Learned Helplessness as a Moderator in SES Stereotype Threat and Academic/Intellectual Disengagement

by

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Abstract

On average fewer lower-SES students graduate from college compared to their higher-SES peers. SES-stereotype threat researchers have found evidence that when faced with a stereotype regarding SES, lower-SES students' academic/intellectual performance is negatively affected. Some research has shown that learned helplessness attributional styles may negatively affect the academic performance of college students in general. Additionally, disengagement of identity from academic/intellectual tasks/tests is a way underrepresented groups may maintain their self-esteem when faced with a stereotype. This process of disengagement from academic/intellectual tasks/tests may modify the way stigmatized students identify with these domains which in turn may negatively affect their academic/intellectual performance/persistence. The purpose of the present study was to evaluate learned helplessness, in a stereotype threat paradigm, as a potential moderator of the relationship between SES and task performance as well as the relationship between SES and academic/intellectual disengagement and state performance self-esteem using hierarchical regression. Participants included 238 undergraduate students from multiple universities. Results showed that the stereotype prime was ineffective at creating differences in task performance or disengagement measures. Furthermore, results showed there was not a significant interaction between test-diagnosticity, learned helplessness, and SES. Results did show a relationship between SES and one aspect of disengagement-discounting despite the inefficacious prime. Learned helplessness was related to two aspects of disengagement: devaluing and state performance self-esteem. Possible explanations for the

inefficacy of the stereotype prime to elicit differences in the dependent measures are discussed, as are the implications of relationship between other variables studied.

Acknowledgments

I differ from my childhood friends in terms of educational goals, and I always wondered why. This line of research was initially pursued in an effort to help sort out some of those answers. As time progressed during my graduate career I became aware of my own socioeconomic identity and became passionate about issues affecting socially and economically underrepresented people. This dissertation became more than just "me-search;" it transformed into a way that I could hopefully make some small contribution to the working-poor community.

I would like to thank Grandpa Gilmore for helping instill in me the value of education and providing me with the opportunity to attend undergrad; without your help I would not be here today. I would like to thank Grandpa Turchan for teaching me how to think critically and to delay gratification, but most of all for your wit and humor. I love and miss you both. I would like to thank Mom for her endless support—raising Logan and me as a working-class single mother inspires and amazes me. Thank you to my wife and best friend Jenise; without your support and encouragement I would not have been able to complete this. Thank you Zoey for motivating me to get this finished—I can't wait to bore you with the details when you grow up. Thank you to my committee, Dr. Pipes, Dr. Buckhalt, Dr. Carney, and Dr. Gaetano. Thank you to Dr. Kluck for all your hard work and for providing me with guidance and advice during this process. Thank you to Dr. Ward for allowing me to use the LHS. Thank you Kerry Karaffa; I could not have done this without out you. Justin and Emily, thank you for your support and words of encouragement through this process. Thank you to my cohort for making my time in Auburn my

best years to date. I will cherish the experiences we shared together for my lifetime—Oh thank heaven for 2011.

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Chapter 1

Introduction

Arguably since the rise of the occupy Wall Street movement in 2011, there has been a rekindled interest in matters of socioeconomic status (SES) and social class disparity in the United States (Tablante & Fiske, 2015). In January 2014, President Obama released a report summarizing the growing disparity for enrollment and attainment of a college education for those of low-SES as compared to their higher-SES peers (The Executive Office of the President, 2014). During the same month, President Obama issued a call to action that addressed ways to encourage enrollment of low-SES college students; he also issued an executive action to dedicate ten million dollars to research ways in which states and postsecondary institutions can increase low-SES students' completion rates (The President and First Lady's call to Action on College Opportunity, 2014).

The most recent data from the U.S. Department of Education reported that for the 2003-2004 cohort of students beginning at a four-year institution, only 58 % of them had achieved a bachelor's degree within six years (U.S. Department of Education, 2011). When examining graduation rates among students by family income, a clear line of demarcation becomes noticeable. Those students whose family income is less than $45,000 graduate at a lower rate than the national average, whereas those who have a family income of $45,000 or higher graduate at a rate higher than the national average (U.S. Department of Education, 2011). The greatest discrepancy in graduation rates emerges when you look at the extremes of family income. Seventy eight percent of those students dependent on a family income of $100,000 or

more graduated with a bachelor's degree within six years, as compared to only 45% of those students who had an annual family income of $25,000 or less. Using that same dataset, the Pell institute (2011) looked at the intersection of family income and first-generation student status and found that for those students that were both low-SES ($25K or less) and first generation, the six-year graduation rate dropped from 45% to 32%.

A college education is typically seen as "the ticket to middle-class prosperity" (Martin, 2012, p. 426) and often thought of as a way to bridge the gap of social disadvantage (Martin, 2012; Ostrove & Cole, 2003). If this is the case, then it is important to understand what stands between low-SES students and a four-year degree. Archer (2003) contended that there is a history of exclusion of low-SES individuals from higher education. She went on to say that the number of low-SES students remains low despite more recent efforts to be more inclusive. Bound et al. (2010) found that academic preparation is the key to completion of college, and Alon (2011) found that need-based financial aid was a main contributor for low-SES students' persistence in graduating college. Adelman (2006) demonstrated that one of the strongest predictors of student persistence is parent education, a marker of socioeconomic status. Those with parents who are college educated were twice as likely to remain in college or graduate.

Gorski (2012) suggested a different story that starts earlier in a student's life. He believed that the "achievement gap" for low-SES students may be a result of stereotypes (i.e., lazy, don't care about education, intellectually deficient) that not only shape a student's early education, but also shapes policy. These stereotypes are then internalized and carried by low-SES individuals—that they themselves are lazy or somehow intellectually inferior to their higher-SES peers. Stereotype threat research posits that internalization of the stereotype is not always necessary for performance discrepancies to occur (e.g. Harrison, Stevens, Monty,

Coakley, 2006; Steel & Aronson, 1995). Harrison et al. (2006) explained that for low-SES students, the possibility of poor academic performance may confirm a commonly held stereotype (e.g., less intelligent) associated with their group. Harrison et al. went on to say that the student need not even believe that she or he is incapable of performing well; the low-SES student need only be aware of the common stereotype about their group. As a result of this awareness, "anxiety erupts in situations in which the individual's performance may be perceived as being indicative of his or her social group, regardless of the [student's] beliefs about his or her own abilities" (Harrison et al., 2006, p. 342).

Research has demonstrated that when low-SES students are primed with information regarding their socioeconomic status (Spencer & Castano, 2007) or information that threatens to confirm a negative stereotype (e.g., diagnostic of intellectual ability) related to an aspect of their identity (in this case, socioeconomic status; e.g., Croziet & Claire, 1998; Spencer & Castano, 2007; Harrison et al., 2006; John-Henderson, N., Rheinschmidt, M., Mendoza-Denton, R., and Francis, D., 2014), low-SES students underperform as compared to their higher-SES peers (Croziet & Claire,1998; Harrison et al., 2006; Spencer & Castano, 2007; John-Henderson et al., 2014). But when the stereotype is not primed, low-SES students perform similarly, or sometimes even better than their higher-SES peers (Croziet & Claire, 1998; Harrison et al., 2006; Spencer & Castano, 2007). This process, better known as stereotype threat, is "the apprehension one feels"(Aronson & Inzlicht, 2004, p.830) when "anything one does or any of one's features that conform to [the stereotype] make the stereotype more plausible as a self-characterization in the eyes of others, and perhaps even in one's own eyes" (Steele & Aronson, 1995, p. 797).

There has been an extensive amount of research conducted on the effect of stereotype threat and underperformance in racial and gender minorities (see Nguyen & Ryan, 2008 for

review), but only a handful of studies have been conducted regarding low-SES students and how stereotype threat affects their performance in the academic realm (e.g., Croziet & Claire, 1998; Spencer & Castano, 2007; Harrison et al., 2006; John-Henderson, et al., 2014). Low-SES stereotype threat effects were first reported in a publication by Croziet and Claire (1998), demonstrating that French low-SES undergraduate students underperformed as compared to their higher-SES peers when the test was labeled as diagnostic of their intelligence. More recently Désert et al. (2009) found stereotype threat effects for low-SES French elementary students, including that they believed they performed more poorly compared to their higher-SES elementary student peers.

Within the United States, Spencer and Castano (2007) examined stereotype threat effects on intelligence test performance using an undergraduate sample. They found that low-SES students primed with their low-SES status or test-diagnosticity prior to examination underperformed and were less confident in their performance compared to their higher-SES peers. In addition to discrepancies on academic performance, Harrison et al. (2006) demonstrated that low-SES students experienced greater test anxiety compared to their higher-SES peers. John-Henderson et al. (2014) discovered that lower-SES students in a test-diagnostic condition produced a greater inflammatory response and underperformed compared to their higher-SES peers, as well as when they were told their performance would be compared to their high-SES peers. In addition, Harrison et al. (2006) found that when lower-SES students in the stereotyped condition were compared to those lower-SES students who were not, they were less likely to identify with school-related subjects, a phenomenon reported in the literature (e.g., Crocker, Major, & Schmader, 1998; Major, Spencer, Schmader, Wolfe, & Crocker, 1998; Steele, Spencer, & Aronson, 2002) referred to as disengagement or disidentification.

Disengagement and disidentification respectively, are the acute and long-term effects which occur when a student is faced with immediate or chronic stereotype regarding their groups' academic performance or intellectual ability. This process occurs when the student preserves their self-esteem in face of a stereotype and distances her/himself from the stereotyped domain (e.g., academic or intellectual), thus decreasing or removing the domain as part of their identity.

Disengagement or disidentification has been demonstrated in college students within specific academic domains (English & Math, Harrison et al., 2006), as well as general intelligence identification (e.g., Major & Schmader, 1995; Major et al., 1998; Von Hippel et al., 2005). Results such as these have led authors (e.g., Aronson, Fried, & Good, 2002; Harrison et al., 2006; Steele, 1997; Steele et al., 2002) to speculate that repeated negative stereotypes faced by stigmatized students may contribute to them no longer identifying themselves with academics, and perhaps ultimately dropping out of school altogether (e.g., Appel & Kronberger, 2012; Steele, 1992, 1997; Steele et al., 2002).

Often those who fail academically are thought of as dumb and/or lazy – both stereotypes often attributed to low-SES individuals (Gorski, 2012). Although research supports the notion that academic underperformance in low-SES students is a product of stereotype threat, there is a need for researchers to explore *why* low-SES students do not persist and achieve completion of their degrees as compared to their higher-SES peers.

Some scholars have hypothesized (e.g., Logel, Walton, Spencer, & Mark, 2012; McKean, 1994; Sutherland & Singh, 2004) that learned helplessness negatively affects academic performance. Learned helplessness has been demonstrated to decrease academic performance in primary school students (e.g., Dweck & Licht, 1980; Valas, 2001), but the research with college-

age students still leaves questions. Peterson and Barrett (1987) found that freshman college students with an explanatory or attributional style similar to learned helplessness achieved lower grade point averages their freshman year as compared to their peers. McKean (1994) found that those students with greater amounts of learned helplessness had a significantly higher procrastination level, higher depression scores, and significantly lower GPAs as compared to those with lower amounts of learned helplessness. Other researchers have found mixed support (e.g. Row & Lockhart, 2005) and several have found no support (e.g., Bridges, 2001; Morris & Tiggemann, 2013) for learned helplessness affecting academic performance. Some research has even demonstrated that a pessimistic explanatory style similar to learned helplessness was associated with better academic achievement (Houston, 1993; Laforge & Cantrell, 2003). Null and contrary results led researchers to speculate that academic achievement was inappropriate to study (Morris & Tiggemann, 2013) because it was lacking the uncontrollability necessary for learned helplessness to take place, or that the measure most commonly used (a version of the Attributional Style Questionnaire) did not assess uncontrollability accurately (Laforge & Cantrell, 2003).

Significance to Psychology

Ostrove and Cole (2003) pointedly stated that "Psychologists have tended to leave the study of social class to sociologists, usually regarding social class as a variable to be statistically controlled for, if they attend to class at all" (p. 679). It appears as if that tide may be changing; The American Psychological Association (APA; n.d.) has deemed SES as "relevant to all realms of behavioral and social science, including research, practice, education, and advocacy." The APA's Socioeconomic Taskforce has suggested ways for psychologists to get involved, which include conducting research that specifically takes SES into consideration as well as contributing

research regarding educational barriers experienced by low-SES communities and the effect of those barriers on their academic performance and psychological well-being. The Society of Counseling Psychology (APA Division 17) aims to serve diverse populations such as those with lower SES and has also highlighted SES as an important aspect of culture and as an area of focus in their 2012 petition of renewal to maintain counseling psychology as a specialty within psychology (Horne, 2012).

Definitions

1. Test-Diagnosticity:

   Test-diagnosticity refers to whether a task is presented as diagnostic or non-diagnostic of intelligence. When a task is identified as diagnostic, the task is identified as diagnostic of intelligence. When identified as non-diagnostic, the task is identified as something unrelated to intelligence (e.g., validation of task).

2. Stereotype threat:

   Stereotype threat is when one interprets that she or he will be judged in terms of a stereotype and/or that they would do something to unintentionally confirm it, usually resulting in performance differences as compared to a non-stereotyped sample (e.g., Steele et al., 2002). Stereotype threat effects will be measured as the performance differences between the diagnostic and non-diagnostic group.

3. Stereotype lift:

   Stereotype lift is a boost in performance that occurs when a comparison outgroup is negatively stereotyped (Walton & Cohen, 2003).

4. Ability:

Standardized test scores (ACT/SAT) will be used as a measure of the participant's pre-existing functioning in the academic and intellectual domains. These scores will be used as a covariate in this research to determine if performance differences are a result of overall functioning or the effects of the experimental condition. Using standardized test scores as a covariate is common practice in stereotype threat research (e.g., Harrison et al., 2006; John-Henderson et al., 2014; Spencer & Castano, 2007; Steele & Aronson, 1995) "to equate groups for initial differences in relevant skills" (Steele, Spencer, & Aronson, 2002, p. 382).

5. Socioeconomic Status (SES):

   Although it has been argued that the terms social class and SES are distinct constructs (Rubin et al., 2014), they are often used interchangeably (Diemer, Mistry, Wadsworth, López, and Reimers, 2013). Annual family income is one of the most common indicators of SES in social science research (Diemer et al., 2013). It is also the most common measure of SES in SES stereotype threat research (Harrison et al., 2006; John-Henderson, et al., 2014; Spencer & Castano, 2007). For the purposes of this research the SES of students will be measured by estimated annual family income. Parental education attainment and subjective social class will also be used as auxiliary measures of SES.

6. Learned Helplessness:

   Learned helplessness is defined as the motivational, cognitive, and emotional deficits that are a result of attributions made during non-contingent events (Abramson, Seligman, & Teasdale, 1978). A Learned helplessness attributional style develops as a result of attributions that have developed in previous uncontrollable situations, even though success may be possible in the current situation (Campbell & Martinko, 1998; Martinko

& Gardner, 1982). Learned helplessness in terms of attributional style will be measured using Quinless and McDermott Nelson's (1988) Revised Learned Helplessness Scale (LHS).

7. Academic/Intellectual Disengagement

   Disengagement has been described as the acute detachment of self-esteem from external feedback or outcomes in a particular domain (Crocker, Major, & Steele, 1998; Major, Spencer, Schmader, Wolfe, & Crocker, 1998), "such that feelings of self-worth are not dependent on success or failure in that domain" (Major et al., 1998, p. 35). Academic/Intellectual disengagement will be measured using the Intellectual Engagement Inventory (IEI; Major & Schmader, 1998) and the State Self-Esteem Scale-Performance Index (SSE; Heatherton & Polivy, 1991), similarly to previous research in the area of academic/intellectual disengagement (e.g., Crocker et al., 1998; Major et al., 1998; Major, Schmader, Spencer, and Wolfe, 1998, Harrison, et al., 2006).

8. Verbal abilities test (VAT)/task performance

   Verbal ability/task performance will be measured by summing the number of items a participant solves correctly on the verbal abilities test dependent measure.

Hypotheses

1. After controlling for ability, SES (estimated annual family income) will predict Verbal abilities test (VAT) task performance in a way that is consistent with stereotype threat. That is, the relationship between SES and VAT task performance will depend on test-diagnosticity. Specifically, lower-SES students in the diagnostic condition will demonstrate poorer performance compared to lower-SES students in the non-diagnostic

condition. Higher-SES participants in the diagnostic condition will perform the best, consistent with the literature reflecting the construct of stereotype lift (Figure 1).

2. After controlling for ability, SES (estimated family income) will predict VAT task performance, depending on learned helplessness and test-diagnosticity. Specifically, in the diagnostic condition, lower-SES students with higher amounts of learned helplessness will perform worse than lower-SES students with low amounts of learned helplessness (Figure 2).
3. SES (estimated annual family income) will predict each facet of academic/intellectual disengagement, including a) devaluing, b) discounting, and c) disengagement depending on test-diagnosticity. Lower-SES students in the diagnostic condition will have higher scores on the three facets of academic/intellectual disengagement (i.e., devaluing, discounting, and disengagement) compared to lower-SES students who are in the non-diagnostic condition. Higher-SES students will not vary significantly in academic/intellectual disengagement (i.e., devaluing, discounting, disengagement, self-esteem) regardless of condition (i.e., diagnostic or non-diagnostic; Figure 3).
4. After controlling for ability, SES (estimated annual family income) will predict each facet of academic/intellectual disengagement including a) devaluing, b) discounting, and c) disengagement, depending on learned helplessness and test-diagnosticity. Specifically, in the diagnostic condition, lower-SES students with higher amounts of learned helplessness will have higher levels of academic/intellectual disengagement (devaluing, discounting, and disengagement) than lower-SES students with low amounts of learned helplessness (Figure 4).
5. SES (estimated annual family income) will predict self-esteem, depending on test

diagnosticity. Specifically, lower-SES students within the diagnostic condition will have higher scores on self-esteem compared to lower-SES students who are in the non-diagnostic condition (Figure 5).

6. After controlling for ability, SES (estimated annual family income) will predict self-esteem, depending on learned helplessness and test-diagnosticity. Specifically, within the diagnostic condition, lower-SES students with higher amounts of learned helplessness will have higher self-esteem than lower-SES students with low amounts of learned helplessness (Figure 6).

