArthur Scale of Subjective Social Status (Adler et al., 2000;  $M = 4.19$ ,  $SD = .88$ ) were selected to

participate. The MacArthur Scale is presented in an easy pictorial format in which participants are asked to place an “X” on the rung on which they feel they stand on a “social ladder.” In this study, participants were asked to place an “X” on the rung on which they felt their family stood on the “social ladder” when they were growing up.

In order to reduce confounding variables (e.g., race, cohort effects), I used the psychology prescreening questionnaire to ensure participants were European American and between the ages of 18 and 24 ( $M = 18.74$ ,  $SD = 1.12$ ). Previous research has also shown that overweight individuals who believe their weight is visible to evaluators have heightened stress reactivity and impaired performance (Major, Eliezer, & Rieck, 2012). Because the partner manipulation included a visual component, I recruited only average-weight individuals for this study ( $BMI < 30$ ;  $M = 149.98$ ,  $SD = 27.75$ ). The data for two participants were removed because of experimenter error (e.g. sound was turned off during instructions). The physiological data for three others were unusable because of mechanical difficulties with the recording equipment; however, their performance data could still be used, leaving 61 participants in the study.

## **2.2. Method**

The participant entered the lab and was given time to read and fill out the informed consent and was also asked to report any skin problems or conditions (e.g., eczema) that may exist which would preclude participation. The blood pressure cuff was then applied by a female researcher. A wrist cuff took blood pressure readings several times a minute during the session. All measurements were taken via BIOPAC hardware and recorded via ACQUIRE software.

Following the completion of a 5-minute resting baseline, pre-recorded audio instructions were played for the participant. The first instructions led the participant to believe they would be “meeting their partner,” but that there was no audio hook-up between the rooms. A pre-recorded video of a confederate was displayed on the screen and the participant was directed to wave to his/her partner. This gender-matched confederate in the video then waved back. Participants and confederates were matched by gender because gender has status meaning and is a potential confound (Ridgeway & Smith-Lovin, 1999). Pre-recorded instructions then informed the participant that video communication would end for the duration of the experiment and the screen was covered by the experimenter.

#### **2.2.1. Status Disclosure Task**

At the beginning of the study, participants had been instructed to take six poker chips from a bowl placed in front of them. Participants were then informed that they would be getting to know their partner through a series of questions (Appendix B). In two conditions, socioeconomic status was made salient through a number of questions related to socioeconomic status background (e.g., “Did your parents live paycheck to paycheck when you were growing up?” “Did you have to have a job in high school to help support the family?” “Did your parents have a second home or summer home when you were growing up?”). These questions were adapted from the “Privilege Walk” sensitivity training exercises used to teach diversity and social justice (Adams, Bell, & Griffin, 2007).

In a control condition, socioeconomic status was not made salient and instead participants were asked a number of questions not directly related to socioeconomic status background (e.g., “Have you ever broken a bone?” “Did you have a pet when you were growing up?”). Participants were asked to take a poker chip from the bowl in front of them or to discard a chip into the bowl in front of them for particular questions. This take or discard action matched the positive or negative valence of the question. This led participants from lower-SES backgrounds to take few chips and to discard many (a visual representation of resources).

If the participant took a chip from the bowl during the positively valenced questions (e.g., “If you had a car in high school”), a “cha-ching” noise was played. If the participant discarded a chip into the bowl during the negatively valenced questions (e.g., “If you had to have a job in high school to help support the family”), a different noise was played (“ka-plunk”). The participant believed their partner was able to hear this audio feedback and would therefore know how he/she answered each question.

Participants were also able to hear feedback from the confederate’s actions during the task. In this way, the perceived status of the confederate was manipulated. In the higher-SES condition, the confederate took from the bowl on all positively valenced questions and discarded one time on the negatively valenced questions so that the participants knew the “discard button” was working. In the match SES condition, the confederate drew and discarded the same number of chips as the participant (although not always the same question to increase believability). In the control condition, the confederate discarded once. This task took approximately 6 minutes and physiological reactivity was measured throughout the task and for 2 minutes following task completion.

### **2.2.2. Remote Associates Test**

After completing questionnaires, participants were told that they would be competing against their partner on the Remote Associates Test. They were told that they would be judged both by how many questions they answered correctly and by how quickly they answered and that they were competing for entry into a drawing for a \$50 prize. The RAT items were pre-recorded and presented over the intercom. Participants were asked to say their answers out loud (in order for the experimenter to record their answers) and that their partner would be completing the task at the same time (but that they would not be able to hear the answers).

In the RAT, participants are presented with three words and then asked to come up with the word that is most associated with those three (e.g., “Cloud,” “Rabbit,” “House;” with the correct answer being “White”). No feedback was given during or after the task. This task took 5 minutes. Performance (i.e., number correct) and task engagement (i.e., response rate) during this task was recorded for later analysis.

### **2.2.3. Recovery**

Physiological reactivity was recorded for the first 5 minutes of this recovery period. Finally, the participants were debriefed about the experiment and any questions the participant had were answered. Experimenters were trained to ask questions about the believability of the confederate. Only two participants did not believe their partner was real and they were removed from all subsequent analyses.

## **2.3. Measures**

### **2.3.1. Manipulation Check**

After the status disclosure task, as a manipulation check, participants were asked to indicate whether their partner had more or less chips than them at the end of the task. This was rated on a 0-6 Likert scale from “Less than me” to “More than me.” During the recovery period, participants were also asked to indicate which income bracket they felt their partner’s family fell (see Appendix C).

### **2.3.2. Performance**

Performance was measured by the number of correct answers during the Remote Associates Test. Total number of items completed was tallied and means were compared across conditions.

### **2.3.3. Task Engagement**

Task engagement was measured by the number of RAT items attempted (Croizet & Claire, 1998) during the Remote Associates Test. Total number of items completed was tallied and means were compared across conditions.

### **2.3.4. Mean Arterial Pressure Reactivity**

I collected hemodynamic data according to established guidelines (Sherwood et al., 1990) with a blood pressure cuff that uses a sweep technology over the radial artery to estimate blood pressure approximately every 15 seconds, manufactured by Biopac (Santa Barbara, CA). This equipment provided several measures including systolic blood pressure (SBP) and diastolic blood pressure (DBP). In order to be consistent with previous research (Blascovich et al., 2001), mean arterial blood pressure (MAP) was

calculated. Mean arterial pressure is equal to two times DBP plus SBP divided by three and is a well-documented measure used to describe an average blood pressure in an individual considering that the heart spends twice as much time in diastole as in systole. I used Mindware software (Mindware Technologies, Gahanna, OH) to score and edit cardiovascular responses. I calculated systolic, diastolic, and mean arterial blood pressure values at each minute of the experiment. Mean arterial pressure was analyzed based on established procedures (Kamarck et al., 1992), using an average of the last three minutes of baseline, the average of the 6-minute status disclosure task, an average of the 5-minute RAT task, and an average of the 5-minute recovery period.

## **2.4. Results**

### **2.4.1. Preliminary Analyses**

For all variables, no violation of normality or outliers were detected. I recorded blood pressure responses during the 5-minute baseline, the 6-minute status disclosure activity, the 5-minute Remote Associates Test, and the 5-minute recovery period. I calculated mean values for blood pressure for each minute. There were no differences at baseline for blood pressure across condition,  $F(2, 57) = .86, p = .43$  (see Table 1). Analysis of demographic information (age, weight, family income, and MacArthur Scale) also reveals no significant differences across condition (all  $F$ s < 1.09; all  $p$ s > .34; see Table 1).

Table 1: Descriptive and Inferential Statistics of Baseline CV Measures and Demographics by Partner Condition.

Variable	Higher-status partner ( <i>N</i> = 21), Mean (SD)	Lower-status partner ( <i>N</i> = 22), Mean (SD)	No-status partner ( <i>N</i> = 18), Mean (SD)
Mean arterial pressure, mm Hg (Baseline)	85.91 (11.78)	84.17 (12.32)	81.09 (8.63)
<b>Demographics</b>			
Age	18.68 (1.09)	18.76 (1.00)	18.77 (1.39)
Weight, lbs.	157.95 (30.58)	147.59 (23.60)	155.41 (30.12)
Yearly Household Income (USD)	37,619 (11,469)	32,045 (13,510)	30,937 (12,677)
MacArthur Scale	4.14 (.99)	4.29 (1.55)	4.18 (.88)

*Note: No differences by condition for any of the variables; all  $F$ s < 1.09 and all  $p$ s > .34.*

#### 2.4.2. Manipulation Check

There was a significant effect of condition on the perceived number of chips taken by the interaction partner,  $F(2, 56) = 12.39, p < .001$ . Tukey's post-hoc analysis shows that participants in the lower-status partner condition believed their partner had significantly less chips ( $M = 3.09, SE = .21$ ) than both the higher-status partner ( $M = 4.50, SE = .24, p < .001$ ) and control partner ( $M = 4.33, SE = .23, p = .001$ ) conditions. There was no significant difference between the higher-status partner and control partner conditions ( $p = .62$ ).

A significant effect of condition on perceived partner's family income was also observed,  $F(2, 52) = 10.80, p < .001$ . Tukey's post-hoc analysis shows that participants in the higher-status partner condition believed that their partner's family was more

wealthy ( $M = 73,250.00$ ,  $SE = 6,180.14$ ) than both those participants in the lower-status partner condition ( $M = 42,954.55$ ,  $SE = 3,643.46$ ,  $p < .001$ ) and those in the control condition ( $M = 54,230.77$ ,  $SE = 4,192.72$ ,  $p = .015$ ). There was no significant difference between the lower-status partner and control partner conditions ( $p = .14$ ). Because socioeconomic status was not made salient in the control condition, a few ( $n = 5$ ) in this condition left the question blank.

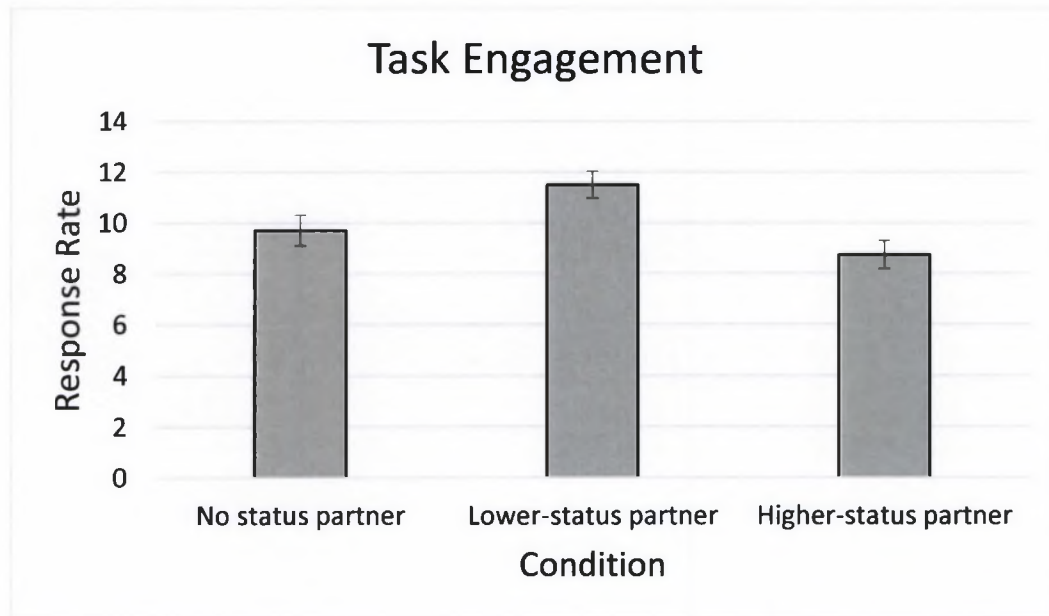
#### **2.4.3. Performance**

Contrary to predictions, there was no significant effect of the status of the partner on the number of accurate responses,  $F(2, 54) = .50$ ,  $p = .61$ ,  $\eta_p^2 = .02$ . This may reflect the difficulty of the task as participants performed poorly in all conditions ( $M_{Higher} = 1.80$ ,  $SE = .31$ ;  $M_{No} = 2.12$ ,  $SE = .24$ ;  $M_{Lower} = 2.38$ ,  $SE = .37$ ).

#### **2.4.4. Task Engagement**

Consistent with hypotheses, there was a significant effect of condition on task engagement,  $F(2, 56) = 6.59$ ,  $p = .003$ ,  $\eta_p^2 = .19$ . Pairwise comparisons revealed that participants with a higher-status partner had a significantly lower response rate ( $M = 8.75$ ,  $SE = .56$ ) than participants with a similarly lower-status partner ( $M = 11.50$ ,  $SE = .53$ ,  $p = .001$ ). Those with a control partner ( $M = 9.71$ ,  $SE = .61$ ) also had a lower response rate than those with a similarly lower-status partner ( $p = .03$ ). There was no difference in response rate between those with a higher-status partner and those in the control condition ( $p = .25$ ), see Figure 1.

Figure 1: Response Rate (Engagement) as a Function of Interaction Partner



#### 2.4.5. Mean Arterial Pressure Reactivity

Importantly, there were no significant differences at baseline by partner condition for blood pressure (all  $F$ 's < .86 and all  $p$ 's > .42). Consistent with Blascovich et al. (2001), reactivity scores were calculated by subtracting baseline MAP from each time period (Disclosure, RAT, Recovery) such that higher numbers indicate a rise in MAP. To examine my hypotheses regarding the effect of partner condition, I conducted a 3(partner condition) X 3(time: Disclosure, RAT, Recovery) mixed-model ANOVA on blood pressure reactivity.

The time by condition interaction was not significant,  $F(4, 106) = 1.00, p = .41, \eta_p^2 = .04$ . Consistent with hypotheses, there was a significant main effect of condition,  $F(2, 53) = 5.92, p = .005, \eta_p^2 = .18$ . Participants in the higher-status partner condition exhibited significantly higher blood pressure reactivity ( $M = 4.45, SE = 1.77$ ) than those

in the lower-status partner condition ( $M = -4.20$ ,  $SE = 1.86$ ,  $p = .001$ ) and those in the control condition ( $M = -1.32$ ,  $SE = 2.03$ ,  $p = .037$ ). Those in the lower-status partner and control conditions did not significantly differ in blood pressure reactivity ( $p = .30$ ).