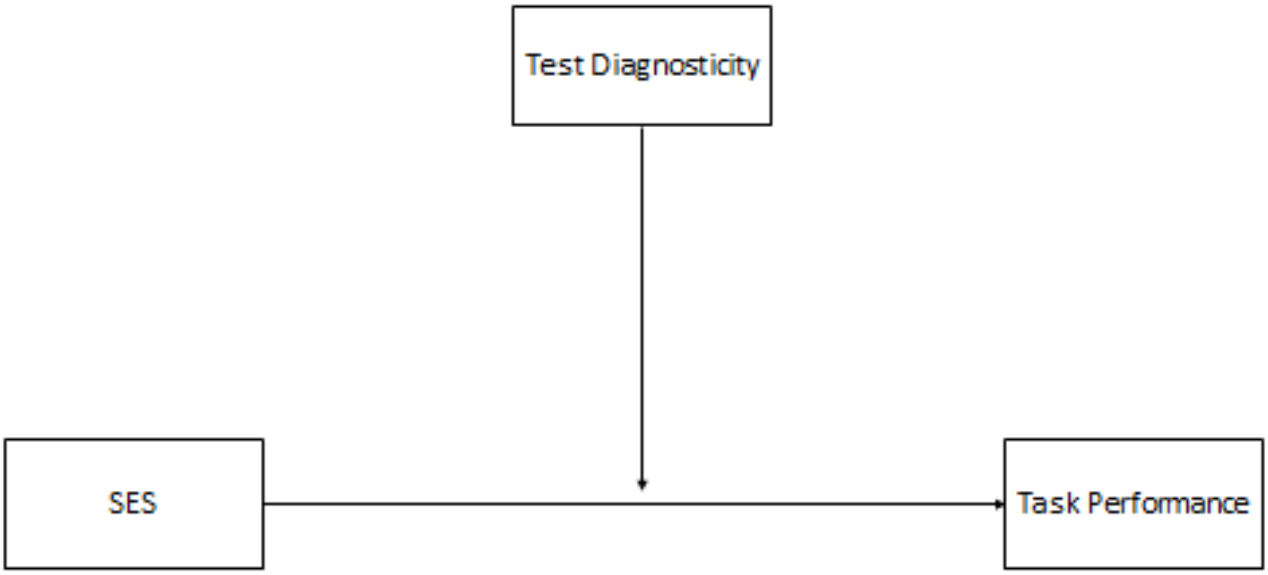

Figure 1: Hypothesis 1

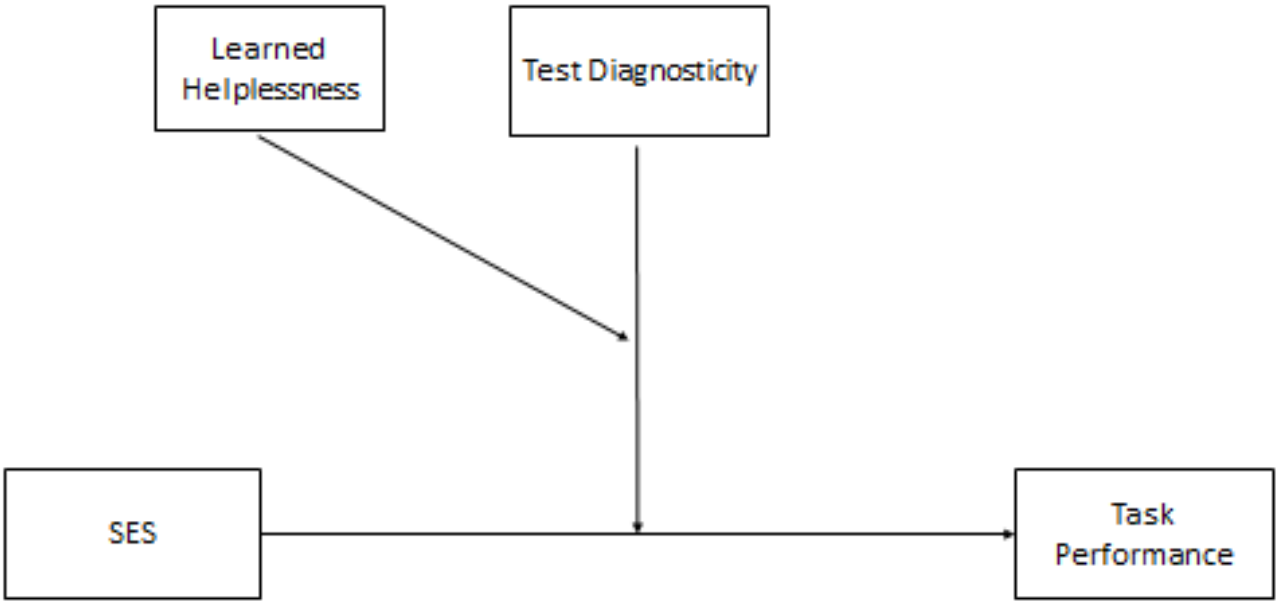

Figure 2: Hypothesis 2

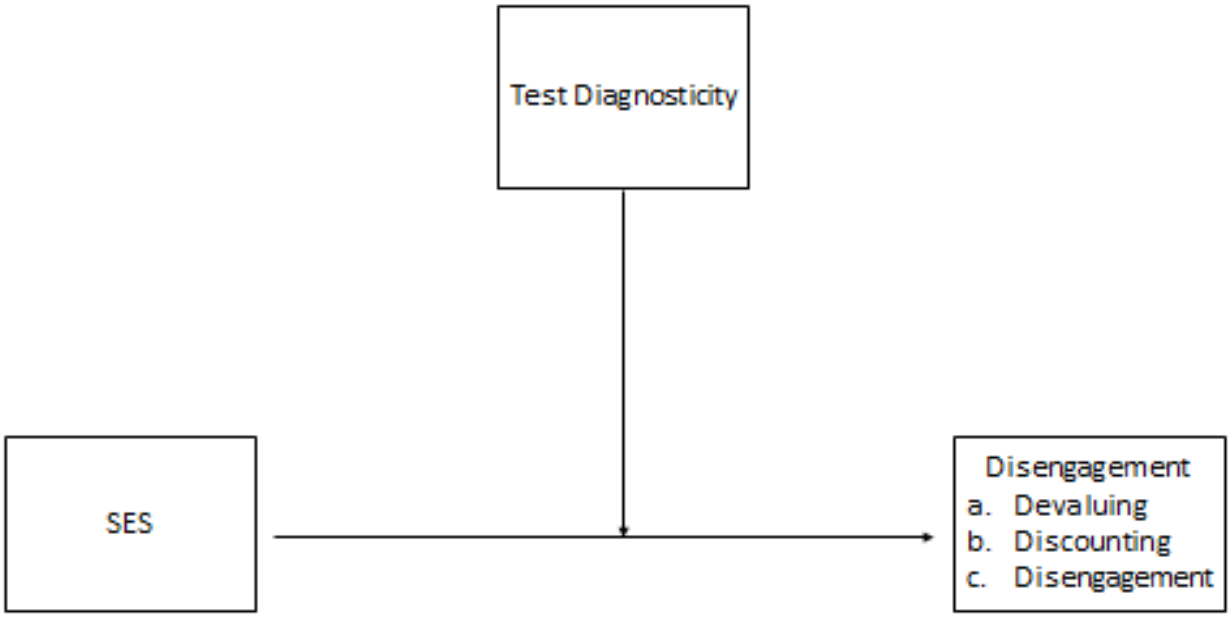

Figure 3: Hypothesis 3a - 3c

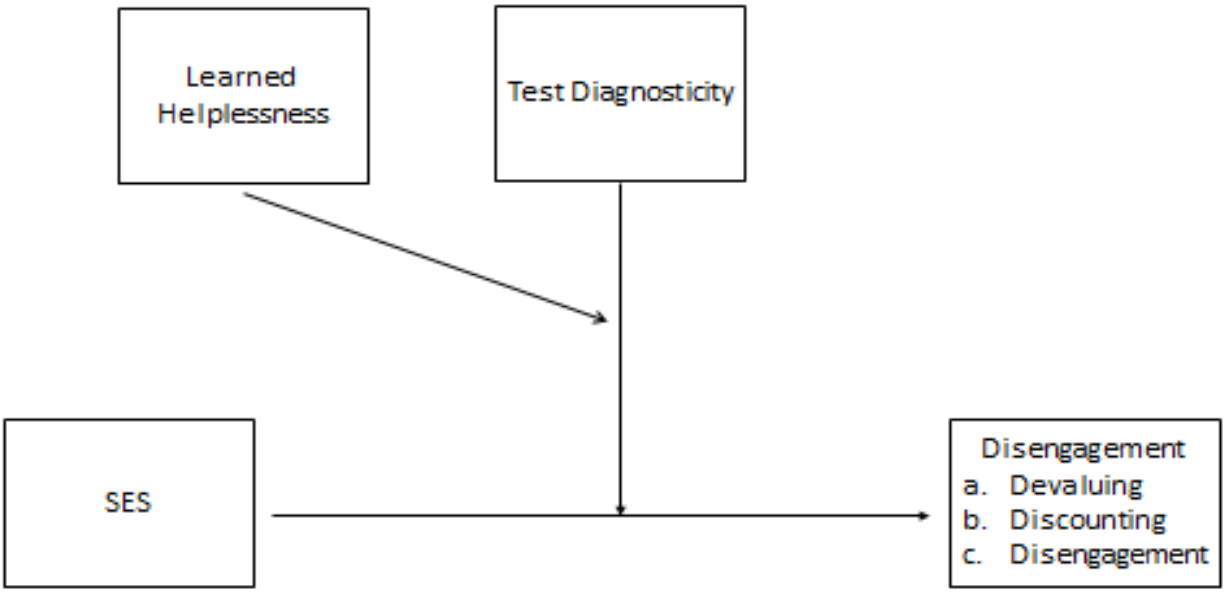

Figure 4: Hypotheses 4a - 4c

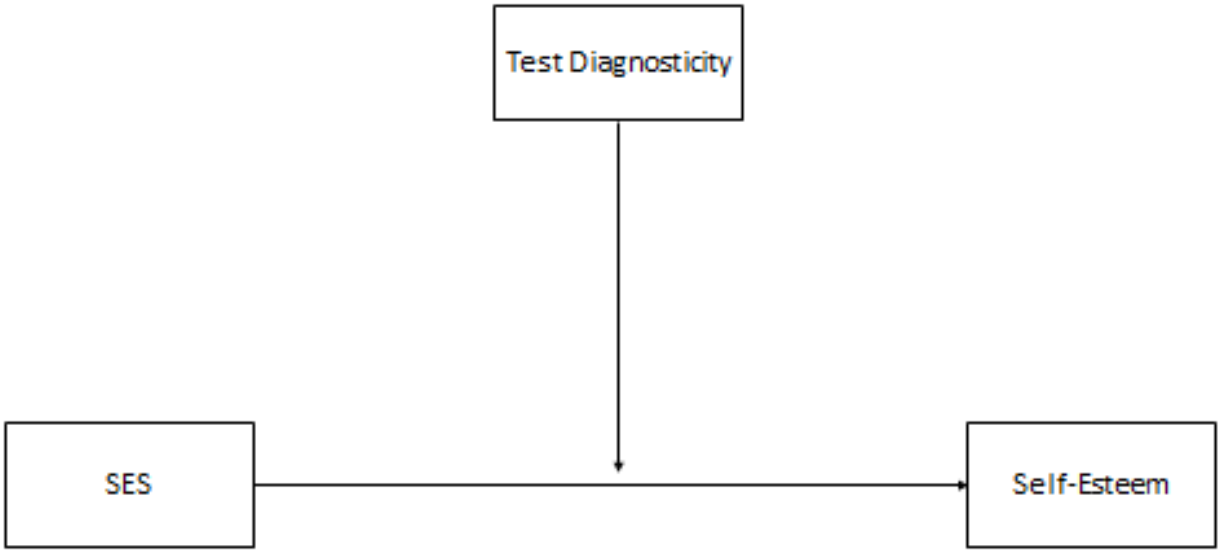

Figure 5: Hypothesis 5

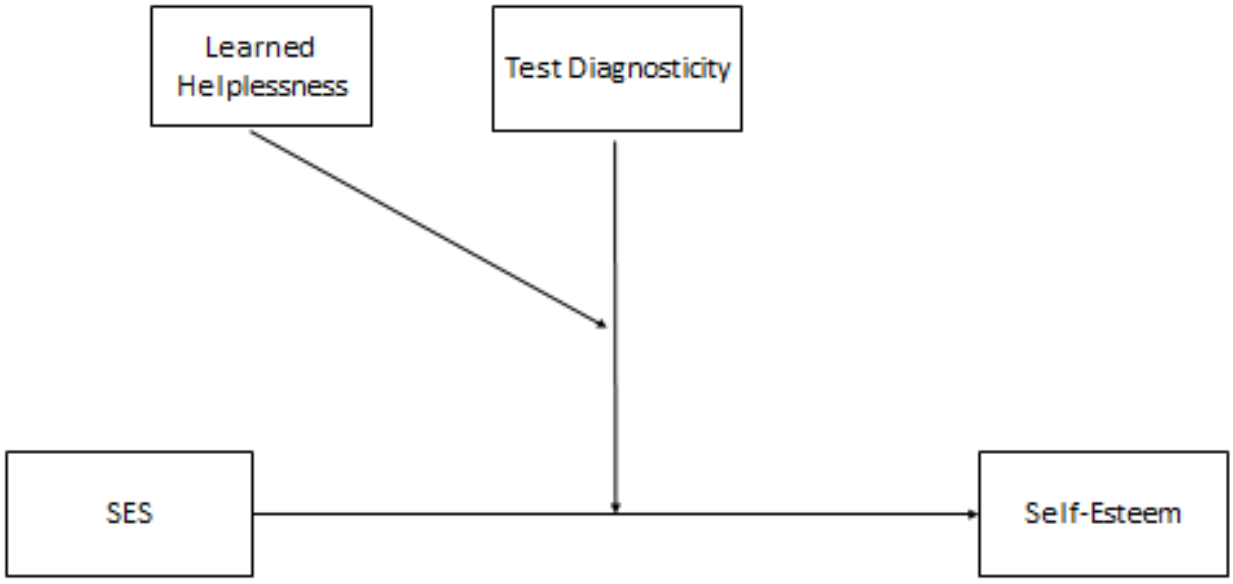

Figure 6: Hypothesis 6

Chapter 2

Literature Review

Social Identity Theory

Turner (1982) described social identification as the process whereby a person places her/himself or another within a social category, or is placed in the social category by another entity. Sometimes this process of social categorization is internalized by the person and "it becomes a component of their self-concept" (p. 18). An individual can either identify themselves as a member of a particular social group, be identified by others as a member of this particular group, or both, thus creating the individual's social identity. Hogg, Terry, and White (1995) said that the social categories (e.g., race, SES, political affiliation, sexual orientation, etc.) in which an individual happens to be in or feels like one belongs to, define one's own self-concept and how one identifies and distinguishes oneself with and from others. Hogg et al. (1995) went on to say that the social identity of an individual is descriptive, prescriptive (with regard to thinking and behavior), and also evaluative.

The social category of socioeconomic status (SES) is oftentimes operationalized in what the National Center for Education Statistics (NCES, 2012) calls "the big 3": Family income, parental educational attainment, and parental occupational and employment status. Even though SES may not be a social identity as readily apparent as race or gender, it is certainly not invisible. Research has documented that SES can be accurately predicted by non-verbal interactions (Kraus and Keltner, 2009), music preference (Snibbe & Markus, 2005), how much a student works while she/he is in college, and how much an individual values personal growth

over social relationships (Martin, 2012). Thomas and Azmita (2014) demonstrated that social class identification has a self-perceived greater influence/greater role than even ethnicity and gender with college-aged adults, regardless of what category (working, middle, and upper) they identify with. Higher education may be the first time that a low-SES individual faces a stigma regarding their SES because many students' neighborhoods are separated by social class (Lareau, 2003). Specifically until college, individuals receiving their primary education in a public school are likely to attend school with others from similar backgrounds that live nearby. Rheinschmidt and Mendoza-Denton (2014) suggested that as colleges and universities become more diverse in terms of SES, a student will become more aware of differences between her/himself and her/his peers on the basis of social class.

Social Identity Threat

Clawson and Leiblum (2008) argued that the classroom is not the only place social class/SES is taught at a university; "it is enacted and embodied in educational institutions themselves" (p. 12). They and others (e.g. Ostrove & Cole, 2003) argued that institutions of higher education perpetuate classism and stigma to low-SES students. A stigma (Crocker et al., 1998, p. 506) or social identity threat (Steele, Spencer, Aronson, 2002) occurs when a social event leads to the devaluing of some aspect of an individual's social identity. Johnson, Richeson and Finkel (2011) said that "stigma arises at the intersection between identity and context" (p. 838) and "a stigmatized social identity can become a psychological liability" (p. 838-839). For many students of low-SES backgrounds, attending college can be the first time their socioeconomic identity becomes salient and they experience the stigma that comes from feeling devalued in context. Lanhout, Drake, and Rosselli (2009) found that students who experienced classism in college had poor psychosocial outcomes (i.e., psychological distress, well-being, and

social adjustment), were more likely to feel like they didn't belong at school, and had greater intentions of leaving school prior to graduation.

College students from low-SES backgrounds are likely to wonder how their social class status will affect their performance academically (Rheinschmidt & Mendoza-Denton, 2014) and what stereotypes others may have about them. This concern appears warranted, Cozzarelli, Wilkinson, and Tagler (2001) conducted research on attributions made about low-SES individuals. They found that respondents rated low-SES individuals as less hardworking, intelligent, and capable than middle-class individuals. Low-SES individuals were also seen as more lazy, stupid, and uneducated than those of middle-class economic standing. In addition, low-SES students may be aware of these attributions and stereotypes. For example, Johnson et al. (2011, Study 1) found that low-SES students at an elite university were more aware of being different in terms of privilege compared to their higher-SES peers. Those low-SES students also rated themselves lower in academic fit as compared to their high-SES counterparts.

Access to higher education has traditionally been limited for low-SES students, and Rheinschmidt and Mendoza-Denton (2014) suggested that because of this, low-SES students may doubt if they are actually accepted socially within the college environment and they may be suspicious of their own intelligence and academic ability. This can lead to self-doubt about their own ability to be successful in college and cause them to question whether their "presence is legitimate" (p.102).

In the now infamous book *The Bell Curve*, Herrnstein and Murry (1994) discussed the presence of a correlation between socioeconomic status and intellectual ability. They argue that IQ is a strong predictor of poverty. Given that information, it does not take much of a leap to extrapolate the stereotype that those coming from a low-SES background are less intelligent than

those who do not, even though meta-analyses (e.g. Herrnstein & Murry, 1994 ; Strenze, 2007) demonstrate that lower intelligence is more likely to affect a person's SES than SES is likely to determine intelligence. The leap from writings like *The Bell Curve* can negatively affect students of low-SES backgrounds if they internalize or are aware of those assumptions particularly that their social status reflects less intelligence. For example within research, priming low-SES students of their SES has been associated with their subsequent underperformance (e.g., Spencer & Castano, 2007). Similarly, performance discrepancies were found after priming those students that a task would be diagnostic of intelligence (Croziet & Clair, 1998; Harrison et al., John-Henderson et al., 2014; Spencer & Castano, 2007). Results like these give support to the assumption that social class reflects intellectual ability (Rheinschmidt & Mendoza-Denton, 2014), specifically that low-SES students are not as smart are their higher-SES peers.

Stereotype Threat

Stereotype threat is an alternative explanation for the correlation between SES and performance. Beyond SES, stereotype threat offers an explanation for performance discrepancies found between a member of majority groups and socially marginalized group members. Stereotype threat occurs in an individual when they are part of a group from which a negative stereotype exists and that negative stereotype becomes personally salient, in the form of being wary that an outside entity may consider the individual's background or behavior as confirming that negative stereotype (e.g., Steele et al., 2002). For stereotype threat performance discrepancies to occur, the individual need not actually display the behavior that is being stereotyped; the reduced performance is due in part to anxiety from the stereotyped situation (e.g., Harrison et al., 2006; Steele & Aronson, 1995). Steele et al. (2002) highlights three general features of stereotype threat:

1. It is context dependent, developing from cues in the environment that signal a negatively stereotypic feature of one's own social identity "is now relevant as a possible interpretation for one's behavior and self in the setting" (p.389).

2. All people may experience stereotype threat, as all individuals have multiple social identities and participate in situations where a negative stereotype about their group affiliation may occur.

3. Stereotype threat depends on the specifics of the negative stereotype, given the context of the event. The authors use an example of a woman experiencing stereotype threat while in a math class, given the stereotype that women are not as good at math as men, but not experiencing such a threat during an English class, where such a stereotype about women's performance does not exist.

Stereotype threat was first established by Steele and Aronson (1995) as a construct to explain the differing levels of performance on intellectual tests between Black and White participants. They found that when controlling for SAT scores, Black participants exposed to a negative stereotype regarding race—told the test would be a indicative of their verbal intelligence—performed significantly worse than White students on GRE items. When the stereotype was not induced, the performance of Black participants "improved drastically, matching the performance of Whites…" (p. 801).