There was also a significant main effect of time ( $F(2, 106) = 4.56$ ,  $p = .01$ ,  $\eta_p^2 = .08$ ) with reactivity higher overall during the Recovery period ( $M = 1.53$ ,  $SE = 1.44$ ) compared to the Status Disclosure Task ( $M = -1.13$ ,  $SE = 1.14$ ,  $p = .045$ ) and the RAT task ( $M = -1.47$ ,  $SE = 1.18$ ,  $p = .003$ ). Blood pressure reactivity during the Status Disclosure Task was not significantly different from blood pressure reactivity during the RAT ( $p = .73$ ).

Although the interaction was not significant, based on a priori hypotheses and the importance of reactivity in recovery for health, the effect of time within each condition was examined with simple main effects (see Table 2). Consistent with predictions, participants with a higher status partner had a significant increase in reactivity during Recovery relative to both Disclosure ( $p = .02$ ) and the RAT ( $p = .02$ ; Overall  $F(2,52) = 3.49$ ,  $p = .04$ ,  $\eta_p^2 = .12$ ). Importantly, this reactivity in recovery was a significant increase relative to baseline (0= no change,  $t(20) = 2.70$ ,  $p = .02$ ).

This effect was not observed in the control condition when status was not mentioned. The effect of time was not significant, indicating no change in blood pressure,  $F(2,52) = .50$ ,  $p = .61$ ,  $\eta_p^2 = .02$ . Interestingly, participants with a similar status partner evidenced a decrease in blood pressure reactivity during the RAT relative to baseline ( $p = .04$ ; Overall  $F(2,52) = 3.00$ ,  $p = .06$ ,  $\eta_p^2 = .10$ ). No other comparisons were significant for the lower-status partner condition ( $ps > .13$ ).

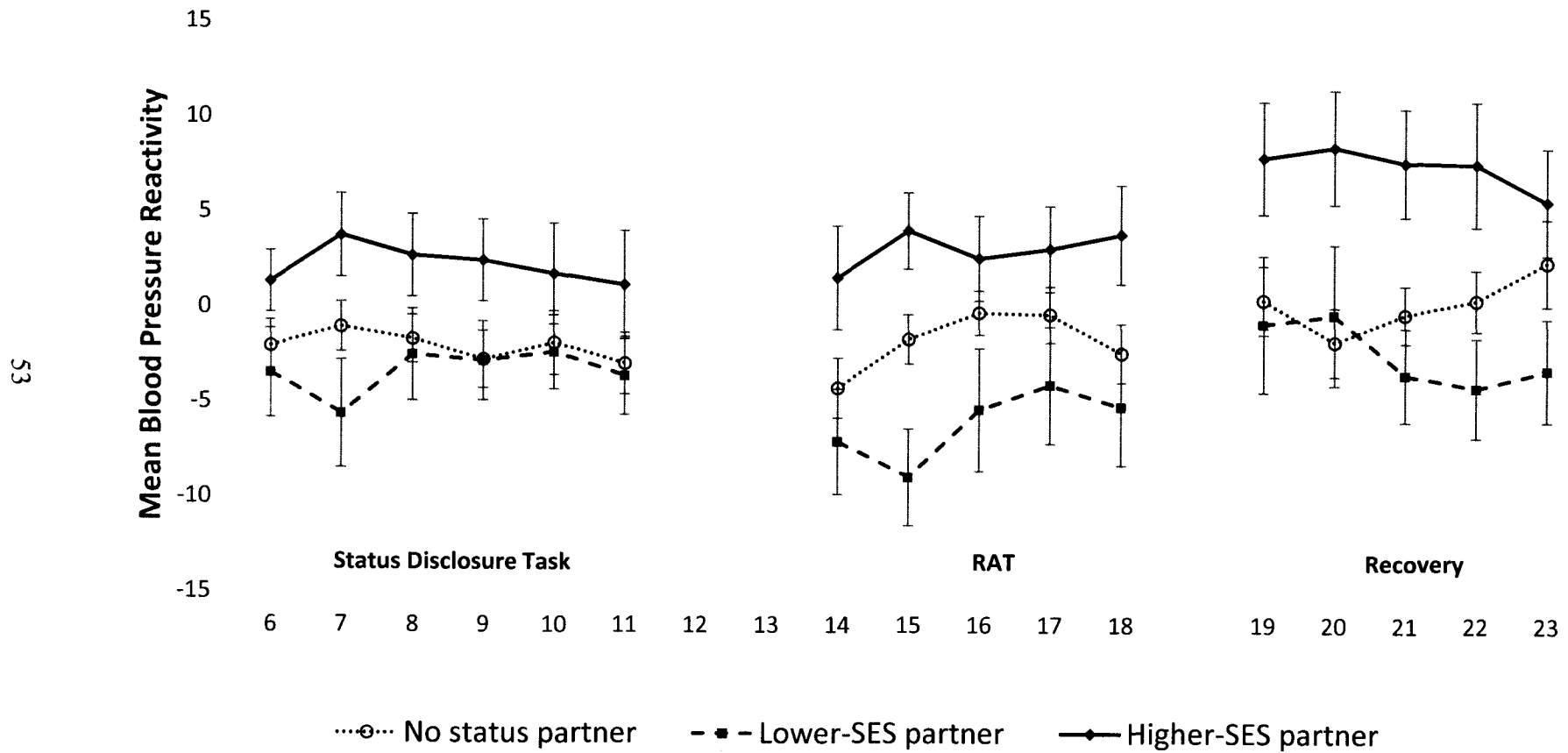
Condition	Higher-SES partner ( <i>N</i> = 22), Mean (SE)	Lower-SES partner ( <i>N</i> = 20), Mean (SE)	No-SES partner ( <i>N</i> = 16), Mean (SE)
Time period			
Status Disclosure Task	2.25 (2.09) <sub>a</sub>	-3.63 (1.96) <sub>a,b</sub>	-2.09 (1.36)
Remote Associates Task	2.78 (1.95) <sub>a</sub>	-5.12 (2.72) <sub>a</sub>	-1.81 (1.10)
Recovery	7.43 (2.75) <sub>b</sub>	-2.47 (2.47) <sub>b</sub>	-.06 (1.56)

*Note: Means with different subscripts in the same column are significantly different at  $p < .05$ .*

Table 2: Mean Arterial Pressure Reactivity, Study 1

Figure 2: Mean Arterial Pressure Reactivity by Condition and Post Baseline Minute

## MAP Reactivity



Note: Analyses conducted on average across minutes within each task period. Error bars are +/- SEM.

## **2.5. Discussion**

This research shows the influence of cross-class interactions on students from lower-status backgrounds and the potentially stressful effects of interactions with higher-class individuals. Specifically, my results show a significant increase in blood pressure from baseline when participants interact with a partner from a higher-status background. Notably, cardiovascular reactivity to laboratory stressors has been linked to adverse cardiovascular outcomes (Schneiderman, 1987; Treiber et al., 2003). The failure to “shut off” the blood pressure response in the recovery phase of the experiment may be a sign of future risk for allostatic load. This finding in particular could have important implications for cross-class interactions and adverse health outcomes.

Participants with a similarly lower-SES partner, on the other hand, showed a significant drop in MAP reactivity during the stressor task. These results also showed significantly higher response rates during the RAT for participants interacting with a partner from a similarly lower-status background compared to participants interacting with a partner from a higher-status background and those interacting with a control partner. Both reactivity and performance findings could have important implications for future research and/or interventions for individuals from lower-status backgrounds within a performance setting (e.g., when taking an exam). These participants may have experienced an increase in social support from the presence of an in-group member, or may have felt less pressure to perform well because they were not competing against a higher-status individual. Perhaps increasing perceived social support or increasing the number of similarly lower-status individuals within a testing environment would be protective for individuals from a lower-SES background who experience the negative

consequences of stereotype threat when their status is made salient (see Spencer & Castano, 2007).

It is important to investigate further whether the MAP reactivity and performance effects during these interactions is unique to individuals from lower-SES backgrounds. Will individuals from higher-status backgrounds experience the same stress reactivity when interacting with someone from a different status-background out-group? Will they experience the same decrease in stress reactivity and improved performance with a similarly higher-status individual?

It is also important to better understand the experience of those participating in these cross- and same-class interactions. Are participants in the cross-class interactions experiencing some sort of cognitive interference (e.g. task rumination) during the RAT? Do they experience the RAT as a more stressful experience during a cross-class interaction compared to when they are with a similarly lower-status partner? Study 2 explores these questions.

## **CHAPTER 3**

### **STUDY 2**

Study 2 attempts to replicate the blood pressure reactivity results of the previous study and extends Study 1 by evaluating group differences on self-report measures of stress, task rumination, and self-esteem. I also evaluated perceived partner similarity after the task in order to evaluate whether peers from different SES backgrounds are perceived as less similar to participants. It is important to examine whether the blood pressure reactivity seen in Study 1 is due to the stress of cross-class interactions or whether these responses are unique to the experience of being a lower-status group member during a cross-class interaction.

I hypothesize that (1) those from lower-status backgrounds will display higher MAP reactivity when interacting with a higher-status partner, as well as display worse performance on the RAT, relative to when they interact with a similarly lower-status partner or when status is not mentioned. I also hypothesize that (2) these lower-SES participants with a higher-status partner will report higher appraisals of stress and task rumination and lower levels of self-esteem and partner similarity after the RAT compared to lower-SES individuals interacting with a similarly lower-status partner or a control partner.

I hypothesize that individuals from higher-status backgrounds will experience higher stress appraisals and task rumination and lower levels of self-esteem when interacting with a similarly higher-status partner compared to higher-SES individuals interacting with a lower-status or control partner. I hypothesize that the trend for a protective effect of in-group contact observed in Study 1 will be replicated in this study.

Specifically, I hypothesize (3) that lower-SES participants will experience a significant decrease in MAP during the RAT and (4) will be more engaged in the task than their similarly lower-status counterparts interacting with higher-status partners. Finally, because the cross-class interaction is a downward social interaction for participants higher in SES, (5) higher-SES individuals will likely not be as negatively impacted on any of the study variables in the cross-class interaction condition relative to the similar and control partner conditions.

### **3.1. Research Design**

Participants ( $N = 178$ , 61% female) were drawn from the psychology department subject pool. Participants from both lower *and* higher socioeconomic status backgrounds were invited to participate in the study. Lower-SES background was determined by the 2011 federal poverty level guidelines (Foundation for Health Coverage Education, 2011) using both family income and family size to select students who grew up poor or “near poor”- those living in households with incomes below 200% of the federal poverty line (Aber & Chaudry, 2010, National Center for Children in Poverty, 2009). Participants who reported a family income less than or equal to \$40,000 a year ( $M = \$23,093$ ,  $SD = \$8,644$ ) and also less than or equal to 4 on the MacArthur Scale ( $M = 3.44$ ,  $SD = 1.11$ ) were selected to participate. Individuals who reported a family income of \$125,000 a year or more when growing up ( $M = \$138,141$ ,  $SD = \$12,564$ ), which is more than two and a half times higher than the median household income in Maine and includes the top 12% of earners in the state (U.S. Census Bureau), as well as a rating of greater than or equal to 6 on the MacArthur Scale ( $M = 7.16$ ,  $SD = 1.02$ ) were selected to participate.

In order to reduce confounding variables (e.g., race, cohort effects), I used the psychology prescreening questionnaire to ensure participants were European American and between the ages of 18 and 24 ( $M = 18.68$ ,  $SD = .98$ ). Previous research has also shown that overweight individuals who believe their weight is visible to evaluators have heightened stress reactivity and impaired performance (Major et al., 2012). Because the partner manipulation included a visual component, I recruited only average-weight individuals for this study ( $M = 149.27$ ,  $SD = 25.86$ ). The data for three participants was lost or removed because of experimenter error and removed for three participants who reported doubt that their partner was real at the end of the experiment. The physiological data for four others were unusable because of mechanical difficulties with the recording equipment; however, their performance data could still be used, leaving 172 participants in the study.

### **3.2. Method**

The participant entered the lab and was given time to read and fill out the informed consent form and was also asked to report any skin problems or conditions (e.g., eczema) that existed (which would preclude participation). A wrist cuff blood pressure sensor was applied by a trained female researcher. All measurements were taken via BIOPAC hardware and recorded via ACQUIRE software.

After the participant was successfully connected to the blood pressure cuff, a five minute resting baseline was recorded. Following the completion of this baseline, pre-recorded audio instructions were played for the participant. The first instructions led the participant to believe they would be “meeting their partner,” but that there would be no audio hook-up between the rooms. A pre-recorded video of a confederate was displayed

on the screen and the participant was directed to wave to his/her partner. This gender-matched confederate in the video then waved back. These were the same confederate videos as in Study 1. Participants and confederates were matched by gender because gender has status meaning and is a potential confound (Ridgeway & Smith-Lovin, 1999). Pre-recorded instructions then informed the participant that video communication would end for the duration of the experiment and that the screen would be covered by the experimenter.

### **3.2.1. Status Disclosure Task**

The Status Disclosure Task was the same as in Study 1.

### **3.2.2. Manipulation Check**

After the status disclosure task, as a manipulation check, participants were asked to represent their partner's socioeconomic status background on the 1-10 MacArthur Scale of Subjective Social Status.

### **3.2.3. Remote Associates Test**

After completing questionnaires, participants were told that they would be competing against their partner on a revised version of the Remote Associates Test (RAT; Mednick, 1962; Appendix D). This version had 18 RAT items instead of the 14 items used in Study 1. They were also told that they would be judged both by how many questions they answer correctly and by how quickly they answered and that they were competing for entry into a drawing for a \$50 prize. This 18-item RAT was presented both visually as a PowerPoint presentation and as pre-recorded audio over the intercom system. Participants were asked to say their answers out loud and that their partner would

be completing the task at the same time (but that they would not be able to hear their partner's answers).

In the RAT, participants were presented with three words and asked to come up with the word that is most associated with those three. No feedback was provided during or after the task. This task took around five minutes. Performance during this task was recorded for later analysis.

#### **3.2.4. Recovery**

Participants then completed a number of questionnaires including stress appraisals, task rumination, self-esteem, and evaluations of partner similarity. These measures were added to the experiment to assess what might be occurring psychologically during the stress task to potentially help explain heightened physiological reactivity in specific conditions. Physiological reactivity was recorded for the first 5 minutes of this recovery period. Finally, the participants were debriefed about the experiment and any questions the participant had were answered. Experimenters were trained to ask questions about the believability of the confederate. Participants who did not believe their partner was real have been removed from all analyses.

### **3.3. Measures**

#### **3.3.1. Performance and Task Engagement**

Performance and task engagement on the RAT were recorded as in Study 1.

#### **3.3.2. Stress Appraisals**

A three item composite was used to assess stress appraisals after completion of the RAT (McCoy, Hutchinson, Hawthorne, Cosley, & Ell, 2013; "The previous task was

very stressful,” “The previous task was very demanding,” “The previous task took a lot of effort to complete;”  $\alpha = .83$ ).

### **3.3.3. Social Self-Esteem**

Seven items were used from the State Self-Esteem Scale to assess social self-esteem (Heatherton & Polivy, 1991; e.g. “Right now I am worried what other people think of me (reverse),” “Right now I am worried about looking foolish (reverse);”  $\alpha = .95$ ).

### **3.3.4. Performance Self-Esteem**

Seven items were used from the State Self-Esteem Scale to assess performance self-esteem (Heatherton & Polivy, 1991; e.g., “I feel confident about my abilities at this moment,” “Right now I feel frustrated or rattled by my performance (reverse);”  $\alpha = .83$ ).

### **3.3.5. Task Rumination**

Task rumination was assessed using four items from the Cognitive Interference Questionnaire (Sarason, 1978; “I thought about how I was doing,” “I thought about the difficulty of the problems,” “I thought about my level of ability,” “I thought about how often I get confused;”  $\alpha = .79$ ).

### **3.3.6. Partner Similarity**

Three items adapted from the Attitude Homophily Scale (McCroskey, McCroskey, & Richmond, 2006) assessed how similar the participants felt their partner was to them (“My partner and I are very similar,” “My partner and I have things in common,” “I think my partner is very much like me;”  $\alpha = .83$ ).

### **3.3.7. Mean Arterial Pressure Reactivity**

I collected hemodynamic data according to established guidelines (Sherwood et al., 1990) with a blood pressure cuff that uses a sweep technology over the radial artery to estimate blood pressure approximately every 15 seconds using a module manufactured by Biopac (Santa Barbara, CA). This equipment provided several measures including systolic blood pressure, \* diastolic blood pressure, and mean arterial blood pressure (MAP). I used Mindware software (Mindware Technologies, Gahanna, OH) to score and edit blood pressure responses. I calculated systolic, diastolic, and mean arterial blood pressure values at each minute of the experiment.

## **3.4. Results**

### **3.4.1. Preliminary Analysis**

For all variables, no violation of normality or outliers were detected. As in Study 1, cardiovascular responses were recorded during the 5-minute baseline, the 6-minute status disclosure activity, the 5-minute Remote Associates Test, and the 5-minute recovery period. I calculated mean values for blood pressure for each time period, and only the last three minutes of baseline physiology was used in analyses (Blascovich et al., 2001). A two (participant SES-background) by three (condition) mixed-model ANOVA on baseline MAP reveal that there was not a significant interaction of participant SES and condition ( $F(2, 141) = .32, p = .73, \eta_p^2 = .01$ ), nor was there a significant main effect of participant SES ( $F(1, 141) = .007, p = .93, \eta_p^2 < .001$ ) or a significant main effect of condition,  $F(2, 141) = 1.00, p = .37, \eta_p^2 = .01$ .

Analysis of demographic information (age, weight, self-reported family income, and MacArthur Scale) reveals no significant interactions between participant SES and

partner status condition (all  $ps > .29$ ) and no significant main effect of condition on any of these variables (all  $ps > .31$ ). There was also no main effect of participant SES on age or weight ( $ps > .43$ ). As expected, there was a significant main effect of participant SES on both self-reported family income and the MacArthur Scale ( $ps < .001$ ; see Table 3). There is, therefore, no evidence of a failure of random assignment or unintended group differences on these physiological and demographic variables. Importantly, there was only a main effect of participant SES on family income and the MacArthur Scale and no main effect of condition or significant interactions for these variables. In order to be consistent with Study 1, blood pressure data were analyzed separately for each participant status group, resulting in two separate 3 (status of confederate) by 3 (time period) mixed-model ANOVAs.<sup>1</sup> Analyses on single measures used a 2 (status of participant) by 3 (status of confederate) ANOVA design.

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<sup>1</sup>A two (status of participant) by three (status of partner) by three (time period) analyses revealed there was no evidence of an interaction,  $F(4, 294) = .59, p = .67, \eta_p^2 = .01$ .

Table 1: Descriptive and Inferential Statistics of Baseline CV Measures and Demographics by SES and Partner Condition.

Variable	Lower-SES participant			Higher-SES participant		
Condition	Higher-SES partner (N = 36), Mean (SD)	Lower-SES partner (N = 29), Mean (SD)	No-SES partner (N = 32), Mean (SD)	Higher-SES partner (N = 26), Mean (SD)	Lower-SES partner (N = 27), Mean (SD)	No-SES partner (N = 28), Mean (SD)
Mean arterial pressure, mm Hg (Baseline)	78.28 (10.75)	79.06 (7.81)	82.45 (10.77)	79.17 (8.94)	80.35 (8.48)	80.70 (12.82)
<b>Demographics</b>						
Age	18.75 (1.23)	18.76 (.95)	18.65 (.79)	18.92 (1.16)	18.37 (.74)	18.68 (.86)
Weight, lbs.	152.48 (27.26)	146.54 (28.78)	148.81 (26.05)	145.00 (22.63)	153.42 (28.44)	150.03 (22.90)
Yearly household income	24,583 (8,313)	22,069 (9,498)	22,344 (8,229)	136,957 (12,769)	140,741 (12,303)	136,607 (12,697)
MacArthur Scale	3.53 (.90)	3.46 (1.14)	3.52 (1.15)	6.72 (1.44)	7.31 (.97)	6.86 (1.62)

### **3.4.2. Manipulation check**

A two (participant SES-background) by three (condition) ANOVA reveal that there was a significant main effect of condition on perception of partners status,  $F(2, 146) = 61.12, p < .001, \eta_p^2 = .46$ . There was also a main effect of participant SES-background on perception of partner status,  $F(1, 146) = 10.88, p = .001, \eta_p^2 = .07$ . The interaction was not significant,  $F(2, 146) = .36, p = .70, \eta_p^2 = .01$ . Pairwise comparisons reveal that participants with a lower-status partner rated their partner lower on the MacArthur Scale ( $M = 3.83, SE = .20$ ) than both those in the higher-status partner condition ( $M = 6.78, SE = .19, p < .001$ ) and those in the control condition ( $M = 6.06, SE = .21, p < .001$ ). Participants in the higher-status partner condition also rated their partner significantly higher on the MacArthur Scale than those in the control condition ( $p = .01$ ). Participants from lower-SES backgrounds also rated their partner significantly lower overall on the MacArthur Scale ( $M = 5.18, SE = .16$ ) than their counterparts from higher-SES backgrounds ( $M = 5.93, SE = .17, p = .001$ ).

### **3.4.3. Mean Arterial Pressure Reactivity**

In order to make comparisons between the current study and Study 1, mean arterial pressure reactivity was computed separately for lower-SES participants and for higher-SES participants. MAP reactivity for both lower-SES and higher-SES participants can be seen in Figures 3 and 4, respectively.

#### **3.4.3.1. Lower-SES Participants**

To examine my hypotheses regarding the effect of partner condition, I collapsed across minutes during the three periods of the study (status disclosure task, RAT, recovery) and reactivity scores were calculated by subtracting baseline MAP from each

time period. To examine my hypotheses regarding the effect of partner condition, I conducted a 3(partner condition) X 3(time: Disclosure, RAT, Recovery) mixed-model ANOVA on blood pressure reactivity.

The time by condition interaction was not significant,  $F(4, 154) = 1.97, p = .10, \eta_p^2 = .05$ . In contrast to Study 1, neither the main effect of condition ( $F(2, 77) = 1.49, p = .23, \eta_p^2 = .04$ ) nor the main effect of time ( $F(2, 154) = 1.01, p = .37, \eta_p^2 = .01$ ) were significant.

Although the interaction was not significant, in order to be consistent with Study 1, the effect of time within each condition was examined with simple main effects (see Table 4). Consistent with predictions, participants with a higher status partner had a significant increase in reactivity during the Recovery relative to Disclosure ( $p = .02$ ; Overall  $F(2, 76) = 3.26, p = .04, \eta_p^2 = .08$ ). This reactivity in recovery was a marginal increase relative to baseline (0 = no change,  $t(27) = 1.94, p = .06$ ). No other comparisons were significant for the higher-status partner condition ( $ps > .11$ ).

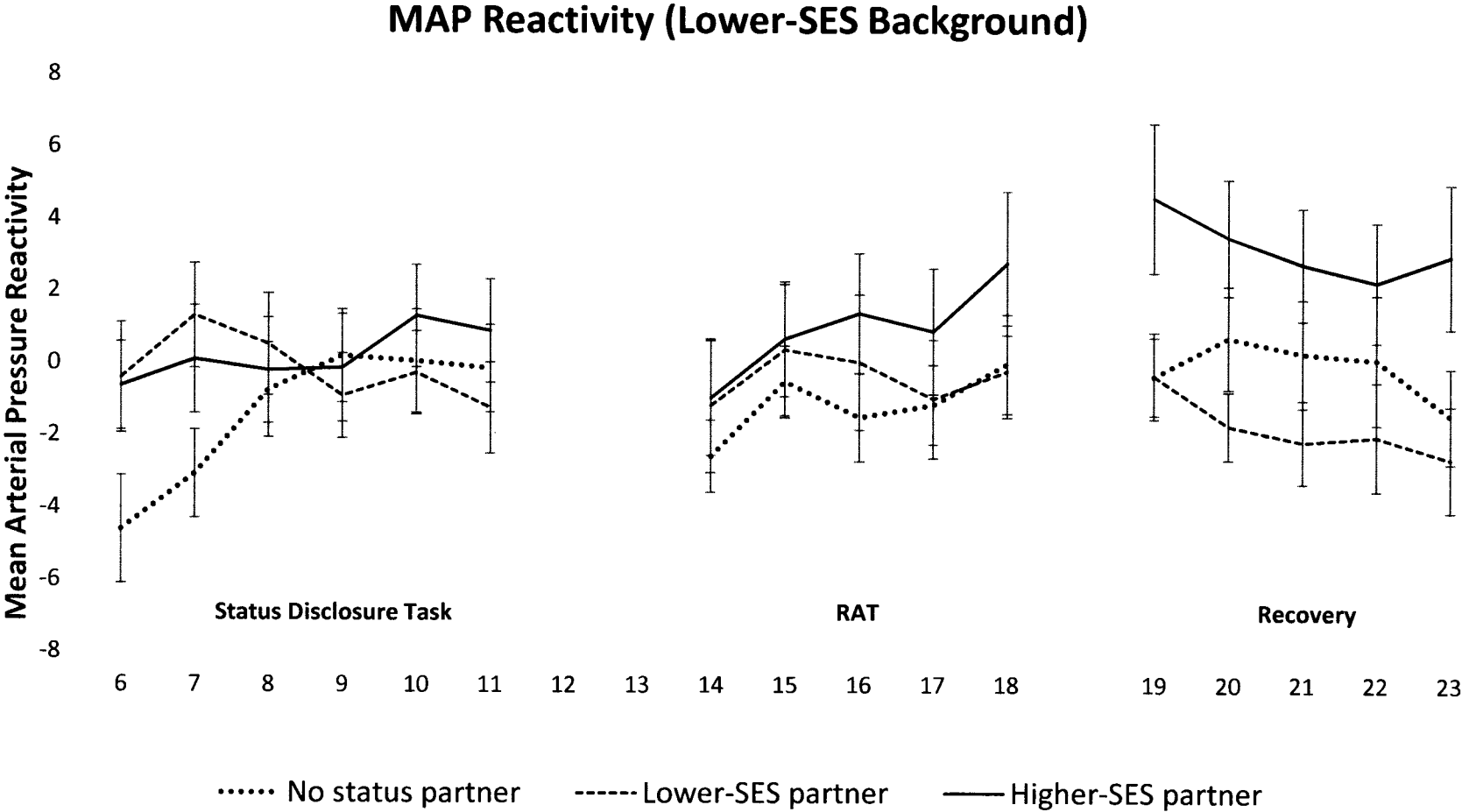
This effect was not observed in the control condition when status was not mentioned. The effect of time was not significant, indicating no change in blood pressure,  $F(2, 76) = .72, p = .49, \eta_p^2 = .02$ . The effect was also not observed in the lower-status partner condition. The effect of time was not significant, indicating no change in blood pressure,  $F(2, 76) = 1.29, p = .28, \eta_p^2 = .03$ .