Since Steele and Aronson's (1995) seminal article, there have been over 300 published peer-reviewed journal articles researching stereotype threats effects regarding race, gender, and more recently socioeconomic status (For review see, Nguyen &Ryan, 2008; Walton & Cohen, 2003). Stereotype threat has been found to affect the performance on cognitive ability tasks for African Americans (Brown & Day, 2006), Latino/Latina (Schmader & Johns, 2003), Southerners

(Clark, Eno, and Guadagno, 2011), and those with low-SES (e.g., Croizet and Claire, 1998; Harrison, Stevens, Monty, and Coakley, 2006; John-Henderson, Rheinschmidt, Mendoza-Denton, and Francis, 2014; Spencer & Castano, 2007). Stereotype threat has been also been attributed to performance discrepancies in math for women (e.g., Schmader, 2002), as there is a common stereotype that males are superior to females in mathematics.

One of the postulates of stereotype threat theory is that any individual—even holding majority status identification—has the potential to be affected by stereotype threat as long as part of their social identity is susceptible to a negative stereotype (Steele et al., 2002). As an example, Aronson, Lustina, Good, and Keough (1999) found that when White men were primed with the stereotype that Asians outperformed all others/White men in math related tasks, the performance of White men decreased. Another example is found in research on athletic performance in which White men underperformed in a sports-related task when reminded of the stereotype that African Americans have natural athletic ability (Stone, Lynch, Sjomeling & Darley, 1999). Studies like these demonstrate the potential far reaching influence of stereotype threat, indiscriminate of race, gender, and SES.

Stereotype threat and low-SES. Although the effects of stereotype threat have been established in ethnic and gender minorities, there has been relatively little research done on the effects of stereotype threat on low-SES individuals. Croizet and Claire (1998) were the first to publish research that applied Steele and Aronson's concept of stereotype threat to a low-SES population. They examined the performance of 128 French students classified as either high-SES or low-SES on a task labeled as diagnostic of intellectual ability or a non-diagnostic condition. As would be predicted by the construct of stereotype threat, Croizet and Claire found there was a significant effect between test-diagnosticity and SES of the participants. Specifically

students categorized as low-SES answered fewer items correctly in the diagnostic condition than in the non-diagnostic condition and performed more poorly than high-SES students in the diagnostic condition.

In addition to test performance discrepancies, Croizet and Claire (1998) found a marginally significant difference between items attempted for those of low-SES in the diagnostic versus those in the non-diagnostic condition. They were unable to find a main effect for low-SES identity salience, in the form of SES self-identification, on test performance. They were able to demonstrate that students with a low-SES background will perform significantly worse than those with a high-SES background if told that the task is diagnostic of intellectual ability for solving verbal problems. When the same task was not presented as diagnostic of their intellectual ability, and the stereotype threat is no longer present, and the performance of low-SES students matched the performance of those with a high-SES background on all three performance measures: number of correct answers, number of items attempted, and accuracy.

Spencer and Castano (2007) extended research on stereotype threat and SES to a U.S. sample. Specifically, they examined if performance on Graduate Record Exam (GRE) questions and on a proof reading task differed for low-SES students as a result of stereotype threat. In addition to constructs of SES saliency and diagnostic priming, the authors measured self-assurance using a proof reading task because they hypothesized that under the threatening condition, those students with low-SES would feel less confident in their own judgments on tasks that "[require] strong verbal competence and agency" (p.423). Spencer and Castano found a significant main effect for income, which was measured through reports of parental income and occupation. Those students with higher family income performed better on the sample GRE questions after controlling for Scholastic Achievement Test (SAT) scores. In addition, those

low-SES students in the SES salient condition performed worse than those who were not primed for SES prior to taking the mock GRE and low-SES students demonstrated a non-significant trend toward worse performance in the diagnostic condition. In contrast, students who reported higher levels of family income did not show a significant difference in their performance as it related to SES salience, but they performed better when the task was labeled as diagnostic than when not labeled as such. Overall, those students classified as low-SES, exposed to the SES salient priming prior to taking the task, and told that the test would be diagnostic of their abilities performed worse than students in all other conditions. The authors note that this condition (SES salience/Diagnostic) was also the "most profitable" (p. 426) to students with a high-SES background, thus demonstrating stereotype lift. In regard to confidence, those with low-SES had less confidence in the diagnostic condition, as well as the high salience condition, but participants with high-SES seemed to have more confidence when the test was diagnostic and when SES was salient. Despite findings supporting the existence of stereotype threat operating with regard to SES on questions that mimic standardized testing, no SES effects were found on the proofreading task. These findings led Spencer and Castano to conclude that the same stereotype threat that has been demonstrated to affect the academic/intellectual performance of African Americans and women also affects those from a less visibly stigmatized group, namely those with lower socioeconomic status.

Harrison, Stevens, Monty, and Coakley (2006) examined stereotype threat effect in an ethnically diverse sample comprised of participants from lower, middle, and upper SES backgrounds, using math and verbal items taken from the SAT. As part of the diagnostic condition, the instructions stated that "middle and upper income students consistently performed better than lower income students on standardized tests" (p. 345), that this test was a valid

assessment of their abilities and limitations, and "would be compared to other students from across the nation in order to determine why lower-SES students generally perform worse than higher income students" (p.345-6). Nguyen and Ryan (2008) categorize this type of prime as a "blatant" cue, where an explicit message is used to convey one subgroup's "inferiority" (p.1316). The non-diagnostic condition stated the results would be used to help the researchers "understand psychological factors involved in completing standardized tests," (p. 346) and that the tests would not be used to evaluate their abilities.

Harrison et al. (2006) found that for math performance, students in the upper-SES category performed better than both those in the middle and lower-SES categories. In addition, the diagnostic condition produced amplified effects in which the lower-SES students performed worse than those in the non-diagnostic condition, and higher-SES students performed better in the diagnostic condition than in the non-diagnostic condition. This latter pattern has been described elsewhere and Walton and Cohen (2003) coined the term *stereotype lift* to describe the increase in performance "caused by the awareness that an out group is negatively stereotyped" (p. 456). Middle-SES students did not appear to be influenced between conditions. A similar pattern was found for verbal performance, with lower-SES students performing worse than higher-SES students, while middle-SES students did not differ significantly between the two. As with math performance, the diagnostic condition amplified the effects leading lower-SES students to perform worse than other lower-SES peers in the non-diagnostic condition, while higher-SES students performed best in the diagnostic condition. The performance on the verbal test of middle-SES students did not appear to be affected by diagnostic condition.

Harrison et al. (2006) also examined other factors that might help further explain the performance effects that occurred by examining other psychological variables. Participants

classified as lower-SES were found to have greater levels of test anxiety, compared to the other two groups, with the largest differences found across SES groups in the diagnostic condition. Interestingly, test diagnosticity did not appear to significantly influence the amount of test anxiety for either the middle or upper SES students; only lower-SES students demonstrated an increased level of test anxiety as an effect of experimental exposure to diagnosticity. Lower-SES students reported overall less interest or engagement in English and math academic domains, with those in the diagnostic condition expressing the least interest in math and English. In contrast, state self-esteem and effort exertion did not appear to differ as a function of SES regardless of the diagnostic condition. The results of this study led the authors to conclude that SES stereotypes negatively affect the performance of lower-SES students, but the stereotypes do not affect the amount of effort that lower-SES students exert on an academic task.

Most recently, John-Henderson, Rheinschmidt, Mendoza-Denton, and Francis (2014) examined stereotype threat effects for the difference in GRE-type verbal performance and the activation of physiological inflammatory responses as a function of past and current SES. Using the methodology of Croziet and Claire (1998), participants completed measures regarding SES prior to completing the verbal GRE-type task and were informed that they would complete a task that was "diagnostic of intellectual ability" or a "problem-solving exercise" (p. 303). After controlling for SAT scores, John-Henderson et al. found that performance on the verbal GRE-type task was negatively and significantly affected, such that those in the higher-SES categories performed better in the diagnostic threat, but performance between SES groups did not differ significantly in the non-diagnostic condition.

Learned Helplessness

Learned Helplessness, coined by Overmier and Seligman (1967) is phenomena first discovered during behavioral experiments of escape and avoidance learning with dogs. When dogs were presented with an electric shock, they typically jumped or moved from the area to either avoid or escape a continuation of being shocked. But when the dogs were exposed to an inescapable shock prior to the trial, they no longer exhibited escape or avoidance behavior and ultimately surrendered and "accepted" that they would continue to be shocked. Overmier and Seligman hypothesized that this learned helplessness behavior was a result of "receiving aversive stimuli in a situation in which all instrumental responses or attempts to respond are of no avail to [eliminate] or [reduce] the severity of the trauma" (p. 33). Seligman and Maier (1967) proposed later that year that in addition to the learning operations of acquisition and extinction another operation of learning existed – learned helplessness, which happens as a result of behavior and response incontiguity. If a dog's (or other organisms') behavior to escape or avoid does not produce the desired effect; "Such learning may produce an [individual] who does not attempt to escape electric shock…," or if she/he attempts "may not benefit from instrumental contingencies" (p. 9).

Following animal trials, learned helplessness or the "the effects of uncontrollable events" (p. 49) was examined with human subjects during the 1970's (for a review, see Abramson, Seligman, and Teasdale, 1978). Learned helplessness theory was reformulated in humans by Abramson et al., (1978) as a "motivational, cognitive, and emotional" (p. 50) theory. This is in contrast to the purely behavioral learned helplessness research conducted in animals and even some early human research (Thornton & Jacobs, 1971). The reformulated theory of learned helplessness by Abramson et al., (1978), herein referred to as learned helplessness, has two major revisions as it relates to humans, not included in the original concept. Revision one

indicates that learned helplessness is made cognitively through attributions, "the attribution the individual makes for non-contingency between his acts and outcomes in the here-and-now as a determinant of his subsequent expectation for future non-contingency" (p. 52). Attributions are categorized as either internal or external. Revision two concerns both the stability and generality of helplessness.

According to Abramson et al. (1978), internal attributions are those expectancies that an outcome is either more or less likely to occur to them compared to others. Helplessness that results from an internal attribution is called *personal helplessness*. Personal helplessness has a "low efficacy expectation coupled with a high outcome expectation (the response producing the outcome is unattainable to the person)" (p. 54). External attributions are those expectations that an outcome is as likely to happen to them as someone else. An external attribution results in *universal helplessness*. Universal helplessness "entails a low outcome expectation (no response produces the outcome)" (p. 54). In sum, those that are personally helpless make internal attributions for failures, but those that are universally helpless attribute failure to external forces.

Abramson et al. (1978) also defined g*lobal* helplessness as what happens when helplessness is experienced across a vast range of situations, whereas they defined helplessness which occurs for a limited amount of experiences as *specific*. Helplessness is considered *stable/chronic* when it is long-lasting or recurrent and labeled as transient/unstable when helplessness is short-lived or happens intermittently.

Abramson et al. (1978) proposed that all of these characteristics within their revisions (each set on a continuum) are orthogonal or independent of one another, creating a possibility of eight kinds of attributions that can be made: Internal-External X Stable-unstable X Global-Specific. A prediction can be made based on characteristics of the attribution of how

helplessness will recur and across what situations. The authors remind us that "the attribution merely predicts that recurrence of the expectations but the expectation determines the occurrence of the helplessness deficits" (p. 59).

Learned helplessness and learned helplessness attributions have been studied most commonly for their roles in depression (for review see, Hu, Zhang, & Yang, 2015; Peterson & Barret, 1987); in fact, the reformulation of learned helplessness theory was developed to help account for its role in depressed individuals (Abramson et al., 1978). Learned helplessness has also been found to affect an individuals in many ways including their ability to solve cognitive tasks (e.g. Hiroto & Seligman, 1975), the degree of structure a person benefits from during substance abuse treatment (Thornton et al., 2003), retention in cocaine substance use treatment (Sterling, Gottheil, Weinstein, Lundy, & Serota, 1996), disease outcomes in arthritis (Camacho, Verstappen, & Symmons, 2012), and likelihood of making poorer dietary choices (Hansen & Thomsen, 2013). Learned helplessness has even been theorized as a reason for the perpetuation of unemployment (Bjornstad, 2006) and may play a role in students being unsuccessful academically (e.g., Dweck & Licht, 1980; Peterson & Barrett, 1987; Valas, 2001).

Academic learned helplessness. Dweck and Licht (1980) teach us that failure can affect performance in both positive and negative ways. Positively, failure can increase such things as effort, concentration, and persistence. But negatively, failure can have the opposite effect and can even make an individual perform more poorly on problems they solved easily before. In Dweck and Licht's example, what differed most between those that exhibited learned helplessness and those that did not were the thoughts they had when they came in contact with difficulty. Those that were helpless dwelled on "the present," "the negative," and sought to

"escape from the situation" (p. 201). Learned helplessness presents as a serious impediment to successful learning (Valas, 2001).

Peterson and Barrett (1987) were the first to investigate attributional style's effect on college performance. Using undeclared college freshman, they examined the effects of attributional style on academic achievement as measured by grade point average (GPA) at the end of their freshman year. They hypothesized that those students who have a pessimistic or learned helplessness (e.g. Abramson et al., 1978; Peterson & Barrett, 1987; Morris & Tiggeman, 2013) attributional style- internal, stable, and global do more poorly compared to their peers who look at outcomes in a more optimistic manner. In addition to attributional style, the authors also examined the student's specificity of academic goals, their self-efficacy in achieving those goals, their characteristic coping responses to academic failure, and finally the degree to which those students pursued academic advising. They found that when controlling for ability (using SAT scores), depression, and gender; those that had an internal, stable, and global explanation of negative events performed worse than those students who made external, unstable, and specific causal explanations. In addition, they found that the pessimistic explanatory style was negatively correlated with those students having specific academic goals and visits to their academic adviser, but was not related to goal-efficacy or maladaptive coping with failure.

Subsequent research on attributional style has either produced mixed results or failed to replicate the findings of Peterson and Barrett's (1987) findings (Bridges, 2001; Morris & Tiggemann, 2013). Row and Lockhart (2005) found that some subscales associated with a negative attributional style were significantly related to the academic performance of Hispanic U.S. undergraduates, while the subscale measuring internal attributions of failure was not. This led them to conclude that students with lower academic performance tend to have a more

negative attributional style. Petiprin and Johnson (1991) found partial support regarding attributional style and academic performance, in that men with a more self-derogating attributional style were more susceptible to frustration, which in turn can decrease academic performance. Henry, Martinko, and Pierce (1993) found that although a negative attributional style was not predictive of achievement in a computer program course, a more positive style of attribution was predictive of positive outcomes. Those students with positive attributional styles performed better academically compared to those with negative attributional styles.

Tiggemann and Crowley (1993) did not find a relationship between academic attributional style, specific attributions, and academic performance in a sample of Australian undergraduates. Houston (1994) actually found that a negative attributional style improved performance academically for British undergraduates, even though their outlook was pessimistic. Similarly, Laforge and Cantrell (2003) found that U.S. undergraduate students with pessimistic explanatory styles performed better in a course and in college overall compared to those students with an optimistic explanatory style. Bridges (2001) measured attributional style as well as other more traditional predictors of performance (e.g. SAT score, class rank, high school GPA) for U.S. undergraduates and found that attributional style did not predict academic performance of college students; SAT scores were the best predictor of academic performance.

Morris and Tiggemann (2013) measured academic attributional style's effect on short-term (between semesters) and long-term academic performance (GPA three years later) in high-achieving and low-achieving Australian undergraduate samples. For short-term high-achievers they found results similar to Houston (1994) in that some with negative attributional characteristics actually performed better than those without negative attributional styles. In the low achieving-sample, no significant relationship between attributional style and short-term

outcomes emerged. Long-term academic performance measured by GPA three years later also produced no significant correlations between attributional style and GPA.

Since Peterson and Barrett's (1987) results, researchers have been left speculating as to why their findings have been mixed or contrary to the original experiment. Several believed it had to do with artifacts of the student sample. Petiprin and Johnson (1991) believed it was due to gender differences, Houston (1994) and Tiggemann and Crowley (1993) attributed the differences to the academically high achievement of their sample. In fact Gibb, Zhu, Alloy, and Abramson (2002) found that those students with pessimistic attributional styles and high ability performed higher than both optimistic attributional styles regardless of high or low ability. Several researchers believed that the measure of attributional style may actually be what is affecting the results (e.g. Bridges, 2001; Laforge & Cantrell, 2003).

The most commonly used measures, Attributional Style Questionnaire (ASQ) (Peterson, Semmel, Von Baeyer, Abramson, Metalsky & Seligman, 1982) referred to elsewhere as the Explanatory Style Questionnaire (ESQ; McKean, 1994), the Extended Attributional Style Questionnaire (EASQ; Metalsky, Halberstadt, & Abramson, 1987), the Academic Attributional Style Questionnaire (ASQ; Peterson & Barrett, 1987), and the Coping Style Questionnaire (Abramson, Metalsky, & Alloy, 2002) all provide participants with a list of hypothetical situations and ask them to rate their responses on scales that reflect the continuum domains of Abramson et al.'s (1978) learned helplessness theory. It appears as if each of the subsequent iterations of attributional style measurements were modeled after Peterson et al.'s (1982) original measure. Gibb et al., (2002) states that the CSQ is a "revised version" (p. 311) of the ASQ and Peterson and Barrett (1987) say the AASQ is "patterned exactly after" (p. 604) the ASQ.

Bridges (2001) hypothesized that the ASQ "may not be the proper instrument to assess attributional style for academic performance situations" (p. 729).

Laforge and Cantrell (2003) believe the ASQ may be problematic due to it lacking aspects that measure uncontrollability. Morris and Tiggemann (2013) call uncontrollability a "fundamental requirement" (p. 13) of learned helplessness. They believe that one of the reasons they were unable to find results was that academic performance is an inappropriate behavior to test predictions because in "most cases" (p. 13) academic performance is controllable. Other than Peterson and Barrett's (1987) research, McKean (1994) is the only other researcher to find a significant effect for learned helplessness and academic performance. In addition to using the ESQ, also known as the ASQ (Peterson, et al. 1982), McKean used the Learned Helplessness Scale (LHS; Quinless & McDermott, 1988) to develop a composite learned helplessness score. The LHS was designed to assess the expectations of uncontrollability (Quinless & McDermott, 1988; McKean, 1994) and is "the only published measure of helplessness-related expectations" (McKean, 1994, p. 179). McKean found that those students in the high-risk group (greater amount of learned helplessness) had significantly higher procrastination levels, depression scores, and significantly lower GPA's compared to those in the low-risk category.

Disengagement and Disidentification

Meta-analytic studies have mixed results correlating academic achievement and socioeconomic status. White (1982) found a positive but weak correlation between academic achievement and SES. In an attempt to replicate White's (1982) findings, Sirin (2005) found slightly less of a correlation between SES and academic achievement. If SES does not bear much of an effect on academic performance, why are those students of lower-SES not graduating four-year colleges at the same rate as their higher-SES peers?

Steele (1997) explained that for students to be successful academically, they must incorporate academic success as part of their personal identity. For this identity to form, the student must have some interests, skills, and opportunity in the academic domain, as well as some successes. When chronically faced with negative stereotypes regarding a student's abilities (e.g. academic or intellectual) an adaptation occurs where the student "significantly reduces or abandons" (Woodcock, Hernandez, Estrada, & Shultz, 2012, p. 636) and no longer incorporates the domain (e.g., academics or intellectual pursuits), in the long-term, as being part of their self-identity (Steele, 1997; Steele et al., 2002; Woodcock et al., 2012).

Disidentification is a two part process (Steele, et al 2002; Woodcock et al, 2012) that takes place over time following the chronic exposure of negative stereotypes forcing the student to reconceptualize her/himself and her/his values to remove the domain (e.g. academics) from her/his self-identity and thus, as a basis for evaluation (Steele, 1997). Steele (1997) describes disidentification as both a protection and a retreat, as the student no longer cares about the domain that produces the threat. He goes on to say that his form of protection is harmful because it undermines academic motivation and intellectual pursuits by removing these domains from how the student conceptualized him/herself.