Table 4: Mean Arterial Pressure Reactivity for Lower-SES Participants

Condition	Higher-SES partner ( <i>N</i> = 27), Mean (SE)	Lower-SES partner ( <i>N</i> = 25), Mean (SE)	No-SES partner ( <i>N</i> = 25), Mean (SE)
Time period			
Status Disclosure Task	.12 (1.19) <sub>a</sub>	-.30 (1.21)	-1.39 (1.02)
Remote Associates Task	.94 (1.54)	-.41 (1.57)	-.91 (.94)
Recovery	3.21 (1.65) <sub>b</sub>	-1.78 (1.09)	.10 (1.26)

*Note: Means with different subscripts in the same column are significantly different at  $p < .05$ .*

Figure 3: Mean Arterial Pressure Reactivity by Condition and Post Baseline Minute for Individuals from Lower-SES Backgrounds



*Note: Analyses conducted on average across minutes within each task period. Error bars are +/- SEM.*

### 3.4.3.2. Higher-SES Participants.

The 3 (time) by 3 (condition) interaction was not significant,  $F(4, 140) = .42, p = .80, \eta_p^2 = .01$ . The main effect of condition ( $F(2, 70) = 1.50, p = .23, \eta_p^2 = .04$ ) and main effect of time ( $F(2, 140) = .06, p = .94, \eta_p^2 = .001$ ) were also not significant.

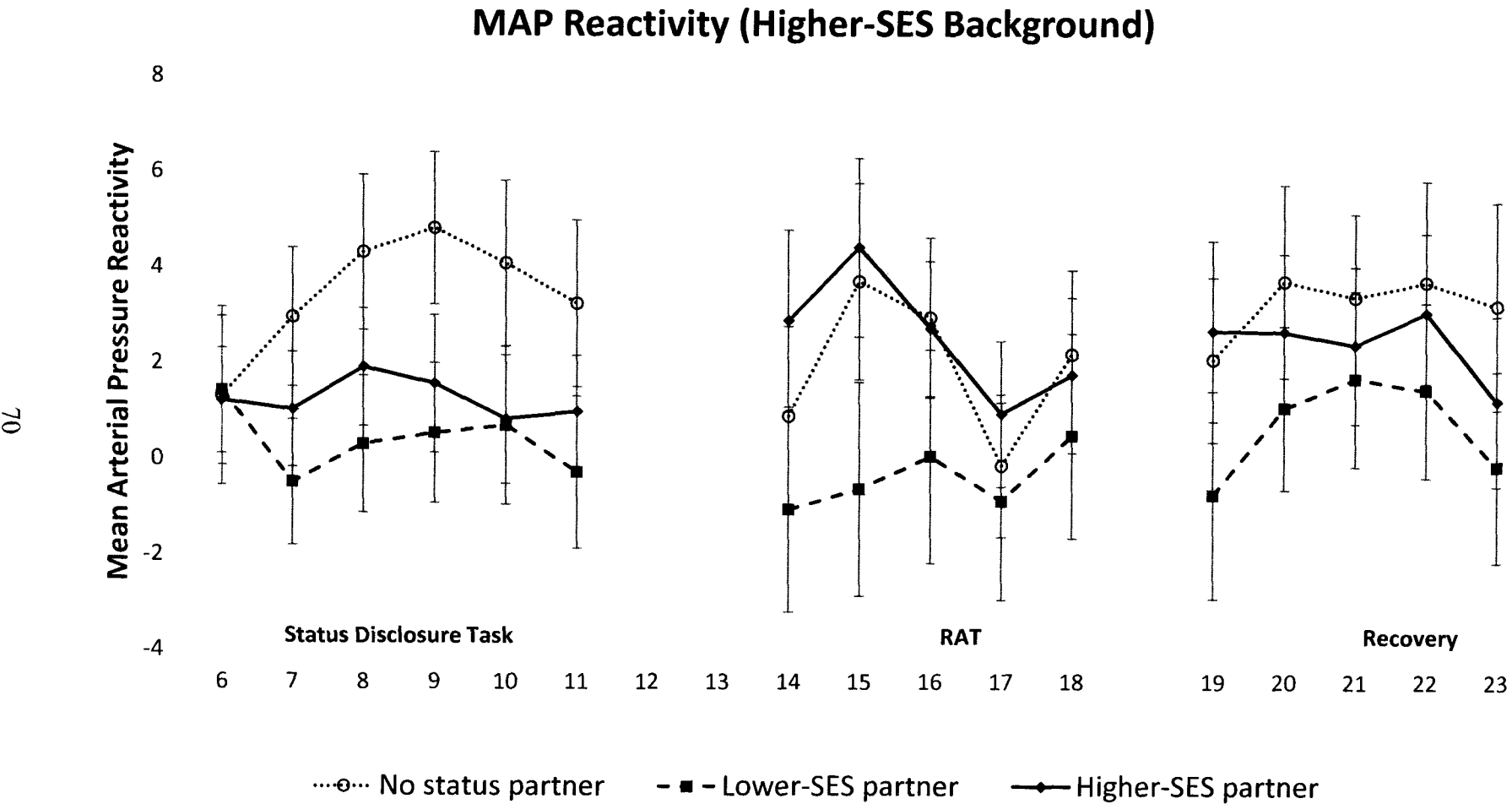
In order to be consistent with both Study 1 and previous analyses for lower-SES participants, the effect of time within each condition was examined with simple main effects (see Table 5). The effect of time was not significant, indicating no change in blood pressure, in the higher-status condition ( $F(2, 70) = .08, p = .92, \eta_p^2 = .002$ ), the lower-status condition ( $F(2, 70) = .09, p = .91, \eta_p^2 = .003$ ), and the control condition,  $F(2, 70) = .55, p = .58, \eta_p^2 = .02$ .

Table 5: Mean Arterial Pressure Reactivity for Higher-SES Participants

Condition	Higher-SES partner ( $N = 24$ ), Mean (SE)	Lower-SES partner ( $N = 25$ ), Mean (SE)	No-SES partner ( $N = 21$ ), Mean (SE)
Time period			
Status Disclosure Task	1.50 (1.14)	.37 (1.33)	3.51 (1.31)
Remote Associates Task	2.64 (1.37)	-.21 (2.00)	2.25 (1.52)
Recovery	2.41 (1.61)	-.56 (1.95)	3.05 (1.73)

*Note: There were no significant differences between any of these means.*

Figure 4: Mean Arterial Pressure Reactivity by Condition and Post Baseline Minute for Individuals from Higher-SES Backgrounds



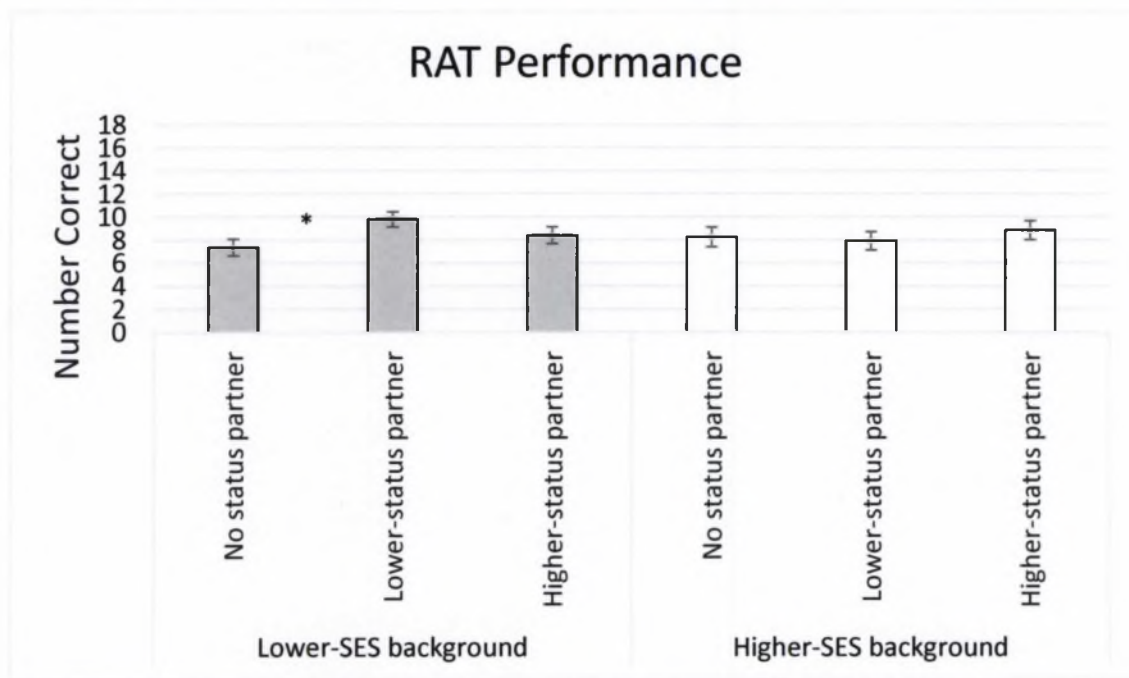
*Note: Analyses conducted on average across minutes within each task period. Error bars are +/- SEM.*

#### 3.4.4. Performance

A two (participant SES-background) by three (condition) ANOVA revealed there was not a significant interaction between participant SES-background and condition on number correct on the RAT,  $F(2, 162) = 1.93, p = .15, \eta_p^2 = .02$ . There was also not a significant main effect of condition on number correct ( $F(2, 162) = .94, p = .39, \eta_p^2 = .01$ ), nor a significant main effect of participant SES-background on number correct,  $F(1, 162) = .03, p = .86, \eta_p^2 < .001$ .

Based on a priori hypotheses, and to be consistent with Study 1, further examination of these effects within participant SES condition was conducted. Contrary to predictions, there was no significant difference between the lower-SES partner condition compared to the higher-SES partner condition ( $M = 8.41, SE = .72, p = .17$ ), nor was there a significant difference between those in the higher-SES condition and those in the control condition ( $p = .28$ ). However, individuals from lower-SES backgrounds performed significantly better ( $M = 9.79, SE = .67$ ) when they had a similarly lower-SES partner compared to when socioeconomic status was not revealed ( $M = 7.37, SE = .73, p = .02$ ). There were no significant differences between individuals from higher-SES backgrounds in the lower-SES condition ( $M = 7.92, SE = .80$ ), the higher-SES condition ( $M = 8.84, SE = .82$ ), or the control condition ( $M = 8.26, SE = .85$ ; all  $ps > .57$ ). See Figure 5.

Figure 5: Performance on the RAT by Condition and SES-Background of Participant



Note: \* $p = .02$ .

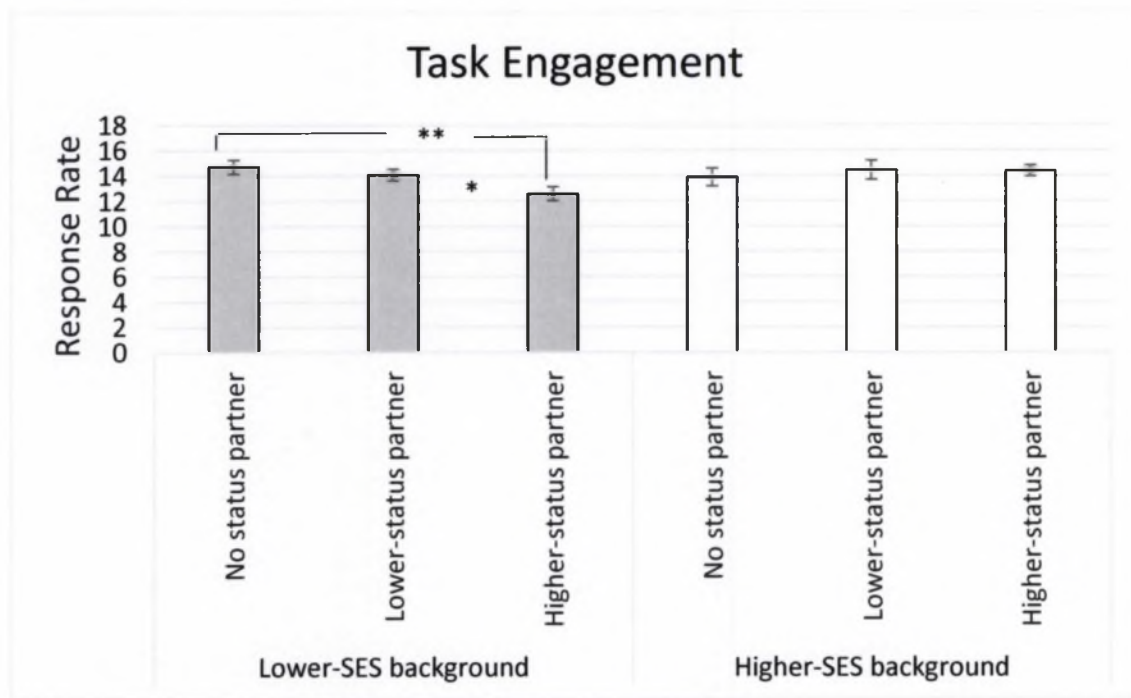
### 3.4.5. Task Engagement

A two (participant SES-background) by three (condition) ANOVA revealed a marginally significant interaction between participant SES-background, condition, and response rate on the RAT,  $F(2, 162) = 2.63, p = .07, \eta_p^2 = .03$ . There was not a significant main effect of condition on response rate ( $F(2, 162) = 1.32, p = .27, \eta_p^2 = .02$ ), nor a significant main effect of participant SES-background on response rate,  $F(1, 162) = .85, p = .36, \eta_p^2 = .01$ .

Further analyses revealed that individuals from lower-SES backgrounds had a significantly lower response rate when they had a higher-SES partner ( $M = 12.58, SE = .54$ ) compared to when they had a lower-SES partner ( $M = 14.07, SE = .45, p = .04$ ) and compared to when they had a control partner ( $M = 14.73, SE = .55, p = .004$ ). There was

no significant difference between the lower-SES partner condition compared to the control partner condition ( $p = .38$ ). For individuals from higher-SES backgrounds, there were no significant differences between individuals from higher-SES backgrounds in the lower-status partner condition ( $M = 14.44$ ,  $SE = .75$ ), the higher-status partner condition ( $M = 14.37$ ,  $SE = .43$ ), or the control condition ( $M = 13.88$ ,  $SE = .71$ ; all  $ps > .54$ ). See Figure 6.

Figure 6: Task Engagement on the RAT by Condition and SES-Background of Participant



Note: \* $p = .04$ , \*\* $p = .004$ .

### 3.4.6. Stress Appraisals

The interaction of participant SES and partner status on stress appraisals was not significant,  $F(2, 160) = .05$ ,  $p = .96$ ,  $\eta_p^2 = .001$ . The main effect of participant SES ( $F(1, 160) = .79$ ,  $p = .37$ ,  $\eta_p^2 = .005$ ) and the main effect of condition ( $F(2, 160) = .45$ ,  $p = .64$ ,

$\eta_p^2 = .006$ ) were also not significant. There were no significant differences between any conditions on appraisals of stress after the RAT ( $ps > .40$ ). On average, participants found the task to be moderately stressful with the mean around the midpoint on a 0-6 scale ( $M = 3.06$ ,  $SD = 1.37$ ). My hypothesis that individuals from lower-SES backgrounds with higher-status partners would have higher stress appraisals was not supported.

#### **3.4.7. Social Self-Esteem**

The interaction of participant SES and partner status on social self-esteem was not significant,  $F(2, 160) = .49$ ,  $p = .61$ ,  $\eta_p^2 = .01$ . The main effect of condition was also not significant,  $F(2, 160) = .16$ ,  $p = .85$ ,  $\eta_p^2 = .002$ . The main effect of participant SES was marginally significant,  $F(1, 160) = 3.15$ ,  $p = .08$ ,  $\eta_p^2 = .02$ . Tukey's post-hoc analysis reveal that individuals from higher-SES backgrounds report marginally higher social self-esteem ( $M = 4.24$ ,  $SE = .18$ ) than their lower-SES counterparts ( $M = 3.80$ ,  $SE = .17$ ,  $p = .06$ ) after the RAT. There were no significant differences by partner condition after the RAT ( $ps > .31$ ). Although lower-SES participants evidenced lower social self-esteem than higher-SES participants, this was not restricted to the cross-class interaction. Thus, my hypothesis that individuals from lower-SES backgrounds with higher-status partners would have lower social self-esteem was not supported.

#### **3.4.8. Performance Self-Esteem**

The interaction of participant SES and partner status on performance self-esteem was not significant,  $F(2, 160) = .39$ ,  $p = .68$ ,  $\eta_p^2 = .005$ . The main effect of condition ( $F(2, 160) = 1.50$ ,  $p = .23$ ,  $\eta_p^2 = .02$ ) and the main effect of participant SES background ( $F(1, 160) = 2.68$ ,  $p = .10$ ,  $\eta_p^2 = .02$ ) were also not significant. Further analyses show marginally higher performance self-esteem for individuals from higher-status

backgrounds with lower-status partners ( $M = 4.24$ ,  $SE = .21$ ) compared to individuals from higher-status backgrounds in the control condition ( $M = 3.73$ ,  $SE = .23$ ,  $p = .07$ ). No other relationships were significant ( $ps > .40$ ). My hypothesis that individuals from lower-SES backgrounds with higher-status partners would have lower performance self-esteem was not supported.

#### **3.4.9. Task Rumination**

The interaction between participant SES and partner status on task rumination was not significant,  $F(2, 160) = .014$ ,  $p = .99$ ,  $\eta_p^2 < .001$ . The main effect of condition ( $F(2, 160) = .76$ ,  $p = .47$ ,  $\eta_p^2 = .009$ ) was also not significant. There was a marginally significant main effect of participant SES background on task rumination,  $F(1, 160) = 3.29$ ,  $p = .07$ ,  $\eta_p^2 = .02$ . Pairwise comparisons reveal that individuals from higher SES backgrounds reported marginally lower levels of task rumination ( $M = 2.95$ ,  $SE = .10$ ) compared to their lower-SES counterparts ( $M = 3.20$ ,  $SE = .09$ ) after the RAT. There were no significant differences between any conditions on task rumination after the RAT ( $ps > .37$ ). My hypothesis that individuals from lower-SES backgrounds with higher-status partners would have higher task rumination was not supported.

#### **3.4.10. Partner Similarity**

The interaction of participant SES background and partner status on perceptions of similarity with the interaction partner was significant,  $F(2, 160) = 11.80$ ,  $p < .001$ ,  $\eta_p^2 = .13$ . Neither the main effect of participant SES background ( $F(1, 160) = .007$ ,  $p = .93$ ,  $\eta_p^2 < .001$ ) nor the main effect of partner status condition ( $F(2, 160) = 1.39$ ,  $p = .25$ ,  $\eta_p^2 = .02$ ) on perceptions of partner similarity were significant after the RAT. As hypothesized, further analyses revealed that participants from lower-SES backgrounds

perceive lower-status partners as more similar ( $M = 3.38$ ,  $SE = .13$ ) than both partners from higher-status backgrounds ( $M = 2.22$ ,  $SE = .19$ ,  $p < .001$ ) and when status was not disclosed ( $M = 2.81$ ,  $SE = .17$ ,  $p = .02$ ). Individuals from lower-SES backgrounds also perceived individuals from higher-status backgrounds as less similar to themselves than those in the control condition ( $p = .01$ ).

Also as hypothesized, individuals from higher-SES backgrounds perceived their partner as significantly more similar in the higher-status partner condition ( $M = 3.06$ ,  $SE = .21$ ) compared to those in the lower-status partner condition ( $M = 2.48$ ,  $SE = .18$ ,  $p = .04$ ). However, there was not a significant difference between those in the higher-status condition and those in the control condition ( $p = .55$ ), nor was there a significant difference in perceived partner similarity between those in the control condition and those in the lower-status partner condition ( $p = .15$ ).

### **3.5. Discussion**

Findings from Study 1 were partially replicated in Study 2. Participants from lower-SES backgrounds interacting with a higher-status partner evidenced a marginally significant rise in MAP from baseline during the recovery period. In addition, they showed a significantly higher MAP reactivity during the recovery period compared to participants from lower-SES backgrounds interacting with a lower-status partner. As hypothesized, and as was seen in Study 1, individuals from lower-SES backgrounds with a higher-status partner also showed significantly less task engagement than individuals participating with a lower-status partner and a control partner.

These results help illuminate the potential negative consequences (e.g., heightened stress reactivity, lower task engagement) that may accompany cross-class interactions for individuals from lower-SES backgrounds. Although the hypothesized drop in MAP reactivity for lower-SES participants with a lower-status partner was not supported by these results, these individuals did show a significantly better performance on the RAT than those in the control condition. This may lend some support to the positive impact of the presence of in-group members during challenging tasks.

These results show that, contrary to hypotheses, there were no significant differences across condition on appraisals of stress, self-esteem, or task rumination after the RAT, indicating that the self-reported experiences of all participants were not different on these variables. However, consistent with research on lower-SES group membership, social self-esteem was marginally lower overall compared to their higher-SES counterparts.

The hypothesized pattern of results for partner similarity was significant. Individuals from lower-SES backgrounds rated lower-status partners as more similar to them compared to their lower-SES counterparts interacting with a control or higher-status partner. It is also important to note that these individuals also rated a control partner as more similar to them than those in the higher-partner condition. Perhaps at a certain level of dissimilarity, these physiological and performance effects begin to appear. Again, further research would shed light on this effect.

As hypothesized, individuals from higher-SES backgrounds rated both a higher-status partner and a control partner as more similar to them than individuals interacting with a lower-status partner. For both individuals from low- and high-SES backgrounds,

socioeconomic status was perceived as an important factor for identifying those who are, and who are not, similar, which may have important real-world implications during cross-class interactions where status is disclosed.

These cross-class interactions may be particularly impactful for individuals from lower-SES backgrounds. Individuals from higher-status backgrounds should be mindful of creating a threatening cross-class interaction for individuals lower in SES. Some of the questions they ask (e.g., “Did you have a car in high school?” “Where did you go to summer camp when you were growing up?”) within a social interaction may require their interaction partner to disclose their status background. This disclosure may be stressful or may lead to disengagement on a task or from the conversation. Individuals commonly engaging in cross-class interaction settings (e.g. clinicians or professors from higher-SES backgrounds with clients or students from lower-SES backgrounds) may also be making socioeconomic status salient within these interactions, perhaps without even realizing it. For these individuals from higher-SES backgrounds, sharing experiences that are status salient (e.g. a backpacking trip through Europe, a summer home on the beach) could be enough to activate these reactions among individuals lower in SES.

It may also be important for individuals from lower-SES backgrounds to be aware of the negative consequences of cross-class interactions. These physiological and performance responses could be an important reason why an interview did not go well, why a social interaction ended awkwardly, or why a relationship with a doctor or other care-provider may feel strained. Awareness of the potential consequences of cross-class interactions, or disclosure of one’s SES background during a cross-class interaction, may be an important first step in overcoming those challenges and improving relationships. In

fact, a recent one-hour long intervention for first-generation college students which focused on understanding how their background may influence their college experiences was found to significantly reduce the achievement gap for these students (Stephens, Hamedani, & Destin, 2014). The potentially protective effects of contact with other individuals from lower-SES backgrounds may also be important, especially within a domain where negative stereotypes may be particularly salient (e.g. higher education). Unfortunately, because of the devalued and concealable nature of SES background, this in-group contact may be limited.

Individuals from lower-SES background who have beat the odds and are in college may also have important skills in coping with cross-class interactions, as they will be faced with those interactions often. This is one major limitation of the current study. Although these individuals are from low-SES backgrounds, they may not be representative of others from that group. These individuals are in college and have perhaps successfully learned how to maneuver within stigmatizing domains like higher education. These individuals could also be less aware or less conscious of the negative stereotypes about their group than others from lower-SES backgrounds and may therefore be more likely to go to or succeed in college or other stigmatizing domains. It would therefore be interesting to have a same-age comparison group of individuals from lower-SES backgrounds who did not go to college. As there is still an increase in MAP reactivity for these individuals, it may be that those who aren't in college or used to these cross-class interactions would actually experience even higher levels of blood pressure reactivity and lower levels of performance during cross-class interactions.

As the experiment involved coming into a laboratory on campus, study participants (no matter their SES background) may have been more social, outgoing, or open to new experiences, in general, and may have less negative experiences overall during social interactions because of these personality traits. Future research should add measures in prescreening to see if there are differences between participants who participate and those who decline to participate in research studies.

Importantly, the blood pressure reactivity in Study 2 is much more subdued than the reactivity in Study 1 (as evidenced by the range of values). I theorize that this is because of the failure experience for individuals during the RAT in Study 1, which in itself is stressful (Pruessner, Hellhammer, & Kirschbaum, 1999). Because individuals in Study 2 were more successful during the RAT, they may have assessed the situation as less stressful or threatening and therefore may have experienced less overall stress reactivity. Future research manipulating stress and failure experiences for individuals from lower-SES backgrounds would be particularly informative.

Despite long standing calls for research on social class differences (Berger, 2000; Tinto, 1987), when social class is considered, researchers often control for social class differences rather than focusing on how those differences may shape experiences and outcomes. As Ostrove and Cole (2003) argue, it is important to move beyond class or status as a descriptor or demographic control variable and to move beyond focusing on class differences and instead look at class as a social identity. Social identity, and the accompanying stigma for socially devalued groups, may have important implications for individuals from lower-status backgrounds, particularly in stigmatizing domains.

Individuals from lower-SES backgrounds may be motivated to avoid cross-class interactions or stigmatizing domains in order to protect themselves from uncomfortable interactions or from threats to their self-esteem. Avoiding these situations might be adaptive in the short term, but many interactions with higher-status others are essential for things like academic achievement (higher education), mental health (clinical psychologists/counselors), and physical health (doctors). It is important to understand that cross-class interactions can be physiologically stressful and may lead to worse performance on certain tasks, particularly for individuals from lower-status backgrounds, which might help explain the lack of social mobility among the poor.

Avoiding stigmatizing domains, like academics, because of perceived stigma against the group, may also occur long before individuals attend college, and these variables may even be important for explaining why certain individuals choose to attend college altogether. To explore this further, I designed a study to assess the impact of stigma consciousness on self-esteem and achievement motivation for high-school students from lower-SES backgrounds.

## **CHAPTER 4**

### **STUDY 3**

#### **4.1. Hypotheses**

Although the experiences of individuals from lower-SES backgrounds in stigmatizing domains (like higher education) may be stressful, it is also important to consider why these students might avoid or disengage from these stigmatizing domains altogether. Tellingly, college enrollment of high-school students from lower-SES groups is a major challenge for institutions of higher education (Gaus, 2003), particularly for selective institutions (Brooks, 2005). Study 3 examines the impact of stigma consciousness, and of a college-preparatory summer program called Upward Bound, on high-school students from lower-status backgrounds who would be first-generation college students.

The federally funded Upward Bound program is designed to support high school students from lower-status backgrounds who are interested in attending college and who will be first-generation college students (i.e., neither parent has a bachelor's degree). During a six-week summer program, students are provided with the opportunity to attend college-like courses and work on college-level projects during the day. The program provides a positive and safe environment and while providing role models through "tutoring, counseling, (and) mentoring" (Upward Bound Program, n. d.). This program is also rooted in educational theory that encourages students to think more positively in order to overcome adversity. These strategies are encouraged through modeling, through programming and speakers, and through program-wide and summer-long themes (e.g., "Find your higher ground," "I am the author of my own life," "Do what you can, with what you have, where you are," etc.).