Disengagement, the first and more acute part of the disidentification process (Steele, 2002; Woodcock, 1012) is defined as a detachment of self-esteem from external feedback or outcomes in a particular domain (Crocker, Major, & Steele, 1998; Major, Spencer, Schmader, Wolfe, & Crocker, 1998). Major and Schmader (1998) and others (e.g. Schmader, Major, Gramzow, 2001; Steele et al., 2002) have described disengagement happening through a process of devaluing and/or discounting. There those researchers have described devaluing as a process of disengagement when the stigmatized participants copes with the threat by no longer valuing

the domain as important or worth being invested in. They go on to describe that discounting is a similar type of protection, where the stigmatized individual does not accept the validity of the feedback or the validity of the assessment (e.g., academic/intellectual assessment).

Steele et al., (2002) described the domain of intelligence as being typically thought of as very important globally, so when a stereotype is made regarding intelligence, disengagement is likely because it cannot be avoided. In other words, when a negative stereotype about a students' intelligence is presented, the stigmatized student is likely to disengage by discounting and/or devaluing the task (Major & Schmader, 1998). For example, the student may devalue the importance of intelligence as a construct or even discount the accuracy of the intelligence measure in the service of their self-esteem.

A correlational study by Major & Schmader (1998) found that stereotyped Black students compared to White students were more likely to discount the validity of intellectual tests and also say their self-esteem did not depend on their performance on those types of tests. In an experiment conducted by Major et al., (1998) both Black and White college students were provided false (either success or failure) feedback on a test of intelligence after being told the test was or was not biased against certain racial and ethnic groups. They found that self-esteem of Black students was less affected when they received failure feedback, leading them to conclude that Black students disengaged when faced with a racial bias stereotype. Similarly, Von Hippel et al., (2005) found that when White students were told that Asians outperformed White people on intelligence tests, they rated intelligence as relatively unimportant compared to those that were not primed with the stereotype.

As highlighted earlier Harrison et al. (2006) found evidence for academic disengagement/disidentification for specified subjects with low-SES college students. Lower-

SES students in the stereotyped condition were less identified in both the English and Math domains when compared to lower-SES students not being stereotyped; however, self-esteem measures remained the same for all groups. Results like these have lead researchers (e.g., Aronson, Fried, & Good, 2002; Steele, 1997; Steele et al., 2002; Harrison, 2006) to speculate that the long-term consequence of repeated negative stereotypes about academics or intelligence may lead to disidentification with the academic domain. Harrison et al., (2006) states that lower-SES college students specifically may disengage from academic domains to maintain self-esteem when faced with a stereotype. To date there is not research that investigates more global academic/intellectual disengagement with lower-SES college students. Despite the meta-analytic data that SES is not great predictor of college academic performance; low-SES students do not persist and graduate college at the same rate as their higher-SES peers (U.S. Department of Education, 2011; The Pell Institute, 2011). Harrison et al. (2006) warns of stereotype's "cumulative effect on academic engagement" (p. 355) increasing the likelihood that a student will disengage academically and possibly drop out (e.g. Steele, 1992; Appel & Kronberger, 2012) prior to completing their college degree.

Purpose of this Study

This study sought to replicate previous research regarding the effect of stereotype threat on lower-SES students' intellectual/academic performance. In addition, it also attempted to replicate research conducted on academic/intellectual disengagement/disidentification of marginalized college students as a consequence of being faced with a stereotyped task. This study differed from the one other published account of domain identification with a lower-SES (Harrison, et al., 2006) sample. Harrison et al., (2006) examined disengagement/disidentification within specific academic domains whereas this research looked at disengagement with the more

global academic/intellectual domain. Research is necessary not only to establish that certain constructs exist, but to discover if separate constructs may be significantly related to one another. As such, this study sought to extend prior work on stereotype threat and socioeconomic status by exploring the role of learned helplessness as a possible moderator of stereotype threat effects and academic/intellectual disengagement in students with lower-SES.

Chapter 3

Method

Design

This study used an experimental between-subjects design. There were two levels within the experimental condition which formed two groups. In the experimental group, participants were told the task was diagnostic of their intelligence (Diagnostic condition). In the control group, participants were told the task is a problem solving exercise (Non-diagnostic condition). Following an SES-salience prime (i.e., estimating annual family income) participants were randomly assigned to the experimental (diagnostic condition) or control (non-diagnostic condition) group and they received the corresponding instructions based on that random group assignment. Next, participants completed outcome measures and the demographics questionnaire.

Participants

Data screening. Four hundred sixty-five participants began the study. Forty-six of those participants accessed the survey and subsequently discontinued the survey without answering any items whatsoever. Data from these "participants" were removed from all analyses. One hundred twenty-four participants entered their estimated annual family income and then discontinued the survey. Of those, 123 were also exposed to a testing condition (Control/non-diagnostic; $n = 59$; Experimental/diagnostic $n = 62$), meaning they accessed the survey, entered their estimated family income, were exposed to the condition, and then discontinued the survey. Data from those participants were also removed from all analyses. Twelve cases were removed

due to omitted (n = 10) or seemingly errant (n = 2; under $10K) estimated annual family income values. An additional 36 cases were removed because participants either did not report their standardized test scores or they reported scores in an inappropriate or invalid range. Two cases were also removed because the participants described themselves as graduate students, which was an exclusion criterion for participating. Lastly seven cases were removed due to extreme values on the estimated annual family income item (greater than three standard deviations from the mean or approximately $400,000 and above.

Final participants. The participants in this study were 238 undergraduate college students who reported being 18 years of age or older at the time of the study. The participants were recruited via university mass email and/or by a recruitment email (Appendix A) forwarded by an instructor after being contacted by the researcher or colleague of the researcher. Participation in the study was voluntary; participants had the option to opt-in to a raffle for one of five $25 Amazon.com ™ gift cards following the completion of the study. They also had the option of opting-in to find out more information about the experiment after the research was complete.

The participants were predominately female (n = 165, 69.3%), and White (n = 188, 79.0%) underclassmen (n = 167, 70.2%) from Auburn University (n = 173, 72.7%). The estimated annual family income ranged from $10,000 to $360,000 ($M$ = $102,919, SD = $65,435) with a median value of $90,000. Most commonly participants self-identified as middle class (n = 110, 46.2%) and reported having at least one parent with a bachelor's or graduate degree (n = 165, 69.3%). Further information regarding participant demographics can be located in Table 1.

Procedure

Overview. The researcher obtained approval from Auburn University's Institutional Review Board (IRB) to proceed with the study before collecting any participant data. The IRB approved participant recruitment for this study via email (Appendix A) from university mass email and individual instructor email at both Auburn University and other colleges and universities. The researcher contacted Auburn University's Office of Institutional Research to distribute the email to all freshman and sophomore Auburn University students. Instructors at Auburn University and others universities were selected in multiple ways (i.e., similar geographic region as AU; institutions/instructors with whom the researcher was affiliated; institutions/instructors with whom the researcher's colleagues were affiliated). Instructors not known to the researcher or a colleague of a researcher were selected primarily by searching an institution's class-catalog online, searching for general undergraduate courses (i.e., introductory psychology, sociology, or anthropology courses) and sending the person listed as the instructor of record the recruitment email (Appendix A) which asked them to forward the email to their class. Participants from nine universities (see Table 1) took part in the study. Because the recruitment email was distributed via the instructor of courses, the researcher does not know how many times instructors forwarded the email to their students.

The recruitment email (Appendix A) explained the inclusion criteria:

1. 18 years old or older.

2. Current enrollment as an undergraduate student.

3. Have previously taken the ACT or SAT.

The email also briefly explained confidentiality, the research tasks, and the approximate length of time it would take to complete the research. In addition, the email contained information about the incentive (i.e., option to enter a raffle after completing the survey) and contained a link

to the study in Qualtrics. The link to Qualtrics directed potential participant to the information letter (Appendix B) which further explained the study and provided more in-depth information regarding confidentiality and informed consent. If the participant indicated they met the inclusion criteria and agreed to participate in the study based on the information provided in the information letter, they selected a choice that indicated as such and began the study. Alternatively, potential participants who did not meet the inclusion criteria or did not want to participate in the study could select an option that indicated as such. The four participants who selected this option were routed to the end of the survey and thanked for their time.

Completion of the study. After consenting to participate, all participants were asked to report their annual total family income prior to taking the test. Participants were then randomly assigned to either the diagnostic or non-diagnostic condition. This random assignment created two groups: the diagnostic (experimental; $n = 116$) and non-diagnostic (control; $n = 122$) groups.

Participants assigned to the diagnostic condition received the following prompt: "The overall aim of this study is to assess your intellectual ability by solving verbal problems," a prompt similar to the one used by Croziet and Claire (1998). The non-diagnostic group received a prompt similar to other types of stereotype threat research (e.g., John-Henderson, 2014; Steele & Aronson, 1995), stating "The overall aim of this study is to validate these problem-solving exercises."

Following the prompt, all participants, regardless of test-diagnosticity, were exposed to the same survey. A one-item sample question and its solution were provided for each of the GRE-style task domains. Following that, the Learned Helplessness Scale, the State Self-Esteem Scale-Performance Index, and the Intellectual Engagement Inventory measures were administered in a random order to control for sequence effects. Participants were asked to

complete demographic information (e.g., race, sex, social class, etc.) following the completion of all measures to limit the possibility of those demographics priming the stereotype effect. As part of the demographics, participants also recorded their SAT/ACT scores. Those scores were used to control for the effects of participant's endogenous ability to complete problem-solving tasks. After the participants completed the survey, they were provided an opportunity to enter their email address to join in a raffle to win one of five $25 Amazon.com™ gift cards and the option to find out more about the research (Debriefing; Appendix C) once it is was completed.

Participant data for the study was collected anonymously and is not able to be traced back to any individual participant. Participants who chose to find out more information about the study or to be entered into the raffle were routed to another survey where they could enter their email address (as described in the information letter; Appendix B). These email addresses were stored separate from survey responses and cannot be identified with any specific survey response. Seventy-one participants elected to find out more information regarding the research and were subsequently sent the debriefing email (Appendix C). Two hundred six participants chose be entered into the raffle. Five participants were selected at random using a random number generator and were emailed a $25 electronic Amazon.com ™ gift cards.

Measures

Socioeconomic Status (SES). Socioeconomic status was measured by asking the participant to estimate their annual family income. Data not listed in thousands of dollars was transformed as such (e.g., 100 to 100K). This data was collected following the consent and prior to the administration of the verbal task for all participants. The placement of this question was purposeful, insofar as it served as a reminder of SES-saliency prior to the diagnostic prime (Spencer & Castano, 2007).

Verbal Abilities Test. The Verbal Abilities Test (VAT) is a 21 item GRE-Style task modeled after the GRE-style test used by Spencer and Castano (2007, p. 424). Items from Spencer and Castano's (2007) GRE-Task were combined with other items from GRE preparatory materials. Each item was numbered and then placed in a random number generator to develop items for this task. Following review from the committee, five items were suggested to be removed because they were deemed inappropriate (e.g., too difficult, reflected fund of general knowledge); five more items were picked at random as replacements. The VAT consisted of seven sentence completion problems, seven analogy problems, and seven simile problems comprised of a combination of items from Spencer and Castano's (2007) GRE-style test and other GRE preparatory items selected at random. Performance was measured by the number of correct answers provided on the verbal abilities task. For the current study, the VAT had split-half reliability (Spearman-Brown coefficient) of .69.

Learned Helplessness Scale (LHS). The original Learned Helplessness Scale (Quinless & McDermott Nelson, 1988) was developed to reflect the attributional styles that operate within learned helplessness. The items were reviewed by a panel of experts in learned helplessness theory and research (Specifically, Seligman, Abramson, and Peterson) to identify items that reflected the construct. The scale was revised (e.g., some items were reworded) by the authors following initial validity and reliability studies.

The Revised Learned Helplessness Scale (LHS) a 20-item measure in which each item (e.g., "When I don't succeed at a task, I find myself blaming my own stupidity for my failure;" "Other people have more control over their success and/or failure than I do") is rated on a four-point Likert-type scale ranging from 1, *strongly agree*, to 4, *strongly disagree*. Participants are asked to read each item and rate how closely they agree or disagree with how the item describes

them or how they feel about themselves. Half of the items are reverse-scored. Possible scores on the LHS range from 20 to 80 with higher scores indicating higher amounts of learned helplessness (Ward, 2015). A cut-off score is not provided for this measure. This learned helplessness measure has been used in published research (Gottheil, Thornton, Weinstein, 2002; Hood, Carney, Harris, 2011; Qutaiba, 2010; Shea, 2008; Schiefer & Krahé, 2014; Sorrenti, Filippello, Costa, Buzzai, 2014; Sterling, Gottheil, Weinstein, Lundy, Serota, 1996) to assess the degree of learned helplessness in a variety of groups, including undergraduate students both outside and within the United States (Ghbari, Damara, Nassar, 2014; McKean, K.J., 1994). I modified the instructions slightly to reflect the computer administration of this measure.

The developers normed the LHS using both a clinical and a normative sample; the clinical sample included oncology, hemodialysis, and spinal cord injury patients, while the normative sample consisted of 241 "healthy adults" (Quinless & McDermott, 1988, p.13) ranging from 18 to 80 years old (M = 39.80, SD = 12.98). The authors reported the alpha coefficient for the normative sample as .85 for the total LHS score. The authors of the measure used independent expert review to assure the content and face validity of the items. Concurrent and criterion-related validity were also assessed by comparing the instrument to both the Beck Hopelessness Scale (r = 0.25) and the Rosenberg Self-esteem Scale (r = -0.62) for each clinical population. The correlations for the Revised Learned Helplessness Scale (LHS) were not reported for the normative population.

Furthermore, factor analysis revealed that the LHS items load on five factors, including Internality-Externality (six items, α = <.45); Globality-Specificity (five items, α = <.45); and Stability-Instability (six items, α = <.45). Factor 4 (two items) and Factor 5 (two items) were unnamed, but retained because they contained items "theoretically related to the concept of

learned helplessness" (Quinless & McDermott, 1988, p. 14). Alpha coefficients were not reported for Factor 4 and 5. During the present experiment, internal consistency for the LHS was .83.

State Self-Esteem Scale-Performance Index (SSE-P). The SSE-P is one of three indices from the State Self-Esteem Scale (SSE; Heatherton & Policy, 1991). It is a 7-item scale that assesses "performance state self-esteem" (Heatherton & Polivy, 1991, p. 900) or "academic performance" (McCain, Jonason, Foster, Campbell, 2015, p. 1) self-esteem in the moment rather than global or trait self-esteem. Participants are asked to choose the answer that is true for them in the moment. Each item (e.g. "I feel that I have less scholastic ability right now than others;" "I feel frustrated or rattled about my performance") is rated on a five-point Likert-type scale ranging from 1, *not at all*, to 5, *extremely*. Five of seven items are reverse scored. Scores for this index range from seven to thirty five. A cut-off score is not provided for this index.

The SSE-P index is a better measure of self-esteem for this study for several reasons. First, a measure like the Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965) was constructed to measure "global" or overall self-esteem, which is not likely to change significantly due to experimental manipulation. Previous research (e.g., Crocker et al., 1998; Major & Schmader, 1998; Major, Spencer, Schmader, and Wolfe, 1998) has used the SSE-P as the primary dependent measure of state self-esteem in their disengagement research, whereas other researchers (Leitner et al., 2013) have modified the RSE with the aim of having it reflect state self-esteem. The SSE-P has also demonstrated the ability to detect changes in performance or academic self-esteem when a college student was faced with a difficult academic task (Heatherton & Polivy, 1991). Heatherton and Polivy (1991) used 122 college students who were told they faced a "very difficult exam" to determine sensitivity of SSE-P to measure state

academic self-esteem. When the entire SSE measure was used, including all three indices (i.e., Performance, Social, and Appearance) to measure state self-esteem in light of a difficult academic task, the other factors of state self-esteem (Social and Appearance) did not differ significantly (Heatherton & Polivy, 1991). Similarly, Heatherton and Polivy (1991) found that trait self-esteem (Feelings of inadequacy scale; Janis & Field, 1959) was not measurably affected by the situational academic context. The SSE-P has been found to have internal consistency ranging from .78 (McCain, Jonason, Foster, Campbell, 2015) to .82 (Crocker et al., 1998). The SSE-P has shown to be most related to global self-esteem (.57 to .63), trait anxiety (-.56), and depression (-.61) and least related to social desirability (.21), hostility (-.25), and satisfaction with aspect of one's body (-.09 to .25). For the present study the SSE-P had an internal consistency of .80.

Intellectual Engagement Inventory. The Intellectual Engagement Inventory (IEI; Major & Schmader, 1998) is a 12-item measure used to assess "an individual's level of engagement in the intellectual or academic domain" (p. 230). It was normed using 189 college students. Each item is rated on a scale from 1, *strongly disagree*, to 7, *agree strongly*. Half of the items are reverse scored. Separate scores are tallied for each factor cluster.

Major & Schmader (1998) conducted a factor analysis and found that the items load on three factors. The first factor, Devaluing (five items; $\alpha = .66$), is a reflection of how important it is for the student to do well academically (e.g., "Being good at academics is an important part of who I am"). The second factor, Discounting (four items $\alpha = .81$), assesses the degree to which the student discounts a standardized test of intelligence/achievement (e.g., "Most intelligence tests do not really measure what they are supposed to"). The third factor, Disengagement (three items; $\alpha = .62$) assess the degree to which a student says that their feelings are not dependent

upon their intelligence test performance (e.g., "I don't really care what tests say about my intelligence"). The authors described that each item was assigned to a factor if it loaded above .50 and did not load strongly on another factor. The IEI has been used in whole (Major & Schmader, 1998; Nussbaum & Steele, 2007) and in part (Leitner, et al., 2013; Stone, Harrison, & Mottley, 2012; Forbes, Schmader & Allen, 2008) to assess disengagement from intellectual domains in college students. This study measured academic/intellectual disengagement using the whole measure (all three subscales). Although there are other measures of disengagement/disidentification for specific academic domains, this is the only measure of disengagement for intellectual and achievement tests and general intellect specifically. No cut scores were reported for this measure. For this study the internal consistency for the devaluing (α = .80) and disengagement (α = .70) factors were higher than previous research, but the internal consistency of the discounting factor was somewhat lower (α = .77).

Demographics. Demographic information, other than estimated annual income, was collected following the completion of the dependent variables. The following demographic information (Appendix D) was obtained from participants: standardized test score; sex; race; type of school; name of school; year in school; subjective social class; highest parental education level.

SAT/ACT scores. Participants were asked to list their ACT or SAT scores following the performance task. Previous research has shown that self-reported ACT or SAT scores are highly correlated with actual performance (Rheinschmidt & Mendoza-Denton, 2014). A composite ACT/SAT score was developed using the ACT-SAT concordance tables (The ACT, 2008). These scores were used to control for the effects of differing abilities in the analyses.

Analyses

A-priori power analysis. I conducted an a-priori power analysis to ensure the study would have an adequate sample size. Based on several parameters (e.g., an alpha level of .05, an effect size of .15, and a desired power of .80) the analysis revealed a necessary total sample size of 135. The analyses include up to 14 predictors, including test-diagnosticity, estimated annual income, learned helplessness, ability, race, sex, year in school, subjective social class, parental education, and four interaction terms. To achieve the highest degrees of freedom, demographic variables other than ability were included in the model only if they were significantly related to the primary variables of interest (i.e., SES, LHS, test-diagnosticity, task performance).

Preliminary Analyses. Initially, I examined the relationships among the primary variables of interest (e.g., Diagnosticity, Estimated annual family income, learned helplessness, verbal task (i.e., VAT), state performance self-esteem (i.e., SSE-P), devaluing academic/intellectual pursuits (i.e., IEI-Devaluing), discounting validity of academic/intellectual measures (i.e., IEI-Discounting), and situational disengagement of identity from intellectual tests (i.e., IEI-Disengagement). I also examined the relationships between participant demographic factors of interest and the primary variables. The relationships between two interval-level variables were analyzed using Pearson product-moment correlations; the relationships between ordinal-level and interval-level variables were analyzed using Spearman's rank correlations; the differences between nominal-level and interval-level variables were analyzed using independent sample *t*-tests.

Statistical Analyses. I used several hierarchical multiple regression analyses to evaluate the research hypotheses. Analyzing the data using a multiple regression framework offers flexibility in examining the main effects and interactions between variables measured at both nominal and interval levels. Furthermore, I used bootstrapping with 1000 resamples to generate

significance levels; Bootstrapping is a non-parametric technique that estimates the population distribution of a statistic by resampling cases from the dataset (Efron & Tibshirani, 1993). Researchers have indicated that it provides more robust parameter estimates than traditional parametric methods (Wright, London, & Field, 2011).

Table 1

Demographic Characteristics of Participants (N = 238)

Variable	*n*	%
Sex		
Male	72	30.3
Female	165	69.3
Other	1	0.4
Race/Ethnicity		
White	188	79.0
Black/African American	9	3.8
Latino/Hispanic	28	11.8
Hawaii Native/Pacific Islander	1	0.4
Asian/Asian-American	8	3.4
Biracial	4	1.7
Classification		
Freshman	65	27.3
Sophomore	102	42.9
Junior	41	17.2
Senior	30	12.6
School		
Auburn University	173	72.7
New Mexico State University	42	17.6
TAMU-Commerce	6	2.5
University of South Florida	6	2.5
Allegheny College	5	2.1
MU-Columbia	3	1.3
AUM	1	0.4
University of North Georgia	1	0.4
West Virginia State University	1	0.4
Type of school		
Two year college	1	0.4
Four year university	237	99.6

*Note***.** TAMU-Commerce = Texas A&M University-Commerce; MU-Columbia = University of Missouri-Columbia; AUM = Auburn University-Montgomery.

Table 1 cont.

Variable	*n*	%
SES		
$10-29,999	19	8.0
$30-49,999	26	10.9
$50-69,999	28	11.8
$70-89,999	35	14.7
$90-109,999	51	21.4
$110-129,999	18	7.6
$130-149,999	7	2.9
$150-169,999	19	8.0
$170-189,999	11	4.6
$190-209,999	11	4.6
$210-229,999	1	0.4
$250-269,999	5	2.1
$290-309,999	4	1.7
$350-379,999	3	1.3
Subjective social class		
Lower/Working Class	14	5.9
Lower Middle Class	36	15.1
Middle Class	110	46.2
Upper Middle Class	75	31.5
Upper Class	3	1.3
Highest parental education		
Less than high school	6	2.5
High school diploma	50	21.0
Associates degree	17	7.1
Bachelor's degree	85	35.7
Graduate degree	80	33.6

Note. SES = Estimated annual family income. All missing values for SES equal zero responses for that category.

Chapter 4

Results

Descriptive Statistics and Univariate Analyses

Descriptive statistics including means, standard deviations, t-tests, and intercorrelations among variables were examined for all measures used in this study (see Tables 2, 3, 4, 5, 6, and 7). The VAT (Verbal task) had a possible range of 0-21; the actual range was 1-18 (*M* =7.03, SD = 3.38). Results of an independent sample t-test (see Table 3) suggest that participants in the control group did not differ from participants who received the diagnosticity prime on the VAT, the scale of learned helplessness (i.e., LHS), state performance self-esteem scale (i.e., SSE-P), or any of the disengagement measures (i.e., IEI-Devaluing, IEI-Discounting, and IEI-Disengagement).

In terms of sex, results of an independent sample t-test (see Table 4) suggest that female participants scored significantly higher than male participants on the measure of learned helplessness and significantly lower than males on measures of state performance self-esteem. Male participants scored significantly higher than female participants on situational identity disengagement from intellect/intellectual test performance. There were no significant sex differences on the verbal task, the measure of devaluing academics and intellectual pursuits, or discounting the validity of academic and intellectual measures.

During this experiment, I confounded race with ethnicity on the demographic form. For the purposes of the analyses, I will be using race as the descriptor term with awareness that the

terms race and ethnicity are confounded. With regard to race, the results of an independent sample t-test (see Table 5) demonstrated that participants who identified as White scored significantly higher than those who identified as non-White on the verbal task. Non-White participants scored significantly higher than their White-identified counterparts on the measure of learned helplessness, discounting the validity of measures of achievement and intellectual ability, as well as situational identity disengagement from intellectual pursuits. There were no significant differences with race on measures of state performance self-esteem or devaluing the importance of academics/doing well on intellectual tasks.

A Spearman correlation (see Table 6) was used to investigate relationships between other SES-related demographics and variables of interest. Those results demonstrated that participant's year in school; subjective social class and parental education were not significantly correlated with the verbal task (i.e., VAT), scale of learned helplessness (i.e., LHS), state performance self-esteem (i.e., SSE-P), or any disengagement measure (i.e., IEI-Devaluation, IEI-Discounting, IEI-Disengagement).

Standardized test scores (see Table 7) tended to be significantly correlated with performance and measures that were expected to relate to performance. Specifically, standardized test scores were positively related to performance on the verbal task and state performance self-esteem, but standardized test scores were negatively related to measures of learned helplessness, devaluing academic/intellectual pursuits, discounting the validity of academic and intellectual ability tests, and situational disengagement with intellect/and intellectual test performance.

Learned helplessness scores (see Table 7) were positively correlated with devaluing the importance of doing well on academic and intellectual tasks, as well as discounting the validity

of achievement and intellectual measures. Learned helplessness scores were negatively correlated with measures that were expected to relate to performance, specifically verbal task performance and state performance self-esteem. Learned helplessness scores were not significantly correlated with situational disengagement with intellect/and intellectual test performance.

Estimated annual family income (see Table 7) was significantly correlated with learned helplessness and one of the disengagement measures. Specifically, estimated annual family income was negatively associated with learned helplessness as well as discounting the validity of achievement and intellectual ability measures. Estimated annual family income was not significantly related to verbal task performance, situational performance self-esteem, devaluing academic and intellectual pursuits, or situational identity disengagement from intellect/intellectual test performance

Statistical Analyses

Prior to conducting the statistical analyses, I screened the data to ensure that the underlying statistical assumptions were met and used an alpha level of .05 for all analyses. A plot of the standardized residuals suggested that the homoscedasticity assumption was met and the residuals were approximately normally distributed. Durbin–Watson test values between 1.76 and 2.02 suggested that the error terms were uncorrelated (Durbin & Watson, 1951). There were also no significant issues with multicollinearity, as indicated by variance inflation factors (VIFs) all less than 2.38 (Cohen, Cohen, West, & Aiken, 2003).

Participant demographic factors that were significantly associated with the dependent variables at the univariate level, including race (0 = White, 1 = non-White) and sex (0 = male, 1 = female) were included as covariates in the model to control for their effects. Participant's

ability, as measured by self-reported standardized test scores, was also included as a covariate in the models to control for its effect. Prior to running the regression analyses one additional case was removed due to the participant identifying as "other" on the sex item. Therefore, the final dataset used to evaluate the primary research hypotheses included 237 cases with complete data on all items.

Hypothesis 1. After controlling for ability, SES (estimated annual family income) will predict VAT task performance in a way that is consistent with stereotype threat. That is, the relationship between SES and VAT task performance will depend on test-diagnosticity. Specifically, lower-SES students in the diagnostic condition will demonstrate poorer performance compared to lower-SES students in the non-diagnostic condition. Higher-SES participants in the diagnostic condition will perform the best, consistent with the literature reflecting the construct of stereotype lift (Figure 1).

Hypothesis 2. After controlling for ability, SES (estimated annual family income) will predict VAT task performance, depending on learned helplessness and test-diagnosticity. Specifically, in the diagnostic condition, lower-SES students with higher amounts of learned helplessness will perform worse than lower-SES students with low amounts of learned helplessness (Figure 2).

The results of the four-step hierarchical multiple regression analysis evaluating Hypothesis 1 and Hypothesis 2 are shown in Table 8. A four-step hierarchical multiple regression was conducted with VAT scores (task performance) as the dependent variable. I entered participants' prior standardized test scores, race (i.e., White or non-White), and sex (i.e., Male or Female) in the first step of the hierarchical regression analysis to control for the influence of these factors on the verbal task scores. The set of variables significantly contributed

to the model and explained approximately 9.4% of the variability in the verbal task scores [ΔR^2 = .09, p = < .001].

In the second step, I entered participants' estimated annual family income, learned helplessness scores, and the experimental condition (i.e., control versus diagnostic groups). Learned helplessness and SES were mean-centered to reduce problems with multi-collinearity when their interaction terms were introduced into the model (Afshartous & Preston, 2011). These predictors did not contribute significantly to the model [ΔR^2 = .03, p = .067].

In the third step, I entered three two-way interaction terms: learned helplessness X estimated annual family income, learned helplessness X condition, and estimated annual family income X condition. The two-way interaction terms did not significantly contribute to the model [ΔR^2 = .02, p = .282]. In the fourth step, I entered one three-way interaction term (i.e., learned helplessness X estimated annual family income X condition interaction); the three-way interaction term did not significantly contribute to the model [ΔR^2 = .004, p = .313].

The two-way interactions of learned helplessness X estimated annual family income (β = -.08, p = .207), learned helplessness X condition (β = -.03, p = .695), and estimated annual family income X condition (β = -.14, p = .111) were not significant. This suggests that the relationship between estimated annual family income and task performance did not depend on test diagnosticity. Therefore, the first hypothesis was not supported. The three-way interaction of learned helplessness X estimated annual family income X condition interaction was also not significant (β = -.09, p = .361). This suggests that the relationship between learned helplessness and task performance did not depend on the interaction of estimated annual family income and test-diagnosticity. Therefore, the second hypothesis was not supported.

The main effects of standardized test scores (β = .19, *sr* = .17, p = .009), race (β = -.17, *sr*

= -.15, p = .015), and learned helplessness (β = -.17, sr = .-16, p = .009) were significant. Both standardized test scores and race each uniquely account for about 2.9% of that variance of task performance, and learned helplessness contributed about 2.6% of the variance. These results suggest that standardized test scores and race are significant predictors of verbal task performance. The results also suggest that even after controlling for the effects of standardized test scores and race, learned helplessness scores are also a significant predictor of, and negatively associated with, verbal task performance.

Hypothesis 3. SES (estimated annual family income) will predict each facet of academic/intellectual disengagement, including a) devaluing, b) discounting, and c) disengagement depending on test-diagnosticity. Lower-SES students in the diagnostic condition will have higher scores on the three facets of academic/intellectual disengagement (i.e., devaluing, discounting, and disengagement) compared to lower-SES students who are in the non-diagnostic condition. Higher-SES students will not vary significantly in academic/intellectual disengagement (i.e., devaluing, discounting, disengagement, self-esteem) regardless of condition (i.e., diagnostic or non-diagnostic; Figure 3).

Hypothesis 4. After controlling for ability, SES (estimated annual family income) will predict each facet of academic/intellectual disengagement including a) devaluing, b) discounting, and c) disengagement, depending on learned helplessness and test-diagnosticity. Specifically, in the diagnostic condition, lower-SES students with higher amounts of learned helplessness will have higher levels of academic/intellectual disengagement (devaluing, discounting, and disengagement) than lower-SES students with low amounts of learned helplessness (Figure 4).

A four step hierarchical multiple regression was conducted with each facet of disengagement (i.e., Devaluing, Discounting, and Disengagement) as the dependent variable.

Hypotheses 3a and 4a. The results of the four-step hierarchical multiple regression analysis evaluating Hypothesis 3a and Hypothesis 4a (predicting IEI-Devaluing) are shown in Table 9. I entered participants' prior standardized test scores, race (i.e., White or non-White), and sex (i.e., Male or Female) in the first step of the hierarchical regression analysis to control for the influence of these factors on IEI-Devaluing scores. The set of variables did not significantly contribute to the model. In the second step, I entered participants' mean-centered estimated annual family income, mean-centered learned helplessness scores, and experimental condition (e.g., control versus diagnostic groups). These predictors collectively contributed significantly to the model and explained an additional 7.1% of the variability in IEI-Devaluing scores [ΔR^2 = .071, p = <.001]. At this step the control variable of sex also became significant (β = .19, p = .007).

In the third step, I entered three two-way interaction terms: learned helplessness X estimated annual family income, learned helplessness X condition, and estimated annual family income X condition. The two-way interaction terms did not significantly contribute to the model [ΔR^2 =.019 , p =.179]. In the fourth step, I entered one three-way interaction term (i.e., the learned helplessness X estimated annual family income X condition interaction); the three-way interaction terms did not significantly contribute to the model [ΔR^2 = <.001, p = .725].

The two-way interactions of learned helplessness X estimated annual family income (β = -.03, p = .649), learned helplessness X condition (β = .19, p = .068), and estimated annual family income X condition (β = .05, p = .635) were not significant. This suggests that the relationship between estimated annual family income and IEI-Devaluing did not depend on test diagnosticity. The three-way interaction of learned helplessness X estimated annual family income X condition interaction was also not significant (β = .03, p = .746). This suggests that the relationship

between learned helplessness and IEI-Devaluing did not depend on the interaction of estimated annual family income and test-diagnosticity.

Sex became a significant predictor only in the second step; the main effect of learned helplessness was also significant (β = .28, *sr* = .26, *p* = .002) with a semi-partial correlation greater than the zero sum correlation (r = .25) between LHS and IEI-Devaluing. The pattern of larger relationships between these variables and devaluing when both variables are in the model indicates that there was a potential suppression effect which may reflect a special type of interaction between sex and learned helplessness. As such the model was run again this time without controlling for sex. Similarly, only the second step of the hierarchical analysis was significant [ΔR^2 = .052, *p* = .006] with the main effect of LHS still significant (β = .23, *sr* = .22, *p* = .004), but having a more appropriate standardized beta and semi-partial correlation coefficient.

Learned helplessness scores, even after controlling for standardized test scores, uniquely explained approximately 4.8% of the variance of the devaluing aspect of disengagement. This result suggests that learned helplessness is a significant predictor of, and is negatively associated with, the devaluing aspect of academic and intellectual pursuits. Another model was run to determine if there was an interaction between LHS and sex. The results revealed there was not (β = -.02, *p* = .893).

Hypotheses 3b and 4b. The results of the four-step hierarchical multiple regression analysis evaluating Hypothesis 3b and Hypothesis 4b (predicting IEI-Discounting) are shown in Table 10. I entered participants' prior standardized test scores, race, and sex in the first step to control for the influence of these factors on IEI-Devaluing scores. This set of variables significantly contributed to the model and explained approximately 11.2% of the variability in

IEI- Discounting scores [ΔR^2 = .112, p = <.001].

In the second step, I entered participants' mean-centered estimated annual family income, mean-centered learned helplessness scores, and the experimental condition (e.g., control versus diagnostic groups). These predictors collectively and significantly contributed to the model and explained an additional 3.1% of the variability in IEI- Discounting scores [ΔR^2 = .031, p = .043]. In the third step, I entered three two-way interaction terms: learned helplessness X estimated annual family income, learned helplessness X estimated annual family income, and estimated annual family income X condition. The two-way interaction terms did not significantly contribute to the model [ΔR^2 =.016, p =.237]. In the fourth step, I entered one three-way interaction term (i.e., the learned helplessness X estimated annual family income X condition interaction); The three-way interaction terms did not significantly contribute to the model [ΔR^2 = <.001, p =.729].

The two-way interactions of learned helplessness X estimated annual family income (β = .09, p = .117), learned helplessness X condition (β = .11, p = .241), and estimated annual family income X condition (β = .04, p = .698) were not significant. This suggests that the relationship between estimated annual family income and IEI- Discounting did not depend on test diagnosticity. The three-way interaction of learned helplessness X estimated annual family income X condition interaction was also not significant (β = .03, p = .758). This suggests that the relationship between learned helplessness and IEI- Discounting did not depend on the interaction of estimated annual family income and test-diagnosticity.

The main effect of standardized test scores (β = -.30, sr = -.26, p = .001) and estimated annual family income (β= -.17, sr = -.16, p= .008) were significant, accounting for approximately 6.8% and 2.6% respectively, of the discounting aspect of disengagement. These

results suggest that standardized test scores are a significant predictor of, and negatively associated with the discounting aspect of disengagement. The results also suggest that estimated annual family income, even after controlling for the effects of standardized test scores, race, and sex is a significant predictor of, and negatively associated with, the discounting aspect of disengagement.

Hypotheses 3c and 4c. The results of the four-step hierarchical multiple regression analysis evaluating Hypothesis 3c and Hypothesis 4c (predicting IEI-Disengagement) are shown in Table 11. I entered participants' prior standardized test scores, race, and sex in the first step of the hierarchical regression analysis to control for the influence of these factors on IEI-Disengagement scores. The set of variables significantly contributed to the model and explained approximately 12.5% of the variability in IEI-Disengagement scores [$\Delta R^2 = .125$, $p = <.001$].

In the second step, I entered participants' mean-centered SES (estimated annual family income), mean-centered learned helplessness scores, and experimental condition (e.g., control versus diagnostic groups). These predictors did not significantly contribute to the model [$\Delta R^2 = 0.21$, $p = .139$]. In the third step, I entered three two-way interaction terms: learned helplessness X estimated annual family income, learned helplessness X condition, and estimated annual family income X condition. The two-way interaction terms did not significantly contribute to the model [$\Delta R^2 = .026$, $p = .075$]. In the fourth step, I entered one three-way interaction term (i.e., learned helplessness X estimated annual family income X condition interaction); The three-way interaction terms did not significantly contribute to the model [$\Delta R^2 = <.001$, $p = .590$].

The two-way interactions of learned helplessness X estimated annual family income ($\beta = .07$, $p = .269$), learned helplessness X condition ($\beta = .16$, $p = .074$), and estimated annual family income X condition ($\beta = .18$, $p = .058$) were not significant. This suggests that the relationship

between SES (as measured by estimated annual family income) and IEI- Disengagement did not depend on test diagnosticity. The three-way interaction of learned helplessness X estimated annual family income X condition interaction was also not significant (β = .05, p = .576). This suggests that the relationship between learned helplessness and IEI- Disengagement did not depend on the interaction of estimated annual family income and test-diagnosticity. Collectively, these results indicate that Hypotheses 3A-C and 4A-C were not supported.

The main effect of sex (β = -.27, sr = -.26 p = .001) was significant, uniquely explaining 6.8% of the variance of the situational disengagement aspect of intellectual/academic disengagement. These results suggest that sex is a significant predictor of the situational disengagement of intellect/intellectual test performance.

Hypothesis 5. SES (estimated annual family income) will predict self-esteem, depending on test diagnosticity, specifically lower-SES students in the diagnostic condition will have higher scores on self-esteem compared to lower-SES students who are in the non-diagnostic condition (Figure 5).

Hypothesis 6. After controlling for ability, SES (estimated annual family income) will predict self-esteem, depending on learned helplessness and test-diagnosticity. Specifically, in the diagnostic condition, lower-SES students with higher amounts of learned helplessness will have higher self-esteem than lower-SES students with low amounts of learned helplessness (Figure 6).

The results of the four-step hierarchical multiple regression analysis evaluating Hypothesis 5 and Hypothesis 6 are shown in Table 12. I entered participants' prior standardized test scores, race, and sex in the first step of the hierarchical multiple regression analysis to control for the influence of these factors on SSE-P scores. The set of variables significantly contributed to the model and explained approximately 7.3% of the variability in SSE-P scores

[ΔR^2 = .073, p = .001].

In the second step, I entered participants' mean-centered SES (estimated annual family income), mean-centered learned helplessness scores, and experimental condition (e.g., control versus diagnostic groups). These predictors collectively and significantly contributed to the model and explained an additional 20% of the variability in SSE-P scores [ΔR^2 = .20, p = <.001]. In the third step, I entered three two-way interaction terms: learned helplessness X estimated annual family income, learned helplessness X condition, and estimated annual family income X condition two-way interaction terms. The two-way interaction terms did not significantly contribute to the model [ΔR^2 = .01, p = .576]. In the fourth step, I entered one three-way interaction term (i.e., the learned helplessness X estimated annual family income X condition interaction); the three-way interaction terms did not significantly contribute to the model [ΔR^2 = <.001, p = .894].