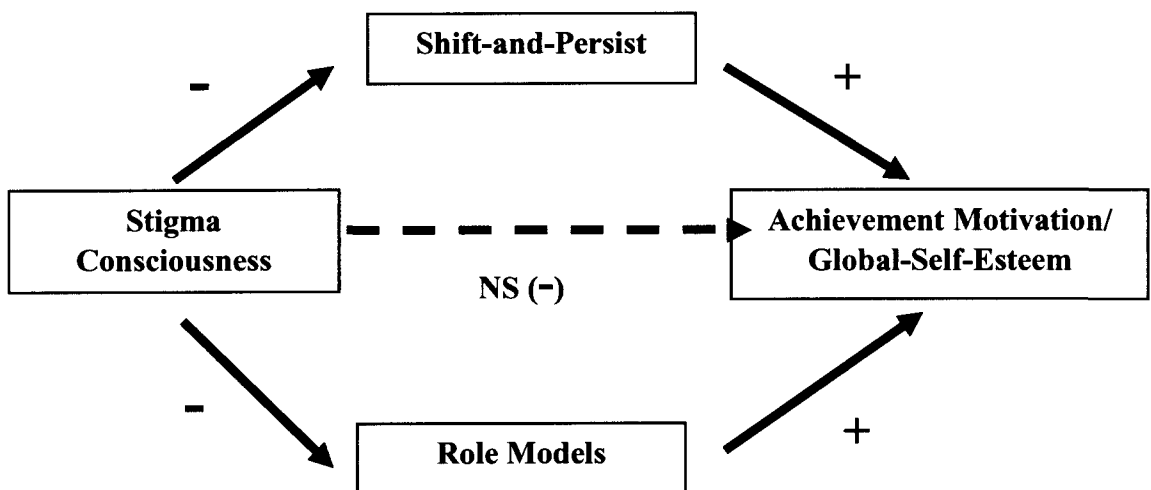
These strategies are similar to the shift-and-persist strategies that have been theorized to be important protective factors for individuals from low SES backgrounds (Chen & Miller, 2012). It is therefore important to study the potential impact of this six-week program for students from low-status and first-generation backgrounds. I hypothesize that, at the end of the program, students will show an increase in both self-esteem and perception of positive role models, as well as more shift-and-persist strategies relative to the beginning of the program.

Programming at Upward Bound is designed to help students rise above the negative expectations that accompany their group membership. However, there may be an unintended consequence. By bringing these individuals together based solely on their group membership because of the challenges their group has in achieving academically, individuals may be more conscious about the impact of the negative stereotypes related to their group membership (e.g., lazy, stupid) when the program begins. I therefore hypothesize that, at the beginning of the program, individuals higher in stigma consciousness may feel uncomfortable with or try to distance themselves from the stereotyped in-group in order to protect themselves from those negative stereotypes. However, at the end of the program, after spending time with individuals from their in-group, these individuals may be more likely to derogate the out-group (individuals from higher-status backgrounds) in order to make their in-group seem better (Steele & Aronson, 1995).

Also, because of the tendency for individuals higher in stigma consciousness to disengage from stigmatizing domains (e.g., Major & Schmader, 1998; Major et al., 1998), I predict that individuals who perceive more stigma based on their socioeconomic

status background will show less achievement motivation and lower levels of self-esteem. Importantly, research has recently hypothesized that emotional skills like a persisting positive outlook on life (Chen et al., 2012; Chen & Miller, 2012) and the perception that one has positive role models (Hurd, Zimmerman, & Xue, 2009) are both related to less negative outcomes for students from lower-SES backgrounds. I therefore predict that possessing higher levels of shift-and-persist strategies and higher levels of perceived positive role models may lessen the impact of stigma consciousness on self-esteem and achievement motivation (See Figure 7).

Figure 7: Hypothesized Model of the Mediating Effect of Shift-and-Persist Strategies and Perceived Positive Role Models on the Effect of Stigma Consciousness by DV at Time 1, Study 3



Because of the nature of the Upward Bound program, which specifically focuses on the introduction of positive role models through tutors, counselors, and mentors, and encourages shift-and-persist strategies through its programming, I hypothesize that perceived role models and shift-and-persist strategies will both be significantly higher at the end of the program (time 2) compared to at the beginning of the program (time 1).

I also believe that students may learn through the program that, although stigma against their group may exist, they shouldn't let that awareness negatively impact other factors in their lives. I therefore hypothesize that the relationship between stigma consciousness, achievement motivation, and self-esteem predicted above for the beginning of the program will no longer be present at the end of the program.

#### **4.2. Participants**

Participants ( $N = 63$ ;  $M_{age} = 16.7$ ,  $SD_{age} = .90$ ; 57% female, 41% male, 2% other; 81% Caucasian, 6% African American, 6% Asian American, 3% Hispanic, 2% American Indian, 2% Mixed) identified by the Upward Bound summer program as coming from a low-status background and who would be first-generation college students, were invited to participate in the study. First-generation was operationalized by the Upward Bound program as the absence of a bachelor's degree by both parents and/or primary guardian. Any student under the age of 18 had parental permission to participate in the study. Twelve students completed the survey at Time 1 only. There were no significant differences between these individuals and those who completed both time points of the survey on any of the Time 1 measures presented below (all  $ps > .13$ ).

### **4.3. Method**

On the first day of the summer program, participants were led into a large classroom and given a survey which included an informed assent form for students under 18 years of age and informed consent for those students 18 years old or older. They had about an hour to complete the survey. On the second-to-last day of the Upward Bound program, the students returned to the same classroom and completed the same survey for a second time. After all packets were completed, participants were debriefed about the experiment and any questions the participants had were answered.

### **4.4. Measures**

See Appendix E.

#### **4.4.1. Stigma Consciousness**

Ten items were adapted from the stigma consciousness questionnaire (Pinel, 1999) in order to measure the level of stigma consciousness for individuals from lower-status backgrounds (e.g., “I feel that I am discriminated against because I grew up poor,” “Stereotypes about the poor have impacted me personally;”  $\alpha = .70$ ). Participants are asked to rate the degree to which they agree with the statements on a 7-point Likert scale from 0- Strongly disagree to 6-Strongly agree. This was also measured at the end of the program ( $\alpha = .82$ ).

#### **4.4.2. Achievement Motivation**

Thirteen items adapted from the Achievement Motivation Scale (Gjesme, 1971) were used to measure achievement motivation (e.g., “I push myself a lot to perform well,” “I work hard to be successful;”  $\alpha = .90$ ). Participants were asked to rate the degree

to which they agree with the statements on a 7-point Likert scale from 0- Strongly disagree to 6-Strongly agree. This was also measured at the end of the program ( $\alpha = .90$ ).

#### **4.4.3. Shift-and-persist Strategies**

Nine items from the Persistence in Goal Striving and Positive Reappraisals subscales of the Primary and Secondary Control Questionnaire (“I can find something positive, even in the worst situations;”  $\alpha = .85$ ; Wrosch et al., 2000) were combined to assess the level of students’ shift-and-persist strategies (Chen et al., 2012). Participants were asked to rate the degree to which they agree with the statements on a 7-point Likert scale from 0- Strongly disagree to 6-Strongly agree. This was also measured at the end of the program ( $\alpha = .91$ ).

#### **4.4.4. Global Self-Esteem**

The ten item Self-Esteem scale (e.g., “Right now, I am able to do things as well as most people;” Rosenberg, 1965) was used to assess current self-esteem of students before ( $\alpha = .82$ ) and after ( $\alpha = .83$ ) the summer program. Items are rated on a 0-6 Likert from 0- Not at all to 6-Very much.

#### **4.4.5. Perception of Positive Role Models**

A measure of perceived role models was created for this study to examine students’ perceptions of role models successful in the stereotype specific domain (i.e., college). This measure included 8-items (e.g., “People like me are successful in college,” “I know a lot of people who come from a similar background as me who went to college;”  $\alpha = .81$ ) and was rated on a 7-point Likert scale from 0-Strongly disagree to 6-Strongly agree. This was also measured at the end of the program ( $\alpha = .85$ ).

#### **4.4.6. Attitudes toward the In-Group/Out-Group**

The Socioeconomic Status Attitudes Scale was adapted from the Intergroup Anxiety Scale (Stephan & Stephan, 1985) and the Intergroup Attitude Scale (Stephan, Ageyev, Coates-Shrider, Stephan, & Abalakina, 1994). These 6-item subscales require participants to imagine interacting with someone from the same socioeconomic status as them ( $\alpha_1 = .79$ ;  $\alpha_2 = .85$ ) or who grew up very wealthy ( $\alpha_1 = .86$ ;  $\alpha_2 = .93$ ). They were then asked to rate how they would feel during that interaction (e.g., uncomfortable, anxious, awkward) on a scale from 0-Not at all to 9-Extremely.

#### **4.4.7. Subjective Family Social Status**

Subjective family social status was measured at the beginning and end of the program using an adapted version of the MacArthur Scale of Subjective Socioeconomic Status (Adler et al., 2000) which asked students to rate where they would place their family's social status when they were growing up.

### **4.5. Results**

#### **4.5.1. Preliminary Analyses (Time 1)**

Correlations among the variables in the analyses at Time 1 are presented in Table 5. As predicted, at Time 1 there was a significant relationship between stigma consciousness and shift-and-persist strategies, perceived positive role models, achievement motivation, negative attitudes toward the in-group, and global self-esteem. It is also interesting to note that, within this sample, subjective social status was not related to any other measure in the study.

Table 6. Correlations, Standard Deviation and Means for Observed Variables (Time 1)

	1	2	3	4	5	6	7	8
1. Stigma Consciousness	—	—	—	—	—	—	—	—
2. Shift & Persist	-.47***	—	—	—	—	—	—	—
3. Role Models	-.43**	.37**	—	—	—	—	—	—
4. Achievement Motivation	-.49***	.57***	.41**	—	—	—	—	—
5. Attitudes Toward In- Group	-.32*	.36**	.26*	.22	—	—	—	—
6. Attitudes Toward Out- Group	-.23	.42**	.18	.29*	.33**	—	—	—
7. Global Self-Esteem	-.35**	.59***	.54***	.41**	.40**	.27*	—	—
8. Subjective Status	.15	.06	.13	-.06	-.13	-.02	.07	—
Mean(SD) Time 1	1.65 (.90)	3.71 (1.06)	3.73 (.98)	4.21 (1.00)	5.03 (1.34)	3.70 (1.84)	4.17 (1.34)	4.44 (2.04)

Note: \* $p < .05$  \*\* $p < .01$  \*\*\* $p < .001$

#### **4.5.2. Testing the Hypothesized Model**

I proposed that stigma consciousness would reduce perceptions of positive role models and shift-and-persist strategies which, in turn, would lead to lower achievement motivation and lower self-esteem. To test this mediational hypothesis, I entered both mediators simultaneously into the model predicting each DV (self-esteem, achievement motivation) from stigma consciousness. Evidence supportive of this hypothesis would be significant indirect effects of stigma consciousness through each mediator (see Figure 8 for hypothesized model) and the direct effect of stigma consciousness on the DVs would be reduced.

These hypotheses were tested using mediational models (Baron & Kenny, 1986) with bootstrap estimations of the indirect effect and bias corrected and accelerated estimates of the 95% confidence interval (CI) for the indirect effect based on 5,000 samples (Preacher & Hayes, 2008).

##### **4.5.2.1. Achievement Motivation**

Consistent with hypotheses, positive role models and shift-and-persist strategies mediated the effect of stigma consciousness on achievement motivation (see top panel Figure 9:  $R^2=.22$ ,  $F(1, 60)=16.85$ ,  $p<.001$ ). The model accounted for 22% of the variance in achievement motivation. As predicted, both indirect effects were significant. The indirect effect of stigma consciousness via shift-and-persist strategies was significant (point estimate for indirect effect =  $-.21$ , BCa 95% CI:  $-.45$  to  $-.04$ ) and the indirect effect of stigma consciousness via role models was significant (point estimate for indirect effect =  $-.08$ , BCa 95% CI:  $-.21$  to  $-.01$ ). In the presence of the mediators, the direct of stigma consciousness was no longer significant. The model suggests that stigma consciousness

negatively impacts achievement motivation by decreasing both role models and use of shift-and-persist strategies. This suggests that increasing role models and shift-and-persist strategy use may mitigate the impact of stigma consciousness on achievement motivation.

#### **4.5.2.2. Self-esteem.**

Consistent with hypotheses, perceived positive role models and shift-and-persist strategies mediated the effect of stigma consciousness on achievement motivation (see bottom panel Figure 10:  $R^2=.48$ ,  $F(1, 60)=17.65$ ,  $p<.001$ ). The model accounted for 48% of the variance in self-esteem. As predicted, both indirect effects were significant. The indirect effect of stigma consciousness via shift-and-persist strategies was significant (point estimate for indirect effect =  $-.32$ , BCa 95% CI:  $-.59$  to  $-.13$ ) and the indirect effect of stigma consciousness via role models was significant (point estimate for indirect effect =  $-.23$ , BCa 95% CI:  $-.54$  to  $-.07$ ). In the presence of the mediators, the direct effect of stigma consciousness was no longer significant. The model suggests that stigma consciousness negatively impacts self-esteem by decreasing both role models and use of shift-and-persist strategies. This suggests that increasing role models and shift-and-persist strategy use may also mitigate the impact of stigma consciousness on self-esteem.