The two-way interactions of learned helplessness X estimated annual family income (β = .05, p = .396), learned helplessness X condition (β = .05, p = .484), and estimated annual family income X condition (β = .10, p = .321) were not significant. This suggests that the relationship between as measured by estimated annual family income and self-esteem did not depend on test diagnosticity. Therefore, the fifth hypothesis was not supported. The three-way interaction of learned helplessness X estimated annual family income X condition interaction was also not significant (β = .01, p = .893). This suggests that the relationship between learned helplessness and self-esteem did not depend on the interaction of estimated annual family income and test-diagnosticity. Therefore, the sixth hypothesis was not supported.

The main effects of sex (β = -.23, sr = -.23, p = .042) and learned helplessness (β = -.47, sr = -.43, p = .001) were significant, uniquely predicting approximately 5.3% and 18.5%

respectively, of the variance of state performance self-esteem. These results suggest sex is a predictor of state performance self-esteem. In addition, learned helplessness scores, even after accounting for standardized test scores and race, are significant predictors of, and negatively associated with, state performance self-esteem.

Post hoc Analyses

Specific demographics were examined comparing lower-SES groupings to the total sample (Table 13). Other analyses including mean VAT comparisons (Table 14), mean standardized test comparisons (Table 15), and an independent sample t-test (Table 16) were conducted comparing lower-SES groupings with the total sample. Those as well as tables describing extended demographics (Tables 17 and 18) for the lower subjective social class grouping are located at the end of the chapter.

Table 2

Descriptive Statistics

Variable	Mean	*SD*
Stand. Test	26.81	5.00
VAT	7.03	3.38
LHS	41.96	6.70
SSE-P	22.84	5.63
IEI-Devaluing	9.65	4.37
IEI-Discontinuing	17.16	5.00
IEI-Disengagement	10.87	4.00

Note. Stand. Test = ACT/SAT composite score (ability); VAT = Verbal Abilities Task; LHS = Learned helplessness scale (Learned helplessness); SSE-P = State Self-esteem Performance index; IEI-Devaluing = Intellectual Engagement Inventory- Devaluing index; IEI-Discounting = Intellectual Engagement Inventory- Discounting index; IEI- Disengagement = Intellectual Engagement Inventory- Disengagement index.

Table 3

Independent Sample t-test for Diagnosticity

	Non-Diagnostic (n =122)		Diagnostic (n = 116)			
Variable	Mean	*SD*	Mean	*SD*	*t*	*df*
VAT	7.23	3.54	6.89	3.29	0.77	236
LHS	42.32	6.66	41.57	6.72	0.87	236
SSE-P	22.30	5.69	23.48	5.55	-1.63	236
IEI-Dev.	9.52	4.20	9.76	4.54	-0.41	236
IEI-Disc.	16.96	4.83	17.32	.48	-0.55	236
IEI- Dis.	10.53	4.01	3.99	.37	-1.25	236

Note. Significance levels estimated using bootstrapping with 1000 resamples. VAT = Verbal abilities test; LHS = Learned helplessness scale (Learned helplessness); SSE-P = Situational self-esteem scale-Performance index, IEI-Dev. = Intellectual Engagement Inventory-Devaluing index; IEI-Disc. = Intellectual Engagement Inventory-Discounting index, IEI- Dis. = Intellectual Engagement Inventory- Disengagement index. All scores are not significant; p >.05.

Table 4

Independent Sample t-test for Sex

	Male (n = 72)		Female (n = 165)			
Variable	Mean	*SD*	Mean	*SD*	*t*	*df*
VAT	7.14	3.28	6.98	3.44	0.33	235
LHS	39.36	6.47	43.10	6.50	-4.08**	235
SSE-P	24.88	4.71	21.95	5.78	3.78**	235
IEI-Dev.	10.33	4.59	9.35	4.24	1.60	235
IEI-Disc.	16.21	4.77	17.57	5.06	-1.94	235
IEI- Dis.	12.44	4.05	10.18	3.79	4.14**	235

Note. Significance levels estimated using bootstrapping with 1000 resamples. VAT = Verbal abilities test; LHS = Learned helplessness scale (Learned helplessness); SSE-P = Situational self-esteem scale-Performance index, IEI-Dev. = Intellectual Engagement Inventory-Devaluing index; IEI-Disc. = Intellectual Engagement Inventory-Discounting index, IEI- Dis. = Intellectual Engagement Inventory- Disengagement index. ** $p < .01$

Table 5

Independent Sample t-test for Race

	White (n = 188)		Non-White (n = 50)			
Variable	Mean	*SD*	Mean	*SD*	*t*	*df*
VAT	7.51	3.45	5.38	2.72	4.05**	236
LHS	41.43	6.60	43.94	6.90	-2.39*	236
SSEP	22.97	5.39	22.50	6.55	0.53	236
IEI-Dev.	9.53	4.33	10.04	4.51	-0.73	236
IEI-Disc.	16.72	5.16	18.70	4.03	-2.52**	236
IEI- Dis.	10.43	4.03	12.44	3.49	-3.22**	236

Note. Significance levels estimated using bootstrapping with 1000 resamples. VAT = Verbal abilities test; LHS = Learned helplessness scale (Learned helplessness); SSE-P = Situational self-esteem scale-Performance index, IEI-Dev. = Intellectual Engagement Inventory-Devaluing index; IEI-Disc. = Intellectual Engagement Inventory-Discounting index, IEI- Dis. = Intellectual Engagement Inventory- Disengagement index. ** $p < .01$, * $p < .05$

Table 6

Spearman Correlations for Ordinal Demographic Variables (n = 238)

Variable	VAT	LHS	IEI- Dev.	IEI-Disc.	IEI-Dis.	SSE-P
Year	-.01	-.04	-.02	.03	.08	-.03
SSC	-.07	-.08	-.03	-.08	.03	.08
Parental Ed.	.09	-.06	-.03	-.08	-.06	.02

Note. Year = Participant identified year in college; SSC = Subjective social class standing; and Parental Ed = Highest level of most educated parent. VAT = Verbal Abilities Test; LHS = Learn Helplessness Scale (Learned helplessness); IEI-Dev. = Intellectual Engagement Inventory- Devaluing index, IEI-Disc. = Intellectual Engagement Inventory- Discounting index, IEI- Dis. = Intellectual Engagement Inventory- Disengagement index; SSE-P = Situational Self-Esteem Scale-Performance index. All correlations are not significant; $p > .05$.

Table 7

Correlation Matrix for Regression Analyses (*n = 237*)

Variable	1.	2.	3.	4.	5.	6.	7.
1. Stan. Test	-						
2. SES	.18**	-					
3. VAT	.27**	.04	-				
4. LHS	-.25**	-.21**	-.22**	-			
5. SSE-P	.14*	.08	.15*	-.50**	-		
6. IEI-Dev.	-.14*	-.08	-.05	.25**	-.05	-	
7. IEI-Disc.	-.32**	-.23**	-.08	.17**	-.17**	.14*	-
8. IEI-Dis.	-.20**	-.12	-.11	-.09	.32**	.34**	.17**

Note. Stan. Test = Scaled standardized test score (Ability); SES = Estimated annual family income (Socioeconomic status); VAT = Verbal abilities test, LHS = Learned helplessness scale (Learned helplessness); SSE-P = Situational self-esteem scale-Performance index; IEI-Dev. = Intellectual Engagement Inventory-Devaluing index, IEI-Disc. = Intellectual Engagement Inventory- Discounting index, IEI- Dis. = Intellectual Engagement Inventory- Disengagement index.
** $p < .01$, * $p < .05$

Table 8

Regression Table for Verbal Task Performance

		VAT Scores				
	Predictor	ΔR^2	*B*	*SE B*	β	(*sr*)
Step 1		.09				
	Standardized Test		0.13	0.05	.19**	.17
	Race		-1.37	0.57	-.17*	-.15
	Sex		-0.13	0.46	-.02	-.02
Step 2		.03				
	Condition		-0.32	0.39	-.05	-.05
	LHS		-0.09	0.03	-.17**	-.16
	SES		-0.00	0.00	-.06	-.06
Step 3		.02				
	LHS X SES		-0.00	0.00	-.08	-.08
	LHS X Condition		-0.02	0.06	-.03	-.02
	SES X Condition		-0.00	0.00	-.14	-.10
Step 4		.00				
	LHS X SES X Condition		-0.00	0.00	-.09	-.06

Note. Standard errors and significance levels are estimated using bootstrapping with 1000 resamples. Race = Participants' identified race (0 = White, 1 = non-White); Sex = Participants' identified sex (0 = Male, 1 = Female), Standardized Test = Scaled standardized test score (Ability), SES = Estimated annual family income (Socioeconomic status), Condition = Diagnostic condition (0 = Control, 1 = Experimental/Primed. VAT = Verbal abilities test, LHS = Learned helplessness scale (Learned helplessness), SES X Condition = The interaction term of estimated annual family income (Socioeconomic status) and diagnosticity (0 = Control, 1 = Experimental/Primed), LHS X Condition = The interaction term of learned helplessness scale (Learned helplessness) and diagnosticity (0 = Control, 1 = Experimental/Primed), LHS X SES = The interaction term of learned helplessness scale (Learned helplessness) and estimated annual family income (Socioeconomic status), and LHS X SES X Condition = The interaction term for learned helplessness scale (Learned helplessness), estimated annual family income (Socioeconomic status), and diagnosticity (0 = Control, 1 = Experimental/Primed).
** $p < .01$, * $p < .05$

Table 9

Regression Table for Devaluing Index

		IEI-Devaluing Scores				
	Predictor	ΔR^2	*B*	*SE B*	β	(*sr*)
Step 1		.03				
	Standardized Test		-0.14	0.07	.61	-.14
	Race		-0.37	0.93	-.04	-.03
	Sex		-1.11	0.62	-.12	-.12
Step 2		.07				
	Condition		0.36	0.54	.04	.04
	LHS		0.18	0.05	.28**	.26
	SES		-0.00	0.00	-.03	-.03
Step 3		.02				
	LHS X SES		-0.00	0.00	-.03	-.03
	LHS X Condition		0.18	0.10	.19	.13
	SES X Condition		0.00	0.00	.05	.03
Step 4		.00				
	LHS X SES X Condition		0.00	0.00	.03	.02

Note. Standard errors and significance levels are estimated using bootstrapping with 1000 resamples. Race = Participants' identified race (0 = White, 1 = non-White); Sex = Participants' identified sex (0 = Male, 1 = Female), Standardized Test = Scaled standardized test score (Ability), SES = Estimated annual family income (Socioeconomic status), Condition = Diagnostic condition (0 = Control, 1 = Experimental/Primed. VAT = Verbal abilities test, LHS = Learned helplessness scale (Learned helplessness), SES X Condition = The interaction term of estimated annual family income (Socioeconomic status) and diagnosticity (0 = Control, 1 = Experimental/Primed), LHS X Condition = The interaction term of learned helplessness scale (Learned helplessness) and diagnosticity (0 = Control, 1 = Experimental/Primed), LHS X SES = The interaction term of learned helplessness scale (Learned helplessness) and estimated annual family income (Socioeconomic status), and LHS X SES X Condition = The interaction term for learned helplessness scale (Learned helplessness), estimated annual family income (Socioeconomic status), and diagnosticity (0 = Control, 1 = Experimental/Primed).
** $p < .01$

Table 10

Regression Table for Discounting Index

		IEI-Discounting				
	Predictor	ΔR^2	*B*	*SE B*	β	(*sr*)
Step 1		.11				
	Standardized Test		-0.30	0.07	-.30**	-.26
	Race		0.37	0.76	.03	.03
	Sex		1.15	0.67	.11	.11
Step 2		.03				
	Condition		0.26	0.62	.03	.03
	LHS		0.04	0.06	.05	.05
	SES		-0.00	0.00	-.17**	-.16
Step 3		.02				
	LHS X SES		0.00	0.00	.11	.10
	LHS X Condition		0.12	0.10	.11	.08
	SES X Condition		0.00	0.00	.04	.03
Step 4		.00				
	LHS X SES X Condition		0.00	0.00	.03	.02

Note. Standard errors and significance levels are estimated using bootstrapping with 1000 resamples. Race = Participants' identified race (0 = White, 1 = non-White); Sex = Participants' identified sex (0 = Male, 1 = Female), Standardized Test = Scaled standardized test score (Ability), SES = Estimated annual family income (Socioeconomic status), Condition = Diagnostic condition (0 = Control, 1 = Experimental/Primed. VAT = Verbal abilities test, LHS = Learned helplessness scale (Learned helplessness), SES X Condition = The interaction term of estimated annual family income (Socioeconomic status) and diagnosticity (0 = Control, 1 = Experimental/Primed), LHS X Condition = The interaction term of learned helplessness scale (Learned helplessness) and diagnosticity (0 = Control, 1 = Experimental/Primed), LHS X SES = The interaction term of learned helplessness scale (Learned helplessness) and estimated annual family income (Socioeconomic status), and LHS X SES X Condition = The interaction term for learned helplessness scale (Learned helplessness), estimated annual family income (Socioeconomic status), and diagnosticity (0 = Control, 1 = Experimental/Primed).
** $p < .01$

Table 11

Regression Table for Situational Disengagement Index

IEI-Disengagement Scores						
	Predictor	ΔR^2	*B*	*SE B*	β	*(sr)*
Step 1		.13				
	Standardized Test		-0.14	0.06	-.17	-.15
	Race		1.07	0.68	.11	.10
	Sex		-2.31	0.57	-.27**	-.26
Step 2		.02				
	Condition		0.52	0.50	.07	.06
	LHS		-0.06	0.04	-.10	-.09
	SES		-0.00	0.00	-.11	-.10
Step 3		.03				
	LHS X SES		0.00	0.00	.07	.07
	LHS X Condition		0.14	0.08	.16	.11
	SES X Condition		0.00	0.00	.18	.12
Step 4		.00				
	LHS X SES X Condition		0.00	0.00	.05	.03

Note. Standard errors and significance levels are estimated using bootstrapping with 1000 resamples. Race = Participants' identified race (0 = White, 1 = non-White); Sex = Participants' identified sex (0 = Male, 1 = Female), Standardized Test = Scaled standardized test score (Ability), SES = Estimated annual family income (Socioeconomic status), Condition = Diagnostic condition (0 = Control, 1 = Experimental/Primed. VAT = Verbal abilities test, LHS = Learned helplessness scale (Learned helplessness), SES X Condition = The interaction term of estimated annual family income (Socioeconomic status) and diagnosticity (0 = Control, 1 = Experimental/Primed), LHS X Condition = The interaction term of learned helplessness scale (Learned helplessness) and diagnosticity (0 = Control, 1 = Experimental/Primed), LHS X SES = The interaction term of learned helplessness scale (Learned helplessness) and estimated annual family income (Socioeconomic status), and LHS X SES X Condition = The interaction term for learned helplessness scale (Learned helplessness), estimated annual family income (Socioeconomic status), and diagnosticity (0 = Control, 1 = Experimental/Primed).
** $p < .01$

Table 12

Regression Table for State Performance Self-Esteem

		SSE-P Scores				
	Predictor	ΔR^2	*B*	*SE B*	β	(*sr*)
Step 1						
	Standardized Test	.07	0.15	0.08	.13	.12
	Race		0.20	1.10	.01	.01
	Sex		-2.80	0.69	-.23**	-.23
Step 2		.20				
	Condition		0.85	0.66	.08	.08
	LHS		-0.39	0.05	-.47**	-.43
	SES		-0.00	0.00	-.02	-.02
Step 3		.01				
	LHS X SES		0.00	0.00	.05	.04
	LHS X Condition		0.06	0.92	.05	.04
	SES X Condition		0.00	0.00	.10	.07
Step 4		.00				
	LHS X SES X Condition		0.00	0.00	.01	.01

Note. Standard errors and significance levels are estimated using bootstrapping with 1000 resamples. Race = Participants' identified race (0 = White, 1 = non-White); Sex = Participants' identified sex (0 = Male, 1 = Female), Standardized Test = Scaled standardized test score (Ability), SES = Estimated annual family income (Socioeconomic status), Condition = Diagnostic condition (0 = Control, 1 = Experimental/Primed. VAT = Verbal abilities test, LHS = Learned helplessness scale (Learned helplessness), SES X Condition = The interaction term of estimated annual family income (Socioeconomic status) and diagnosticity (0 = Control, 1 = Experimental/Primed), LHS X Condition = The interaction term of learned helplessness scale (Learned helplessness) and diagnosticity (0 = Control, 1 = Experimental/Primed), LHS X SES = The interaction term of learned helplessness scale (Learned helplessness) and estimated annual family income (Socioeconomic status), and LHS X SES X Condition = The interaction term for learned helplessness scale (Learned helplessness), estimated annual family income (Socioeconomic status), and diagnosticity (0 = Control, 1 = Experimental/Primed).

** $p < .01$

Table 13

Select Demographics for Lower SES by Grouping.

Variable	Total Sample (n = 238)		50K or less (n =54)		Lower SSC (n = 50)		Lower Par. Ed (n = 56)	
	n	%	*n*	%	*n*	%	*n*	%
Condition								
Control/Non-Diagnostic	122	51	28	52	25	50	34	61
Experimental/Diagnostic	116	49	26	48	25	50	22	39
Sex								
Male	72	30	15	28	18	36	14	25
Female	165	69	39	72	32	64	42	75
Race/Ethnicity								
White	188	79	28	52	31	62	34	61
Black/African American	9	4	6	11	4	8	3	5
Latino/Hispanic	28	12	14	26	10	20	13	23
Hawaii Native/P.I.	1	0	1	2	0	0	1	2
Asian/Asian-American	8	3	4	7	3	6	4	7
Biracial	4	2	1	2	2	4	1	2
School								
Auburn University	173	73	34	63	32	64	36	64
NMSU	42	18	17	32	13	26	17	30
TAMU-Commerce	6	3	1	2	1	2	1	2
USF	6	3	1	2	3	6	0	0
Allegheny College	5	2	0	0	0	0	1	2
MU-Columbia	3	1	0	0	0	0	0	0
AUM	1	0	0	0	0	0	0	0
UNG	1	0	1	2	1	2	1	2
WVSU	1	0	0	0	0	0	0	0
Type of school								
Two year college	1	0	1	2	1	2	1	2
Four year university	237	100	53	98	53	98	55	98

Note. Percentages rounded. 0 = 0 or < 1%; "Other" sex removed from total sample. P.I. = Pacific Islander. Lower-SES grouping = 50K and less = those who listed their estimated annual family income as $50,000 or less. Lower SSC = Lower subjective social class standing which is comprised of those who rated their social class standing as Lower/Working Class or Lower Middle Class. Lower Parental Ed. = those who identified their parents highest education as less than high school or a high school diploma. NMSU = New Mexico State University; TAMU-Commerce = Texas A&M University-Commerce; MU-Columbia = University of Missouri-Columbia; AUM = Auburn University-Montgomery; USF = University of South Florida; UNG = University of North Georgia; WVSU = West Virginia State University.

Table 14

Mean Scores for VAT by Lower-SES Grouping

Group	Mean	*sd*
Total Sample	7.03	3.38
50K and less	6.74	3.41
Lower SSC	8.06	3.44
Lower Parental Ed.	6.71	3.38

Note. 50K and less = those who listed their estimated annual family income as $50,000 or less. Lower SSC = Lower subjective social class standing which is comprised of those who rated their social class standing as Lower/Working Class or Lower Middle Class. Lower Parental Ed. = those who identified their parents highest education as less than high school or a high school diploma.

Table 15

Mean Scores for Standardized Test by Lower-SES Grouping

Group	Mean	*sd*
Total Sample	26.81	5.00
50K and less	24.76	5.37
Lower SSC	26.28	5.41
Low Parental Ed.	25.18	5.15

Note. 50K and less = those who listed their estimated annual family income as $50,000 or less. Lower SSC = Lower subjective social class standing which is comprised of those who rated their social class standing as Lower/Working Class or Lower Middle Class. Lower Parental Ed. = those who identified their parents highest education as less than high school or a high school diploma.

Table 16

Independent Sample t-test for Lower-SES Groupings by Diagnosticity on VAT

	Non-Diagnostic		Diagnostic			
Grouping	Mean	*sd*	Mean	*sd*	*t*	*df*
Total Sample	7.23	3.54	6.89	3.29	0.77	236
50K and less	6.39	3.82	7.12	2.93	-0.78	52
Lower SSC	7.92	3.63	8.20	3.32	-0.29	48
Low Parental Ed.	6.59	3.62	6.91	3.05	-0.34	54

Note. 50K and less = those who listed their estimated annual family income as $50,000 or less. Lower SSC = Lower subjective social class standing which is comprised of those who rated their social class standing as Lower/Working Class or Lower Middle Class. Lower Parental Ed. = those who identified their parents highest education as less than high school or a high school diploma. VAT = verbal abilities test. All scores not significant; $p>.05$

Table 17

Extended Demographics by Lower SSC

Variable	Lower SSC (n = 50)	
	n	%
Condition		
Control/Non-Diagnostic	25	50
Experimental/Diagnostic	25	50
Sex		
Male	18	36
Female	32	64
Race/Ethnicity		
White	31	62
Black/African American	4	8
Latino/Hispanic	10	20
Hawaii Native/P.I.	0	0
Asian/Asian-American	3	6
Biracial	2	4
School		
Auburn University	32	64
NMSU	13	26
TAMU-Commerce	1	2
USF	3	6
Allegheny College	0	0
MU-Columbia	0	0
AUM	0	0
UNG	1	2
WVSU	0	0
Type of school		
Two year college	1	2
Four year university	53	98

Note. Lower SSC = Lower subjective social class standing which is comprised of those who rated their social class standing as Lower/Working Class or Lower Middle Class. TAMU-Commerce = Texas A&M University-Commerce; MU-Columbia = University of Missouri-Columbia; AUM = Auburn University-Montgomery.

Table 18

Lower SSC by Other Lower-SES Grouping

	50K and less		Low- Parental Education	
Lower SSC (*n* = 50)	*n*	%	*n*	%
	33	61	24	43

Note. 50K and less = those who listed their estimated annual family income as $50,000 or less. Lower SSC = Lower subjective social class standing which is comprised of those who rated their social class standing as Lower/Working Class or Lower Middle Class. Lower Parental Ed. = those who identified their parents highest education as less than high school or a high school diploma.

Chapter 5

Discussion

The main objectives of the current research were: To reproduce stereotype threat effects found for SES, to examine if learned helplessness moderates stereotype threat effects for SES, to investigate if learned helplessness moderates the relationship between SES and test-diagnosticity on the three facets (i.e., Devaluing, Discounting, and Disengagement) of academic/intellectual disengagement, and investigate if learned helplessness moderates the relationship between SES and test-diagnosticity on state performance self-esteem. Based on the literature review, this is the first research to explore the possible moderating role of learned helplessness on the relationship between SES and both stereotype threat task performance and academic/intellectual disengagement.

SES-Stereotype Threat Effects

The results of this experiment shows that participants did not significantly differ on any dependent variable based on diagnostic condition. Hypotheses (1 through 6) were not supported, as there were no two-way or three-way interactions between the variables of interest (i.e., estimated annual family income or learned helplessness) and diagnosticity on the outcome measures (i.e., VAT, Disengagement indices, and SSE-P). This leads the researcher to consider several possible explanations for why stereotype threat effects were not found:

1. The prime itself was delivered ineffectively. One could speculate that the manipulation was not effective because there were no differences between the experimental and

control group. This conclusion is plausible as there are several ways to deliver a stereotype prime (e.g., Nguyen & Ryan, 2008; Lamont, Swift, and Abrams, 2015). I chose to use the indirect or subtle prime, described by Nguyen & Ryan (2008) as "The message of subgroup difference in cognitive ability is not directly conveyed; instead, the context of test, test takers' subgroup membership, or test taking experience is manipulated" (p. 1316). This type of cue is similar to the SES-stereotype threat research of Spencer & Castano (2008). I choose to use this type of prime as it seemed most realistic to a standardized testing situation.

A meta-analysis conducted by Nguyen & Ryan (2008), looking at stereotype threat effects for women and racial minorities on cognitive ability tests found that different stereotype primes had different effects. Their meta-analysis found that for women, indirect/subtle primes produced the largest effect. They also found that the largest effect for racial minorities was produced using a moderately explicit prime. A moderately explicit prime is one where performance differences are made known to the test-taker, but those differences are not directional (Nguyen & Ryan, 2008). An example of this type of prime would be *Black and White participants perform differently on tasks such as these*. It is possible that a more explicit cue, such as *Those with lower annual family incomes perform differently on tasks like these compared to those who have higher annual family incomes* could have been a more effective prime for this group. To my knowledge previous published SES-stereotype threat research has not investigated efficacy of different stereotype priming.

Other SES-stereotype threat research has expounded upon the prime and made a more clear connection than the current research; for example Croizet and Claire (1998) informed participants in the diagnostic condition that the test was difficult to ensure its reliability as a measure of ability. Harrison et al. (2006) explicitly told participants in the diagnostic primed

condition that those middle and upper income students performed better than lower income students, that the task was a valid assessment of their abilities, and their performance would be compared to other students to determine why lower income students generally performed worse that higher income students. It is possible that a prime that is less subtle and makes a more explicit connection between the target group and stereotype would have affected performance more significantly.

Lamont et al. (2005) noted outcome differences on cognitive ability tasks depending if the prime is a fact-based or stereotype-based prime, specifically for age-based stereotype threat. Lamont and colleagues described a fact based prime as one where the researcher states a fact to attempt to elicit stereotypes; an example of such a prime applied to the current study would be *research has shown that test scores are related to annual family income*. They went on to describe a stereotype-based prime as one where the prime is relevant to a stereotype. An example this type of stereotype prime applied to the current line of research would be *it is assumed that those who have families with less money are also less intelligent*. The authors argued that stereotype based primes could be more of a performance threat "because they introduce greater ambiguity in a performance situation" (p. 181). It is possible that a stereotype-based prime such as *it is assumed that those with lower family income are less intelligent than those with higher family income.* may have been a more effective prime for this population.

2. Another possible explanation could be that a stereotype regarding intellectual ability and SES does not exist. Previously discussed literature regarding SES and stereotype threat (e.g., Croziet and Claire, 1998; Harrison et al., 2006; John-Henderson, et al., 2014; Spencer & Castano, 2007) suggests that a negative stereotype does. It is also important to note that there is far less SES-stereotype threat research compared to stereotype threat research on gender and

race.

3. Another possible explanation is that the SES salience prime (Asking to estimate annual family income) prior to the instructions inhibited the stereotype. Previous stereotype threat research (McGlone & Aronson, 2006; Steele & Aronson, 1995; Shih, Pittinsky, and Trahan, 2006; Shih, Pittinsky, and Ambady, 1999; Yopyk & Prentice, 2005) has demonstrated the efficacy of priming for group identity salience. Several studies in SES-stereotype threat research (i.e., Croziet and Claire, 1998; John-Henderson, et al., 2014; Spencer & Castano, 2007) also include salient conditions; two of those studies specifically measured the effect of stereotype salience (i.e., Croziet and Claire, 1998; Spencer & Castano, 2007). Spencer & Castano, (2007) found that those lower-SES students in the diagnostic and salient condition performed the worst compared to other groups. Croziet and Claire (1998) did not find any additional effect for the SES-salient group. Results such as this make it unlikely that the saliency item (listing your estimated annual family income) negatively affected the efficacy of the prime.

4. Another possibility is that stereotype threat is not as prevalent as the current published stereotype threat research reports. While focusing primarily on stereotype threat research with child and adolescent girls and math ability both Ganley et al., (2013) and Flore & Wicherts (2015) have concluded that there are signs of publication bias in that specific type of stereotype threat research. Therefore it is possible, that there is a "file drawer problem" going on with SES-stereotype threat research, where only positive results consistent with the construct are being published.

5. It is possible that the stereotype prime did not work due to characteristics of the sample. Although statistically there was a lower-SES to higher-SES continuum, there may not have been sufficient truly lower-SES participants to have a stereotype activated enough to notice

differences depending on condition. The mean and median estimated annual income for these participants was $102,919 and $90,000, respectively. Current SES-stereotype threat literature does not demarcate at what dollar amount stereotype threat for SES (estimated annual family income level) activates, but three studies have given some demographic information of their samples: Spencer and Castano (2007) average reported income 65 to 80K; John-Henderson et al. (2014) a 4 on a scale of 1 (20K and below) to 6 (110 and above); and Harrison et al. (2006) "income growing up as" 0 to 39K (Lower), 40 to 74,99K (Middle), and 75K and over (higher). A plausible speculation of annual family income of less than $45,000 may be nearer the range that SES-stereotype threat activates as the U.S. Department of Education (2011) states these students graduate at a less frequent rate than the national average. In the current sample, only 17.2% fell within this estimated annual family income range, therefore perhaps there may not have been enough lower-SES participants for a stereotype threat effect to be detected.

6. A final possibility and a relatively novel idea regarding testing conditions and stereotype threat is that proximity to an authority figure may be necessary for the effect to manifest. This research may be the first of its kind to administer the stereotype threat conditions using a personal computer/online platform using a distance modality. In most previous published SES-stereotype threat literature, it appears as if the research was conducted in-person using a pencil-and-paper format within the presence of a researcher or lab instructor. The total anonymity afforded by the distance style of test administration may have made the stereotype threat prime less effective. Also, the absence of an experimenter may have also decreased the potency of the prime.

SES and Learned Helplessness

When entered into the model, there was not a significant interaction between estimated

annual family income and learned helplessness predicting task performance, any facet of academic/intellectual disengagement, or state-performance self-esteem, indicating that learned helplessness did not appear to moderate scores on any of the outcome measures by estimated annual family income regardless of condition; therefore Hypothesis 2 (test performance), Hypothesis 4a-4c (all three aspects of disengagement), and Hypothesis 6 (self-esteem) were not supported.

The analyses revealed a relationship between estimated annual family income and learned helplessness, such that the lower the SES of the respondent, the higher the learned helplessness tended to be. These findings are consistent with other research demonstrating a significant negative relationship between SES and learned helplessness in other populations (Hebrew speaking women in "battered women's shelters: Bargai, Ben-Shakar, Shalev, 2007; Patients with inflammatory polyarthritis symptoms, Camacho, Verstappen, and Symmons, 2012; Norwegian municipality employees, Ree et al., 2014; Californian Lupus patients: Tayer, Nicassio, Radojevic, Krall, 1996). Results such as these suggest that those with lower-SES may have more helplessness attributions for outcomes than those that are more socio-economically privileged.

It seems that while there is a relationship between learned helplessness and estimated annual family income, there does not seem to be an interaction when it comes to immediate performance on intellectual/problem-solving style tasks, academic/intellectual disengagement or state performance self-esteem. It remains possible that learned helplessness may mediate the relationship between estimated annual family income and performance variables or academic/intellectual disengagement, but this was not a focus of the present study.

SES and Disengagement

Previous SES-Stereotype threat-disidentification/disengagement research (Harrison et al., 2006) found less academic identification in the diagnostic condition for lower-SES participants in specific academic subject domains (i.e., English and Math). This research is the first of its kind to use the IEI to measure academic/intellectual disengagement by SES in a student population.

Hypotheses 3a-c and 4a-c posited that lower-SES participants in the diagnostic condition would attain significantly higher scores on a measure of, and thusly a greater degree of, disengagement on each disengagement index (i.e., devaluing, discounting, and [situational/domain] disengagement). There were no significant interactions between learned helplessness and task performance, any facet of academic/intellectual disengagement, or state performance self-esteem, therefore Hypotheses 3a-c and 4a-c were not supported.

Results of this study demonstrated that estimated annual family income was a predictor of the discounting aspect of disengagement, irrespective of condition. This suggests that the lower a participants estimated annual family income; the more likely they were to discount achievement and intellectual tests as accurate indicators of their abilities. Major and Schmader (1998) said that discounting the validity of standardized achievement and intellectual tests generates disengagement/disidentification by dismantling external performance feedback and a person's internal evaluation of their own ability and performance.

The findings of the current study implies that at least one aspect of disengagement, namely discounting seems to operate independent of diagnosticity; results similar to these findings have also been found by Nussbaum and Steele (2007) for Black participants. This means that the discounting aspect of academic/intellectual disengagement does not appear to be dependent upon the recency of a stereotype and may be more the result of the cumulative effect

of previous and ongoing stereotypes, consistent with what others (e.g., Steele et al., 2002) described as the chronic effects of disidentification.

SES and Self-Esteem

Hypotheses 5 and 6 predicted that the self-esteem of those lower-SES participants in the diagnostic condition would be highest as a result of the disengagement process. Hypotheses 5 and 6 were not supported as there were no differences in self-esteem as a function of diagnosticity. It was hypothesized by the researcher that those lower-SES participants who were told the test was one of intellectual ability would disengage with the task and therefore would have higher self-esteem compared to those lower-SES participants who were not faced with the stereotype.

Upon further reading of the literature (e.g., Major & Schmader, 1998; Harrison et al., 2006), a better understanding would have been to predict that there would be no differences in self-esteem by SES comparing diagnostic to non-diagnostic, as the disengagement process is a way to maintain self-esteem (Major & Schmader, 1998; Schmader, Major, Gramzow, 2001). This means that in threatening situations similarly to these (e.g., intellectual/academic testing), disengagement is a protective strategy to keep self-worth stable. Although others (e.g., Steele, et al., 2002) contend that disengagement is a short-term response to maintain self-esteem in a stereotyped condition, the results of this experiment seem to suggest that the stereotype need not be present for some disengagement effects (i.e., increased discounting and maintenance of self-esteem) to occur. Results like the ones found in this study lead the author to conclude that one of two possibilities:

1. The discounting aspect of disengagement is independent of stereotype priming, meaning that these findings may be more an enduring quality or “chronic adaptation”

(Steele, et al., 2002, p. 410) similar to what others (e.g., Steele, 2002) have labeled disidentification.

2. Another possibility is that wording of the measure; "In general, I feel that standardized achievement tests are a good measure of my intelligence," pick up on more generalized sentiments of the population (Nussbaum & Steele, 2007) rather than situationally specific disengagement.

Other findings

Task performance. The analyses revealed that several characteristics of the participants predicted better task performance: Higher standardized test scores, identifying as White, and lower learned helplessness scores.

The findings of this study imply that those students with higher learned helplessness scores were associated with doing worse on the verbal task. These findings mimic pervious research (McKean, 1994; Peterson & Barrett, 1987) on the role of learned helplessness and academic performance. This study found a correlation between learned helplessness scores and academic-style performance using the learned helplessness scale (LHS; Quinless & McDermott, 1988). Other past researchers have measured learned helplessness using some iteration of the Attributional Style Questionnaire (ASQ; Peterson, et al, 1987) and have not found that learned helplessness affects academic-style performance (e.g., Bridges, 2001; Laforge & Cantrell, 2003). This may suggest that the Learned Helplessness Scale (LHS; Quinless & McDermott, 1988) is a preferential measure compared to one of the many iterations of the Attributional Style Questionnaire (ASQ; Peterson, et al, 1987) when assessing learned helplessness in an academic or intellectual domain. One possible reason could be that the LHS reportedly (Quinless & McDermott, 1998) captures uncontrollability, a requirement of learned helplessness (Morris &

Tiggemann, 2013), that is not captured by the ASQ (Laforge and Cantrell, 2003).

Devaluation. The analyses showed that those with higher learned helplessness scores predicted having higher scores devaluing the importance of academics/doing well on intellectual tasks. Davey (1993) hypothesized that devaluation may be a strategy used to neutralize a threat that is perceived as being uncontrollable. Given the "fundamental" (p. 13) nature of uncontrollability as a requirement for learned helplessness (Morris & Tiggemann, 2013), those with greater amounts of learned helplessness—presumably those who perceive the situation as less controllable will be more likely to use devaluation as a means to cope with the verbal task.

Discounting. The results showed that there were two predictors negatively associated with the discounting facet of disengagement: Standardized test scores and estimated annual family income. As discussed above there is some theoretical understanding for why discounting increases as estimated annual family (i.e., SES) decreases. It also makes sense that those with lower standardized test (i.e., SAT or ACT) scores may discount the validity of intellectual and achievement measures. It seems in-line with the disengagement literature (e.g. Steele, 2002) that following negative testing experiences in the past, one would likely discount the accuracy and validity of similar current and future exercises as a way to maintain self-esteem.

Disengagement. The univariate analyses demonstrated that men had higher scores of situational disengagement to intellectual task performance compared to their female counterparts. The literature seems to lack research investigating men and disengagement, specifically with regard to not identifying with situational intellectual test performance. Results such as these suggest that men may be less identified with their own intellectual ability in terms of immediate intellectual/achievement task performance.

Situational performance self-esteem. The results revealed that sex, and learned

helplessness were both significant predictors of situational self-esteem. Women and those with higher levels of learned helplessness were associated with lower levels of situational self-esteem. Learned helplessness as measured by the LHS has been demonstrated to have a strong correlation with the measures of global self-esteem (Quinless & McDermott, 1988), but this is the first study to associate state-performance self-esteem with learned helplessness.

Learned helplessness. Learned helplessness was investigated as a moderator in this study and therefore was not used as a dependent measure in the full model. The analyses demonstrated that standardized test scores and estimated annual family income were both related to learned helplessness scores. Both lower standardized test scores and lower estimated annual income were associated with higher learned helplessness scores. The univariate analyses revealed that Women and those who did not identify as White had higher learned helplessness scores compared to their counterparts. Previous research has found mixed results regarding learned helplessness and sex differences (Parsons, Meece, Adler, Kaczala, 1982; Rozell, Gundersen, Terpstra, 1998; Valas, H., 2001).It is interesting to note that for each of the categories mentioned, all may be subject to self or other imposed stereotypes regarding their identity, ability, and performance.

Limitations

There are several limitations to acknowledge in this study. The most salient limitation pertains to the sample demographics, specifically estimated annual family income. Although explanations for results involving estimated annual family income have included the terms lower- and higher-SES, those terms have been created statistically based on the reported estimated annual family incomes of the participants in this sample. This means that lower-SES can include scores for those that reported their estimated annual family income up to

approximately $100,000. The lower-SES continuum of this sample likely does not represent what is commonly thought of as lower-SES within the normal population. Therefore, any conclusions made from this study regarding lower-SES students may need to be interpreted with caution, as they may not truly represent a low-income population. Another limitation with regard to using estimated annual family income as a measure of SES is that participants may not have been able to accurately estimate that figure. Therefore and again, drawing conclusions with this study regarding SES correlations are strongly cautioned.

Other possible limitations of the survey include the online delivery of the study. The consent to participate asked participants to confirm that they were 18 years or older, currently enrolled as an undergraduate student, and had previously taken the ACT or SAT. There is no way to verify that participants met one or all of those criteria, especially with regard to age, as age was not collected as part of demographics. Another limitation of the study is that the online delivery of the survey allowed for greater flexibility in the testing environment. This means that some control was sacrificed by the experimenter for ease of survey delivery. Although each participant was subject to the same experimental survey, with exception of diagnostic prime, each participant varied in their own individual testing environment. Another drawback to this type of platform with regard to verbal performance tasks is there is no way of being certain that a participant did not use outside material (e.g., google, dictionaries, etc.) to aide in their performance. Finally with regard to this platform of survey administration, participants in the diagnostic condition may have perceived it as less diagnostic of their ability because you could not see who they are, creating less apprehension through complete test-taking anonymity.