Figure 8: Role Models and Shift-and-Persist Strategies Mediate the Effect of Stigma Consciousness by Achievement Motivation at Time I, Study 3

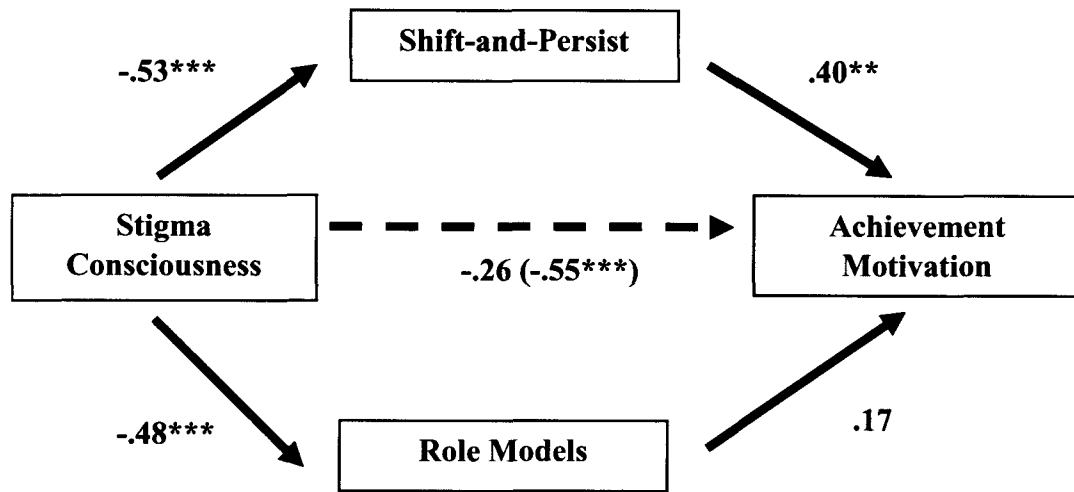
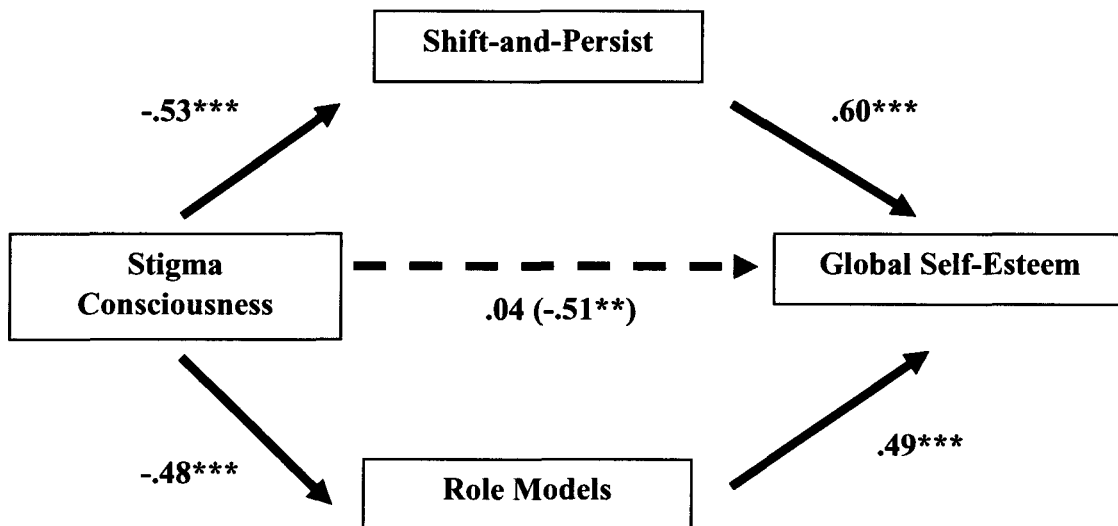


Figure 9: Role Models and Shift-and-Persist Strategies Mediate the Effect of Stigma Consciousness by Global Self-Esteem at Time 1, Study 3



#### **4.5.3. Preliminary Analyses (Time 2)**

Correlations among the variables in the analyses at Time 2 are presented in Table 7. Recall that the goals of the program are aligned with increasing perceptions of positive role models and increasing shift-and-persist strategies. As predicted, the relationships between stigma consciousness and the primary dependent variables (achievement motivation, self-esteem) were no longer significant after participating in the program. Further, stigma consciousness was also no longer related to perceived positive role models or negative attitudes toward the in-group. However, there was still a negative relationship between stigma consciousness and shift-and-persist strategies. There was also a significant negative relationship between stigma consciousness and positive attitudes toward out-group members at Time 2, which was not present at the beginning of the program.

Table 7. Correlations, Standard Deviation and Means for Observed Variables (Time 1 and Time 2)

	1	2	3	4	5	6	7	8
1. Stigma Consciousness	—	-.41**	-.19	-.24	-.16	-.46**	-.18	-.12
2. Shift & Persist	-.47***	—	.61***	.66***	.43**	.33*	.53***	.11
3. Role Models	-.43**	.37**	—	.55***	.31*	.24	.43**	.15
4. Achievement Motivation	-.49***	.57***	.41**	—	.38**	.12	.41**	-.04
5. Attitudes Toward In-Group	-.32*	.36**	.26*	.22	—	.32*	.19	-.15
6. Attitudes Toward Out-Group	-.23	.42**	.18	.29*	.33**	—	.17	.03
7. Global Self-Esteem	-.35**	.59***	.54***	.41**	.40**	.27*	—	.14
8. Subjective Status	.15	.06	.13	-.06	-.13	-.02	.07	—
Mean(SD) Time 1	1.65 (.90) <sub>a</sub>	3.71 (1.06) <sub>a</sub>	3.73 (.98) <sub>a</sub>	4.21 (1.00) <sub>a</sub>	5.03 (1.34) <sub>a</sub>	3.70 (1.84) <sub>a</sub>	4.17 (1.34) <sub>a</sub>	4.44 (2.04) <sub>a</sub>
Mean(SD) Time 2	1.48 (1.08) <sub>a</sub>	4.12 (1.15) <sub>b</sub>	4.09 (1.15) <sub>b</sub>	4.32 (1.06) <sub>a</sub>	5.26 (1.49) <sub>a</sub>	3.76 (1.89) <sub>a</sub>	4.38 (1.53) <sub>a</sub>	4.93 (1.94) <sub>b</sub>

*Note: Correlations presented above the diagonal are for Time 2 and those below the diagonal are for Time 1. Means containing different subscripts within the same column are significantly different from one another.*

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

#### **4.5.4. Change over Time**

Paired samples t-tests reveal that, over the span of the program, there was a significant increase in both perception of positive role models ( $t(50) = 3.03, p = .004$ ) and in shift-and-persist strategies,  $t(50) = 3.07, p = .004$ . Unexpectedly, there was also an increase in subjective social status over time,  $t(40) = 2.23, p = .031$ . There were no differences across time in stigma consciousness, self-esteem, achievement motivation, or attitudes toward the rich or individuals from the same SES background (all  $ps > .16$ ).

#### **4.6. Discussion**

This research was designed to investigate both the impact of stigma consciousness, and of participating in a six-week college preparatory program, for low-income, first-generation high-school students. These results extend previous research on stigma consciousness in other stigmatized groups (e.g., Pinel et al., 2005) to individuals from lower-status backgrounds. As predicted, individuals who perceived more stigma based on their socioeconomic status background showed less achievement motivation and lower levels of self-esteem at the beginning of the program than those lower in perceived stigma. Also as predicted, shift-and-persist strategies and perceived positive role models were both significant mediators for these negative relationships. This gives support to the theory that both role models and shift-and-persist strategies are important for alleviating the negative impacts of coming from a lower-status background (Chen et al., 2013).

As hypothesized, at the end of the program, students showed an increase in shift-and-persist strategies and an increase in perceived positive role models compared to at the beginning of the program. Further, although stigma consciousness levels did not change as a result of the program, stigma consciousness no longer negatively predicted

self-esteem or achievement motivation at the end of the program. These findings show the positive impact of the Upward Bound program for these students, and might help similar programs focus on the importance of role models and shift-and-persist strategies.

At the beginning of the program, as predicted, individuals higher in stigma consciousness felt less comfortable with members of the in-group (individuals from similar SES backgrounds). However, at the end of the program, this relationship no longer existed. Instead, at the end of the program, individuals higher in stigma consciousness felt less comfortable with members of the out-group. This shift in in-group to out-group comfort for those high in stigma consciousness may also be important in understanding academic and health outcomes for these students. In a situation where these individuals feel stigmatized based on their group membership, they may be more likely to seek social support from their similarly lower-status peers instead of distancing themselves or feeling uncomfortable with those from similar backgrounds.

There was a significant increase in subjective social status at the end of the program. Although this finding was unexpected, being around individuals from similar, or lower, socioeconomic status backgrounds may have allowed students a unique social comparison group. By comparing themselves to others from similar or lower status situations, they may have come to view their personal situation as better. This shift in subjective status may be important as higher levels of subjective socioeconomic status have been associated with better physical and psychological health, independent of objective measures of socioeconomic status (Singh-Manoux et al., 2005; Adler et al., 2000; Cohen, 1999; Ostrove et al., 2000).

It is also interesting to note the negative relationship between stigma consciousness and comfort with out-group members at Time 2 (that was not present at Time 1). This relationship may hint at an unintended consequence for this program, which may have important implications for future cross-class interactions. Lower-SES individuals who perceive stigma from an interaction partner, after this program, may be able to discredit the out-group member instead of derogating themselves. This may lead to a less stressful interaction experience, as these individuals would be attributing negative experiences to an external, rather than an internal, cause (Major, Kaiser, & McCoy, 2003).

There are a number of important limitations of this study. Unfortunately, the program is relatively short, and also filled with numerous scheduled activities. This means that the study could only be run during the first day of the program (during a learning assessment period) and during the last day of the program (during the second learning assessment period). The Upward Bound Program has been incredibly accommodating to allow two scheduled one-hour periods in order for as many students as possible to complete the questionnaires. However, answers to certain questions (particularly self-esteem items) may be influenced by the fact that these young adults are in a new environment, may be away from their families for the first time, and are experiencing a great deal of stress and/or homesickness. I do believe that the items studied were, for the most part, trait-focused (e.g., achievement motivation, perceived positive role models, etc.), however, there are potential threats to internal validity, including maturation and history threats. These threats to internal validity underline the

importance of a comparison group (high school students of similar background who did not attend) over a similar six-week period (which was beyond the scope of this project).

These students also self-selected to be a part of the Upward Bound Program. This means that they were already interested in going to college and also willing and able to go to a residential program over the summer in order to enhance their skills for the next academic year. This is important to consider when studying achievement motivation, as they are already motivated enough to be a part of this program. These students are also from families supportive enough to allow them to spend six weeks away from home, and not helping the family by working a summer job or taking care of siblings. A same-age, lower-SES, first-generation comparison group of individuals who did not elect to take part in the Upward Bound Program would be an important direction for this research. A comparison group of individuals *not* from lower-SES, first generation backgrounds would also be informative in examining normative data for high school students of all backgrounds. Perhaps students from lower-SES backgrounds who are successful in academics are higher in achievement motivation and self-esteem, for example, than their lower-SES peers who are unsuccessful in academics. However, are these students lower, higher, or around the same level of other students on these measures?

It is important to note that there were 12 students who completed the first survey but who did not completed the second survey. This mortality threat to internal validity is important to consider for each Time 2 variable and for any comparison between Time 1 and Time 2. These students may not have been present on the last day of the program for a variety of reasons, including health issues (for the student or a family member), a need to travel home early for one reason or another, or because they dropped out of the

program altogether. Although there were no significant differences at Time 1 between students who were and were not present on the last day of the program, it could have been informative to assess individuals who did drop out from the program. Perhaps choosing to leave the program had to do with a struggle to get along or make successful connections with adult role models working for the program or with challenges in learning shift-and-persist strategies during their time in the program. It would be interesting in the future to focus not only on students from lower-SES backgrounds who are successful, but also on those who struggle or are unsuccessful in particular domains in order to help focus interventions and/or professionals working with these individuals in an academic or clinical setting.

A possible future direction for research on these mediators may be to examine the level or score needed on perceived role models and shift-and-persist strategies scales in order to observe positive change for these individuals. For example, how many role models are enough to mitigate the impact of stigma consciousness for these individuals? The quality, type (e.g., mentor, tutor, or counselor), or level of similarity of the role model may also be an important consideration for these relationships.

It would also be interesting to see if any of the relationships observed predict long-term academic outcomes for these students. The Upward Bound Program continues to track college degree attainment of these students, so in a few years, I may be able to explore some of those relationships with this potentially limited measure of success. Future research should examine students from lower-SES backgrounds over time to see whether specific traits or relationships between traits might predict academic outcome measures.

Although there are a number of limitations accompanying this study, I believe this preliminary analysis of the effects of such a program, and of stigma consciousness, is important and useful, particularly for those working within the program and for those involved in the funding (or defunding) of these and similar programs. It is also an effective way of studying a relatively large group of young adults from low-income, first-generation backgrounds in order to illuminate their rarely studied attitudes, beliefs, and experiences before potentially entering college.

## **GENERAL DISCUSSION**

Across three studies, this dissertation examined factors that may have important implications for the experiences of lower-SES college students and youth. Results indicate that situations where lower-status is made salient, or when stigma consciousness is at a higher level, may be particularly impactful for these individuals. Importantly, individuals from lower-SES backgrounds interacting with a higher-status partner, in both Study 1 and Study 2, were significantly more likely to disengage from a verbal performance task. In Study 3, high school students high in stigma consciousness reported less academic motivation.

This lack of motivation to achieve for individuals from lower-SES backgrounds when lower-status group membership is activated might have important implications for these individuals. Importantly, achievement motivation has been linked to achievement in the future (Anderson & Keith, 1997; Whitesell, Mitchell, & Spicer, 2009). In fact, in a meta-analysis of 109 studies, achievement motivation was found to be one of the best predictors of GPA in college (Robbins et al., 2004). These results may therefore have important implications for future interventions for reducing the academic achievement

gap for individuals from lower-SES backgrounds, including the increase of matriculation, retention, and graduation rates of these students in higher education.

Results also indicate the potentially negative impact of lower-SES on physical and psychological health. Results from both Study 1 and Study 2 indicate that novel cross-class social interactions, where socioeconomic status background is made salient, may be a physiologically stressful experience, as indicated by MAP reactivity in the recovery period of these studies, specifically for individuals from lower-SES backgrounds. Study 2 also revealed that lower-SES was related to lower social self-esteem overall at the end of the study. Study 3 revealed a significant negative relationship between stigma consciousness and self-esteem for individuals from lower-SES backgrounds. These negative consequences seem also to be specific to certain situations where their negatively valenced group membership is activated (e.g., within a cross-class interaction, through stigma consciousness).

This “activation” of negative consequences is an important consideration for those citing or conducting research on socioeconomic status, as well as those interested in future research. It is important to consider the research environment one is creating and whether status might be inadvertently made salient through environmental cues, questions from interaction partners, or even discussion topics brought up by research assistants or experimenters within the research setting. It is also important to note that individuals from lower-SES backgrounds may actively avoid situations or environments where their negatively valenced group membership could be activated in order to avoid these negative consequences (e.g. doctor’s office, counselor’s office, professor’s office, interactions with higher-SES college students, etc.). This may explain some of the mental

and physical health disparities and academic disparities within individuals from lower-SES backgrounds.

Fortunately, there may be a number of variables that could increase resilience for individuals from lower-SES backgrounds within stigmatizing domains. In Study 1, individuals interacting with a similarly lower-status partner showed a significant drop in MAP during the RAT task. In Study 3, analyses revealed that the relationship between stigma consciousness and achievement motivation and the relationship between stigma consciousness and self-esteem were both significantly mediated by the perception of positive role models and “shift-and-persist” strategies, which have been found in previous research to have important buffering health effects for individuals from lower-SES backgrounds. Both of these factors belie the importance of in-group social support (i.e., during the RAT; from role models) for increasing resilience against the negative consequences of coming from a lower-SES background.

Therefore, in-group social support might be particularly important both for levels of health and levels of achievement for individuals from lower-SES backgrounds. In order to increase social support, then, it is essential to increase the importance and visibility of socioeconomic status background as a social group. For the most part, individuals are motivated to conceal this negatively devalued trait (Ridgeway & Fisk, 2012), possibly making locating similar others a challenge for these individuals, especially in particular environments where individuals from lower-SES backgrounds are the minority (e.g., higher education).

This may be why programs like Upward Bound are so important. Through increasing visibility of lower-SES background members, and recognizing SES as a viable

group membership, individuals may be more likely to seek out in-group social support from their lower-SES peers. Upward Bound also creates more supportive and meaningful connections to in-group members (e.g., role models), and teaches shift-and-persist strategies important for buffering against the negative impact of lower-SES group membership.

Analyses revealed that levels of shift-and-persist strategies, perception of positive role models, and subjective social status were all significantly higher at Time 2 compared to Time 1. A rise in perception of positive role models and shift-and-persist strategies could be potentially beneficial for the health and achievement of these students. A rise in subjective social status, perhaps explained by social comparisons of their similarly lower-status peers, might also lead to better mental and physical health for these individuals (Singh-Manoux et al., 2003; Singh-Manoux et al., 2005). These results may also help Upward Bound and similar programs choose which elements might improve over a six-week period, and therefore which elements to focus their resources.

Improving cross-class interactions is essential, especially as income inequality continues to rise in the United States. Understanding how cross-class interactions might impact performance and health might also help explain academic and health disparities in the United States and beyond. These findings have far-reaching implications for all social interactions across the class divide, including within higher education, clinical practice, and doctors' offices. It is important to understand that our habits, interpersonal interaction styles, biases, and expectations may be pivotal in determining the success (or failure) of an interaction. If the interaction is successful, students, clients, and patients may be more likely to seek help from their teacher, trust their clinician, or communicate with their

doctor than if the interaction is unsuccessful. The distance between the metaphorical class divide might shrink just enough to have important discussions about policies or services that effect everyone.

If the cross-class interaction is unsuccessful, we may instead see an increase in noncompliance from clients and patients, which would negatively impact mental and physical health. We might also see lower levels of help-seeking behavior from students or coworkers from lower-SES backgrounds, which might negatively impact performance or achievement. Trust between individuals from different SES-backgrounds may deteriorate, and possibly lead to frustration or hostility within cross-class interactions due to a lack of understanding or lack of appreciation of differences based on current SES and/or SES-background. This frustration or hostility during one interaction could be detrimental (e.g., job interview). However, if not initially detrimental, over time, the stress of cross-class interactions may build up and lead to allostatic load, especially since, as shown in studies 1 and 2, the stress response caused by cross-class interactions for individuals from low-SES backgrounds may continue past the initial interaction experience. This allostatic load might be part of the reason there is such a wide health gap for individuals from different SES-backgrounds, independent of their current socioeconomic status (Hertzman, 1999).

As discussed above, it is important to understand how in-group social support for individuals from lower-status backgrounds might be protective for levels of health and achievement for these individuals. In order to increase in-group social support, it will be imperative to also increase visibility of socioeconomic status background as a viable group membership. It will be important in the future to a.) attempt to make it more socially acceptable to discuss class and differences based on social class and social class

background without becoming accusatory or defensive within those conversations and b.) attempt to increase the importance and value of socioeconomic status background diversity which should be celebrated as an asset within social groups and organizations alike.

Ryan and Sackrey (1984) wrote that “an escape from the influence of social class on a person's life experience” is a myth. However, it is important not to think of social class as a trap, but as a part of our social identity that must be understood and appreciated. We may not be able to escape the influence of social class, so let us instead celebrate how our social class, and our social class origins, have made us the people we are today and to appreciate that those influences make us a more diverse and complicated species. Although there may always be differences based on status, it may be more important in the future to learn to reach across the class divide to sow the seeds of understanding so that we may all be motivated to at least make that divide a little bit smaller, both economically and socially. We need to start throwing those lines of communication across the increasingly widening gap or we may reach a point where, as hard as we throw, the lines won’t reach, which could have detrimental effects for us all.

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## **APPENDIX A: RAT I**

1. Pure, Blue, Fall (Water)
2. Time, Hair, Stretch (Long)
3. Broken, Clear, Eye (Glass)
4. Coin, Quick, Spoon (Silver)
5. Bald, Screech, Emblem (Eagle)
6. Sore, Shoulder, Sweat (Cold)
7. Manners, Round, Tennis (Table)
8. Playing, Credit, Report (Card)
9. Rabbit, Cloud, House (White)
10. Ache, Hunter, Cabbage (Head)
11. Shopping, Washer, Picture (Window)
12. Note, Dive, Chair (High)
13. Speak, Money, Street (Easy)
14. High, Book, Sour (Note)

## **APPENDIX B: STATUS DISCLOSURE TASK**

***Please take one chip if:***

There were more than 50 books in your home when you were growing up

Your parents own their own home

You attended camp in the summer when you were growing up

You had a car in high school

You attended a private school

You saw adults reading in your home on a regular basis when you were growing up

Your parents had a second home or summer home when you were growing up

***Please discard one chip if:***

You had to have a job in high school to help support the family

Your parents live or lived paycheck to paycheck

You qualified for free or reduced hot lunch at school

You attended college completely dependent on financial aid

Your parent was often unemployed (not by choice)

Abandoned houses are within a half-mile of where you grew up

Control condition:

***Please take one chip if:***

If you read a book for fun in the last three months

You can play a musical instrument

You went to the gym this week

You see your extended family more than once a year

You can shuffle cards really well

You've ever met someone famous

You had a pet growing up

***Please discard one chip if:***

You've ever been in a car accident

You've ever broken a bone

At least one of your parents has a Facebook account

You ever got a detention in high school

You ever gave someone the wrong number so they couldn't call you

You check your e-mail more than twice a day

## APPENDIX C: STUDY 1 MANIPULATION CHECKS

Do you think your partner had more or less chips than you at the end of the game?

0-----1-----2-----3-----4-----5-----6

Less than me    More than me

People are good at forming first impressions with little information. Please use your best guess to rate (circle) which income bracket you think your partner's family was in when they were growing up:

\$5000 or less a year

\$10000

\$15000

\$20000

\$25000

\$30000

\$40000

\$50000

\$65000

\$80000

\$100000

\$125000

\$150000 or more a year

No idea

## APPENDIX D: RAT II

1. Stick, Light, Birthday = Candle
2. Magic, Plush, Floor= Carpet
3. Shelf, Mark, End = Book
4. Car, Swimming, Cue = Pool
5. Food, Kennel, Tag = Dog
6. Blood, Berry, Cheese = Blue
7. Sea, Home, Stomach = Sick
8. Chocolate, Fortune, Jar = Cookie
9. Corner, Main, Sweeper = Street
10. Cottage, Blue, Burger = Cheese
11. Boot, Summer, Ground = Camp
12. Cream, Skate, Cold = Ice
13. Rocking, Wheel, High = Chair
14. Dew, Comb, Bee = Honey
15. Aid, Rubber, Wagon = Band
16. Cracker, Fly, Fighter= Fire
17. Sauce, Tree, Pie = Apple
18. Flower, Friend, Scout = Girl

## APPENDIX E: UPWARD BOUND QUESTIONNAIRES

### Stigma Consciousness:

Directions: Rate the extent to which you agree or disagree with each of the following items using the scale provided.

0-----1-----2-----3-----4-----5-----6

Strongly Disagree

Strongly Agree

- \_\_\_\_\_ 1. Stereotypes about the poor have not affected me personally.
- \_\_\_\_\_ 2. I never worry that my behaviors will be viewed as stereotypical of the poor.
- \_\_\_\_\_ 3. When interacting with others, I feel they interpret all my behaviors in terms of my family's wealth.
- \_\_\_\_\_ 4. Growing up poor does not influence how people act with me.
- \_\_\_\_\_ 5. I almost never think about growing up poor when I interact with people.
- \_\_\_\_\_ 6. I think I was deprived of opportunities that were available to others because I grew up poor.
- \_\_\_\_\_ 7. I feel that I am discriminated against because I grew up poor.
- \_\_\_\_\_ 8. In social situations, I feel that I don't fit in because I grew up poor.
- \_\_\_\_\_ 9. I feel that people have avoided me in social situations because I grew up poor.
- \_\_\_\_\_ 10. I have overhead offensive comments aimed at me because I grew up poor.

### **Achievement Motivation:**

Please rate the following on a 0-6 scale

0-----1-----2-----3-----4-----5-----6

Strongly Disagree

Strongly Agree

1. \_\_\_\_\_ I only work as hard as I have to.
2. \_\_\_\_\_ I try to devote my full effort on tasks.
3. \_\_\_\_\_ I pride myself in working hard.
4. \_\_\_\_\_ I push myself a lot to perform well.
5. \_\_\_\_\_ I skip things more than I should during tasks.
6. \_\_\_\_\_ My performance is the result of effort and hard work.
7. \_\_\_\_\_ I work hard to be successful.
8. \_\_\_\_\_ I am proud to admit how hard I work.
9. \_\_\_\_\_ People who keep trying, even in the face of failure, should be admired.
10. \_\_\_\_\_ I admire people who work hard.
11. \_\_\_\_\_ Grades should be based in part on how much effort you put in.
12. \_\_\_\_\_ People should strive to be the best at whatever they do.
13. \_\_\_\_\_ Success due to effort is more meaningful than success due to ability alone.

### Shift-and-persist Strategies:

Please rate the following on a 0-6 scale

0-----1-----2-----3-----4-----5-----6

Strongly Disagree

Strongly Agree

1. \_\_\_\_ When things don't go according to my plans, my motto is, "Where there's a will, there's a way."
2. \_\_\_\_ When faced with a bad situation, I do what I can do to change it for better.
3. \_\_\_\_ Even when I feel I have too much to do, I find a way to get it all done.
4. \_\_\_\_ When I encounter problems, I don't give up until I solve them.
5. \_\_\_\_ I rarely give up on something I am doing, even when things get tough.
6. \_\_\_\_ I find I usually learn something meaningful from a difficult situation.
7. \_\_\_\_ When I am faced with a bad situation, it helps to find a different way of looking at things.
8. \_\_\_\_ Even when everything seems to be going wrong, I can usually find a bright side to the situation.
9. \_\_\_\_ I can find something positive, even in the worst situations.

**Perception of Positive Role Models:**

Please rate the following on a 0-6 scale

0-----1-----2-----3-----4-----5-----6  
Strongly Disagree Strongly  
Agree

- \_\_\_\_\_ 1. I know a lot of people who have gone to college
- \_\_\_\_\_ 2. I feel like I have a lot of positive role models
- \_\_\_\_\_ 3. I think there are a lot of people like me who succeed
- \_\_\_\_\_ 4. People like me go to college
- \_\_\_\_\_ 5. People like me are successful in college
- \_\_\_\_\_ 6. I share the same interests, beliefs, and values as people who have gone to college
- \_\_\_\_\_ 7. I know a lot of people who come from a similar background as me who went to college
- \_\_\_\_\_ 8. I think there are a lot of people with a similar background as me who are successful

### Attitudes toward the In-Group/Out-Group.

For each of the items listed below, indicate how you would feel when interacting with someone from the **same socioeconomic background as you/someone who grew up very wealthy**.

I would feel:

1.) 0-----1-----2-----3-----4-----5-----6-----7-----8-----9

Not at all

Extremely

**Comfortable**

**Comfortable**

2.) 0-----1-----2-----3-----4-----5-----6-----7-----8-----9

Not at all

Extremely

**Uncertain**

**Uncertain**

3.) 0-----1-----2-----3-----4-----5-----6-----7-----8-----9

Not at all

Extremely

**Confident**

**Confident**

4.) 0-----1-----2-----3-----4-----5-----6-----7-----8-----9

Not at all

Extremely

**Awkward**

**Awkward**

5.) 0-----1-----2-----3-----4-----5-----6-----7-----8-----9

Not at all

Extremely

**Anxious**

**Anxious**

6.) 0-----1-----2-----3-----4-----5-----6-----7-----8-----9

Not at all

Extremely

**At Ease**

**At Ease**

### **Subjective Family Social Status:**

Think of this ladder as representing where people stand in the United States

At the top of the ladder are the people who are the best off- those who have the most money, the most education and the most respected jobs. At the bottom are the people who are the worst off- who have the least money, least education, and the least respected jobs or no job. The higher up you are on this ladder, the closer you are to the people at the very top; the lower you are, the closer you are to the people at the very bottom.

Place an “X” on the ladder to represent where your family was on the ladder **when you were growing up.**



Top of the Ladder:

Best off, most money, most education

Bottom of the Ladder:

Worst off, least money, least education

## **BIOGRAPHY OF THE AUTHOR**

Ryan Pickering was born in Lincoln, Maine on July 1, 1986. He graduated from Mattanawcook Academy in Lincoln in 2004. He attended the University of Maine at Farmington and graduated summa cum laude, and as an Honors Scholar, in the spring of 2008. He received the University of Maine Dissertation Research Fellowship in the 2011-2012 and 2012-2013 academic years. Ryan is a candidate for the Doctor of Philosophy degree in Psychology from the University of Maine in May 2014.