Another possible limitation was the self-selection method of recruitment, possibly creating an unrepresentative sample. The most successful recruitment method involved mass

email recruitment from one university (Auburn University) – and the sample is overrepresented by Auburn University students. Other participants were forwarded the recruitment email after a course instructor agreed to distribute the email her/his students. Therefore there are likely more similarities among students in the same course (that are not being controlled for), versus those students that responded to campus-wide email.

In terms of demographic sampling compared to national averages for undergraduate colleges students (NCES, 2014), this sample consisted of more females (69.3%) and fewer males (30%) than the national average (56% and 43.8% respectively). In terms of racial composition, this sample had fewer Black students (3.8%) compared to the national average (14.7%), as well as Latino/a (11.8% compared to 16.9%), Asian/Asian-American (3.4% compared 5.9%), and those who identified as more than one race (1.7% compared to 3.0%). The percentage of Native Hawaiian/Pacific Islander's in this sample (.04%) was similar to that of the national average (.03%). This means that these results may not be representative of all undergraduate students and caution is needed to avoid generalizing to these groups. Specifically with regard to generalizability and this survey, given that the majority of the participants were students from Auburn University, there may be educational, regional, and socioeconomic differences that make the results of this study inappropriate to generalize to undergraduate students as a whole.

Although this research draws some conclusions regarding student performance and standardized testing, given the design of the study, those conclusions are very limited. The task (VAT) used to assess task performance was one created by the researcher and did not go through formal test construction procedures or validation studies and may not be as accurate of a predictor of verbal abilities as standardized tests (e.g., ACT, GRE, SAT, etc.). Given that the experimental manipulation of this research did not appear to work, the results of this experiment

are correlational in nature and causal inferences cannot be drawn from this research with regard to task performance or any aspect of disengagement.

Implications for Future Research

The results of the current study leave some unanswered questions with regard to both SES-stereotype threat research and stereotype threat research in general. With regard to SES-stereotype threat research, it will be important for future studies to attempt to find the line of demarcation with regard to stereotype threat effects and annual family income. As having this information will provide a more clear understanding of the construct on the whole and provide more specificity with regard to when SES-stereotype threat effects occur. In addition, future researchers should use multiple measures of socioeconomic status in the analyses to give a better understanding of the participants (Ursache & Noble, 2016). It may also be important for future research to examine how different stereotype cues may produce differences in stereotype activation by comparing cues on either explicitness (e.g. Nguyen & Ryan, 2008) or fact versus stereotype content (e.g., Lamont et al., 2015).

More broadly speaking, the current study also produces questions with regard to the delivery of standardized tests. SAT and ACT tests are still primarily administered using pencil-and-paper tests (College Board, n. d.; ACT, 2015, p.28) while the GRE general test is only delivered via computer in the United States (ETS, 2016). There is some speculation that other high-stakes-tests like the ACT will be delivered mainly via computer-based/online platform in the future (Sheehy, 2013), which may have seemingly positive implications for high-stakes testing and stereotype threat.

To date there has been only one study (Klein, 2006) – an unpublished dissertation that investigated pencil-and-paper testing and online formats within a racial-stereotype threat

research paradigm for cognitive ability. This research did not find any significant differences between testing conditions, but speculated that unequal group size may have affected the results. During this study all participants seemed to be in the presence of a researcher, as both online and pencil-and-paper conditions presumably took place in a laboratory environment.

Klein (2006) did note that overall, those in the online platform, had more favorable reactions to the online assessment; including that the online assessment was perceived as being more honest and ethical, user friendly, etc. Interestingly, those in the online platform did not differ from those in the pencil-and-paper test in terms of perceiving the test as unbiased. Future research should examine if there have been trends of lower-SES test takers performing better when using computer-based programs versus pencil-and-paper administration.

Perhaps more importantly, this research draws attention to the likelihood that for stereotype threat to be elicited, there needs to be another person present (e.g., research, lab assistant), most likely in an evaluative role. Other lines of social psychology research have shown that the presence or absence of an experimenter leads to different outcomes (e.g., McCallum & Peterson, 2015) and how the researcher interacts in terms of warmth versus coldness can affect participant performance on cognitive tasks (arithmetic and mirror tracing performance; Siegwarth, Larkin, and Kemmer, 2012).

Impaired performance does not just seem to be a result of being monitored during stereotype threat conditions. Krendl, Gainsburn, and Ambady (2012) found that those subjected to a negative stereotype prior to a video recorded sports task had performance decrements similar to those that were not recorded. Other stereotype threat research (Marx & Goff, 2005) demonstrated that evaluator presence matters – at least in terms of race for racial stereotype task performance. The extant literature of experimental SES-stereotype threat research (i.e., Croziet

and Claire, 1998; Harrison et al., 2006; Spencer & Castano, 2007; John-Henderson, et al., 2014) has always involved a researcher or lab assistant present during the testing situation. To my knowledge, this is the first research in this domain to be conducted using both a personal computer based/online format without the presence of a researcher during the experiment. Steele et al., (2002) described that context dependency of the environment is a general feature of stereotype threat. This research helps to give understanding to some of those contextual requirements in that a stereotype may not be elicited in potentially stigmatized person if she/he is not in the presence of an evaluator. It is possible that without being in the presence of another, identity does not become salient enough for a stereotype to be elicited. Future research could test for the effects of having a researcher or authority both absent from and present during the testing situation to examine differing effects. This type of research would likely have implications regarding stereotype threat and distance education/testing.

This study is also the first of its kind to examine academic/intellectual disengagement by SES. One other researcher (Harrison, et al., 2006) found that lower-income students were more likely to not identity with Math and English subjects while under a stereotyped condition. The current research demonstrates that lower-SES students do not need to be primed with a negative stereotype for disengagement to occur, specifically with regard to discounting the validity of standardized achievement tests. Future research would benefit from investigating if disengagement as measured by the discounting index of the IEI (Major and Schmader, 1998) is actually a more enduring characteristic (e.g., disidentification) – not just in response to a time-near stereotype. Continued research in this domain may illuminate the discrepant college graduation rates for lower-SES students compared to their higher income peers. It may be that to maintain self-esteem, a lower-SES student no longer identifies with academic and intellectual

pursuits, even though they are still valued.

Clinical Applications

Social Justice is a value shared by much of psychology, but perhaps counseling psychology in particular (Council of Counseling Psychology Training Programs, 2009). The results of this experiment may be particularly interesting to counseling psychologists, as many underrepresented participant identities in this study (e.g., women, non-White, and lower-SES) had higher learned helplessness scores. Programs could be implemented to address underrepresented groups and educate them on how attributional styles may be negatively affecting them. Specifically, those programs could help individuals who are likely to face repeated social and economic hardships by teaching them to cultivate an optimistic outlook in-spite of their unfavorable conditions.

The results of this study found that lower-SES students are more likely to discount the validity of academic and intellectual testing in general. Academic/intellectual disengagement on the part of lower-SES students through the process of discounting may indicate that lower-SES students do not believe that intellectual and academic tasks are reflective of their capabilities. Furthermore, this tendency to discount seems to be a result of longer-term disidentification compared to situational disengagement. Programs could be implemented to help areas with lower-SES students become more identified with academics and intellectual pursuits. That way when tests similar to the task in this study are presented, lower-SES students may be more likely to believe the task is a worthwhile measurement of their ability, therefore likely increasing studying, preparation, and academic persistence.

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Appendix A

Recruitment Email

Subject line: Research participation request

Hello,

I am a graduate student in the Special Education, Rehabilitation, and Counseling Department at Auburn University. I would like to invite you to participate in my research study to investigate the role of dispositional and situational factors in task performance and academic interest. You may participate if you are over 18 years old, are currently enrolled as an undergraduate student, and have taken the SAT or ACT previously.

Participants will be asked to complete a problem-solving task, three questionnaires, and provide demographic information. This survey will take approximately 30 minutes to complete.

There are no reasonably foreseeable risks other than the typical discomfort that may arise as a result of taking a standardized test. There is no cost to you to take part in this study. By completing this survey you will be able to enter a raffle to win one of five $25 Amazon.com™ gift cards. Procedures will be taken to protect confidentiality. You will not be asked to provide your name or other explicitly identifying information.

If you would like to know more information about this study, an information letter can be obtained by clicking on the following link:

https://auburn.qualtrics.com/SE/?SID=SV_6XRUY42lzMEKYFT

If you decide to participate after reading the letter, you can access the survey from a link in the letter. If you decide not to participate you can exit from the survey in your browser.

If you have any questions, please contact me at jet0015@auburn.edu or my advisor, Dr. Kluck at ask0002@auburn.edu

Thank you for your consideration,

Josh Turchan, MA

Doctoral Candidate-Counseling Psychology
Auburn University

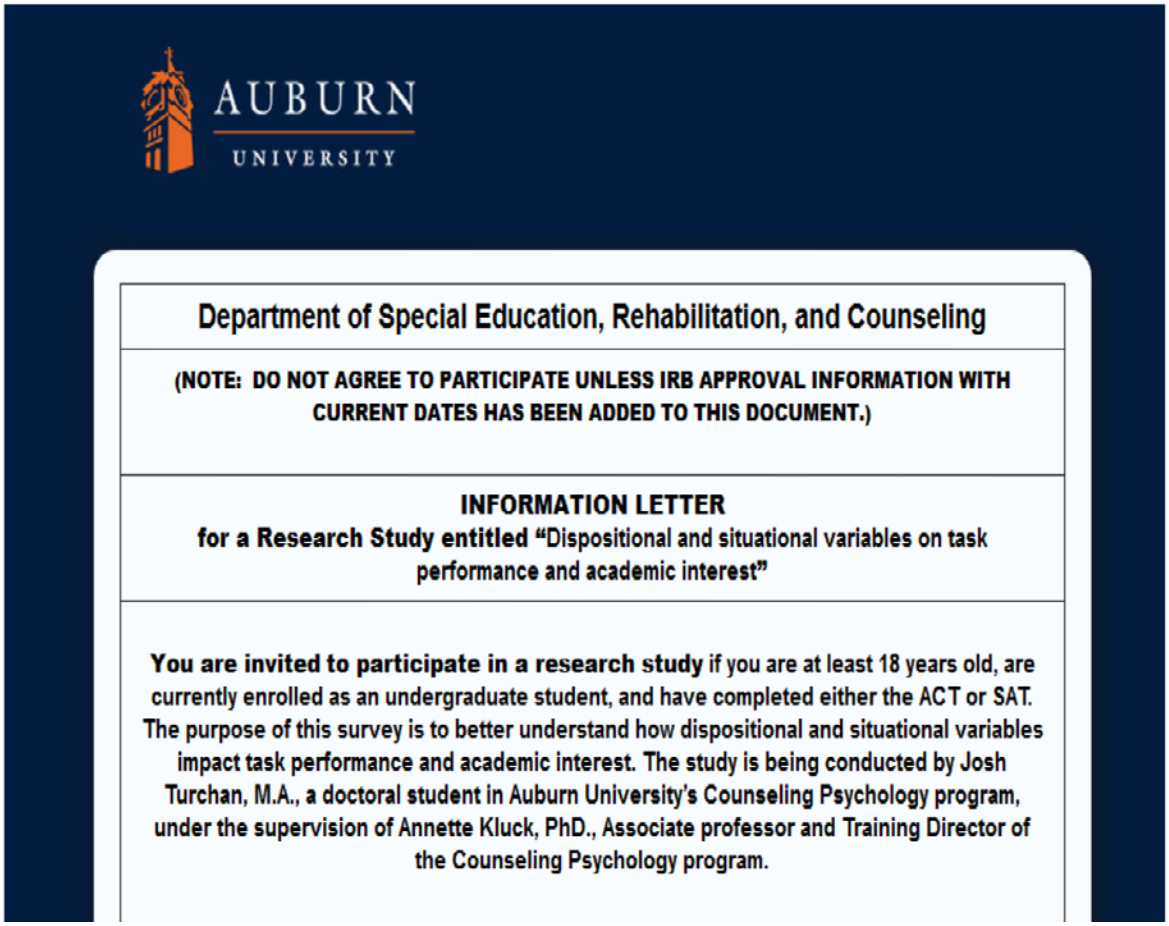
Appendix B

Information Letter

Add this approval information in sentence form to your electronic information letter!

The Auburn University Institutional Review Board has approved this Document for use from 03/21/2016 to 03/20/2017 Protocol # 16-085 EP 1603

Information Letter



Department of Special Education, Rehabilitation, and Counseling

(NOTE: DO NOT AGREE TO PARTICIPATE UNLESS IRB APPROVAL INFORMATION WITH CURRENT DATES HAS BEEN ADDED TO THIS DOCUMENT.)

INFORMATION LETTER
for a Research Study entitled "Dispositional and situational variables on task performance and academic interest"

You are invited to participate in a research study if you are at least 18 years old, are currently enrolled as an undergraduate student, and have completed either the ACT or SAT. The purpose of this survey is to better understand how dispositional and situational variables impact task performance and academic interest. The study is being conducted by Josh Turchan, M.A., a doctoral student in Auburn University's Counseling Psychology program, under the supervision of Annette Kluck, PhD., Associate professor and Training Director of the Counseling Psychology program.

What will be involved if you participate? Your participation is completely voluntary. If you decide to participate in this research study, you will be asked to complete a problem-solving task, three questionnaires, and provide demographic information. Your total time commitment will be approximately 30 minutes.

Are there any risks or discomforts? There are no reasonably foreseeable risks other than the typical discomfort that may arise as a result of taking a standardized test and responding to questions about your perceptions of your role as a student. Because the study is being done online, there is a small potential for breach of confidentiality, particularly if you complete this survey in a public place, or if your email address contains your name. Because email addresses will be collected separately, those will be kept separate and not linked to your responses.

Are there any benefits to yourself or others? You will likely receive little benefit from this study.

Will you receive compensation for participating? To thank you for your time you will be offered to enter a drawing to win one of five $25 Amazon.com™ electronic gift cards. If you would like to be involved in the drawing you must provide an email address at the end of the survey so you can be contacted and provided the gift card electronically. Your email and contact information will not be linked to your responses in the survey.

Are there any costs? There are no costs for you to participate in the study.

If you change your mind about participating, you can withdraw at any time closing your browser window. If you choose to withdraw, your data can be withdrawn as long as it is identifiable. Once you've submitted anonymous data, it cannot be withdrawn since it will be unidentifiable. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with Auburn University, the Special Education, Rehabilitation, and Counseling Department, or Josh Turchan.

Any data obtained in connection with this study will remain anonymous. All data obtained from this study will remain anonymous and you will not be asked to provide your name or any other identifying information. The information collected after the completion of the survey (i.e., for the drawing and/or to receive more information) will be collected in a separate survey so that your email address cannot be linked to your responses. Results and implications from this study will be presented and discussed as a whole, rather than represented in terms of individual responses tied to any identifying information.

If you have questions about this study, please contact the principle investigator, Josh Turchan, MA, at jet0015@auburn.edu or Annette Kluck, PhD, at ask0002@auburn.edu.

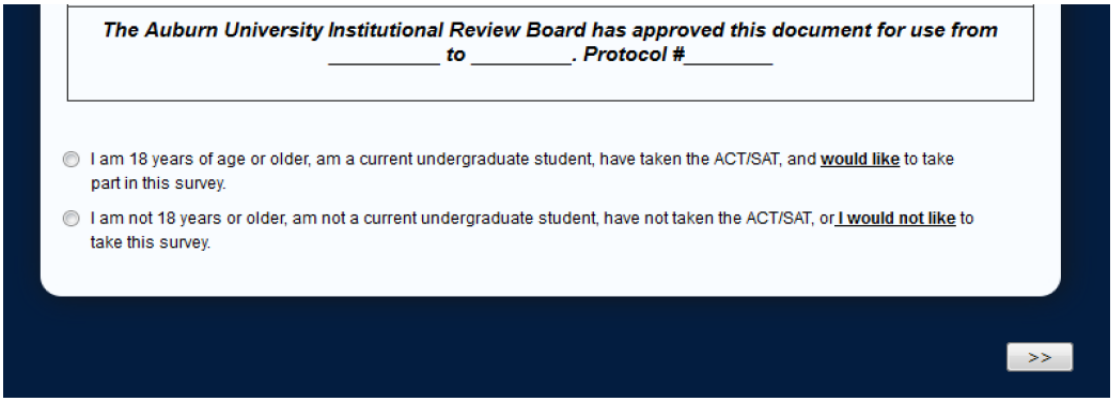
If you have questions about your rights as a research participant, you may contact the Auburn University Office of Research Compliance or the Institutional Review Board by phone (334) 844-5966 or e-mail at IRBadmin@auburn.edu or IRBChair@auburn.edu.

HAVING READ THE INFORMATION ABOVE, YOU MUST DECIDE IF YOU WANT TO PARTICIPATE IN THIS RESEARCH PROJECT. IF YOU DECIDE TO PARTICIPATE, PLEASE CLICK ON THE LINK BELOW.

YOU MAY PRINT A COPY OF THIS LETTER TO KEEP.

Add this approval information in sentence form to your electronic information letter!

The Auburn University Institutional Review Board has approved this Document for use from 03/21/2016 to 03/20/2017
Protocol # 16-085 EP 1603



Add this approval information in sentence form to your electronic information letter!

The Auburn University Institutional Review Board has approved this Document for use from
__03/21/2016__to__03/20/2017__
Protocol # ___16-085 EP 1603___

Appendix C

Debriefing Statement

For the Study entitled:
"Dispositional and situational variables on task performance and academic interest."

Dear Participant;

During this study, you were asked to enter demographic information, perform a verbal problem-solving task, and complete three questionnaires. You were told that the purpose of the study was either to "assess your intellectual ability by solving verbal problems" or "to validate these problem-solving exercises." The actual purpose of the study was determine how those instructions may have impacted your performance on the verbal task.

We did not tell you everything about the purpose of the study because we were investigating how the instructions actually impacted your performance.

You are reminded that your original consent document included the following information: If you change your mind about participating, you can withdraw at any time during the study by closing your browser window. Your participation is completely voluntary. If you choose to withdraw, your data can be withdrawn as long as it is identifiable. Your decision about whether or not to participate or to stop participating will not jeopardize your future relationship with Auburn University, the Department of Special Education, rehabilitation, and Counseling, or Josh Turchan. If you have any concerns about your participation or the data you provided in light of this disclosure, please discuss this with us. We will be happy to provide any information we can to help answer questions you have about this study.

If your concerns are such that you would now like to have your data withdrawn, and the data is identifiable, we will do so.

If you have questions about your participation in the study, please contact me at jet0015@auburn.edu, or my faculty advisor, Dr. Kluck, at ask0002@auburn.edu.

If you have questions about your rights as a research participant, you may contact the Office of Research Compliance (334-844-5966, IRBadmin@auburn.edu or an Auburn University Institutional Review Board (IRBChair@auburn.edu).

If you have experienced distress as a result of your participation in this study, please contact your campus or other local mental health provider. (Please remember that any cost in seeking medical assistance is at your own expense.)

Please again accept our appreciation for your participation in this study.

Josh Turchan, MA 09/05/2016

Appendix D

Demographic Questionnaire

1. Please select only one of the following and provide your score:
   I took the ACT: -Enter score
   I took the SAT: Critical reading & math - Enter score
   I took the SAT: Critical reading & math & writing-Enter score

2. Gender:
   Male
   Female
   Other

3. Race/Ethnicity:
   Asian/Asian-American
   Arab/Arab-American
   Black/African-American
   Hawaiian Native/ Pacific Islander
   Latino/Hispanic
   Native American/Alaska Native
   Persian/Persian-American
   White/European-American
   Bi-racial/Multi-racial

4. I am currently enrolled in:
   a. A two year college
   b. A four year university

5. What is name of the school you are currently attending?

6. Year in college:
   Freshman
   Sophomore
   Junior
   Senior

7. Please indicate the social class you identify with:
    Lower/Working class
    Lower Middle Class
    Middle Class
    Upper Middle Class
    Upper class

8. Please indicate the highest level of education for your most educated parent.
    Did not graduate high school
    High school diploma
    Associates degree
    Bachelor's degree
    Graduate degree (Masters or doctoral degree)