

SOCIAL CLASS IDENTITY: THE ROLE OF IDENTITY CHANGEABILITY PERCEPTIONS
ON THE RELATIONSHIP BETWEEN BELIEFS ABOUT INTELLIGENCE AND
STEREOTYPE- RELEVANT OUTCOMES

by

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TABLE OF CONTENTS

Acknowledgements.....	ii
List of Tables	iv
List of Figures.....	v
List of Appendices	vi
Abstract.....	vii
Chapter I. Introduction.....	1
Chapter II. Study 1: Perceptions of Social Class Identity and Stereotype Self-Relevancy	15
Method	16
Results.....	20
Discussion.....	26
Chapter III. Study 2: Perceptions of Lower Social Class Identity and Quiz Performance.....	32
Method.....	32
Results.....	37
Discussion.....	42
Chapter IV. Study 3: Testing the Implicit Theory/Identity Changeability Model.....	45
Method	52
Results.....	59
Discussion.....	64
Chapter V. General Discussion.....	68
Tables.....	76
Figures.....	86
Appendices.....	93
References.....	112

LIST OF TABLES

Table 1: Social Identity Means and T-Value Comparisons, Study 1	76
Table 2: Correlations Among Identity Changeability Perceptions, Study 1	77
Table 3: Effect Coefficients for All Social Identities Tested in Model, Study 1	78
Table 4: Effect Coefficients for Perceptions Subcomponents, Study 1	79
Table 5: Effect Coefficients Comparing Across Subjective Social Class, Study 1	80
Table 6: Effect Coefficients for Perceptions Subcomponents, Study 2	81
Table 7: Correlations Among Model Variables and Outcomes, Study 2	82
Table 8: Correlations Among Model Variables and Outcomes, Study 3	83
Table 9: Effect Coefficients for Full Model with Perceptions Subcomponents, Study 3	84
Table 10: Effect Coefficients for Full Model with Individual Difference Factors, Study 3	85

LIST OF FIGURES

Figure 1: Implicit Theory/Identity Changeability Model	86
Figure 2: Stereotype Self-Endorsement Mediation Model	87
Figure 3: Performance Mediation Model.....	88
Figures 4a and 4b: Stereotype Self-Endorsement Mediation Model, Study 1.....	89
Figures 5a, 5b, and 5c: Performance Mediation Model, Study 2	90
Figures 6a, 6b, and 6c: Implicit Theory/Identity Changeability Model, Study 3	91
Figures 7a, 7b, and 7c: Four-Component Model with SDO-D, Study 3	92

LIST OF APPENDICES

Appendix A: Self-Report Measures, Studies 1, 2, and 3	94
Self-Report Items	94
Social Class Demographic Measures.....	98
Appendix B: Community College Narrative and Quiz Questions, Studies 2 and 3	99
Narrative	99
Quiz Questions.....	100
Appendix C: Manipulations, Study 3.....	101
Implicit Theory of Intelligence Manipulation.....	101
Perceptions of Social Class Identity Manipulation.....	104
Control Condition	107
Appendix D: Sample Participant Letters, Study 3	110

ABSTRACT

Similar to other well-studied social identities, social class identity affects cognitions and has associated stereotypes. However, unlike identities such as race, people may differ in their perceptions of the changeability of social class identity. The current work theorized that these perceptions of social class might be predicted by broader theories individuals have about the world, particularly implicit theories of intelligence. In turn, perceptions of one's social class identity may mediate the relationship between theories of intelligence and stereotype-related outcomes. These relationships form the proposed *Implicit Theory/Identity Changeability Model*. Among a diverse social class sample, Study 1 examined the indirect role of social class changeability perceptions on the relationship between implicit theory of intelligence and stereotype self-endorsement. The results suggest that social class identity is unique compared to other identities in terms of those perceptions mediating the relationship between beliefs about intelligence and stereotype self-endorsement. Study 2 aimed to extend the research by focusing on a lower income population, to which the intelligence-based stereotype is particularly pertinent, and testing the model on performance-based outcomes. The model was supported, such that participants with more entitative views of intelligence tended to perform more poorly, but this relationship was somewhat explained by the unchangeable perceptions of social class that entity theorists tend to hold. Study 3 sought to test the full Implicit Theory/Identity Changeability Model, that suggests that implicit theory of intelligence predicts changeability perceptions of social class identity, which predicts the endorsement of relevant stereotypes, which then predicts stereotype-related outcomes, thus weakening the direct relationship between implicit theories of intelligence and these outcomes. Study 3 also attempted to manipulate theories of intelligence and social class perceptions, and examined how individual difference factors (Just World Beliefs, Optimism, and Social Dominance Orientation) may affect the model.

Although manipulations were unsuccessful, support was provided for the model, and results suggested a role for Social Dominance Orientation. The current research shows that the manner in which an individual views social class identity (as changeable or unchangeable) helps explain why one's implicit theory of intelligence can predict social class stereotype-related outcomes. Implications for low-income serving organizations are discussed.

Key Words: social class identity, implicit theory of intelligence, stereotype threat, performance, stereotype-endorsement

CHAPTER I

Introduction

Among the many social identities people have, social class may be a less studied but quite significant social identity (Ostrove & Cole, 2003). Similar to other social identities, people rely on cues to determine the social class of others, and use that information in judging whether others are a social class ingroup or outgroup to themselves (see Kraus, Piff, & Keltner, 2011). Kraus and colleagues (2011) argue for social class (both objective and subjective) as a cultural identity that influences cognition, affect, and behavior. Moreover, similar to other social identities, social classes have associated stereotypes.

Research on stereotypes of social class has demonstrated that people hold distinct stereotypes across different social classes, such that people more readily endorse positive stereotypes about higher/middle social class people (i.e., hardworking and capable), and more negative stereotypes about people from lower social classes (i.e., uneducated, unmotivated, and lazy; Cozzarelli, Wilkinson, & Tagler, 2001). Awareness that a person is of lower social class can result in more negative perceptions of that person's academic performance and leadership success (Darley & Gross, 1983; Lott & Saxon, 2002). Further, research has demonstrated that individuals are vulnerable to social identity threat in terms of social class identity (Croizet & Claire, 1998; Steele, Spencer, & Aronson, 2002). For example, Spencer and Castano (2007) demonstrated that among a population of low socioeconomic status students, academic test performance suffers when socioeconomic identity is made salient or the test is presented as

diagnostic of academic ability (a domain in which lower socioeconomic class people are negatively stereotyped).

Other research has shown that people vary in their attributions for social class, seeing social class as either being determined by one's internal characteristics (such as motivation) or by situational factors (such as a good or bad economy; Kluegel & Smith, 1986; Zucker & Weiner, 1993). The causal beliefs that people have for class can influence their stereotypic beliefs about social class (including, possibly, their own class identity), with internal attributions leading to more strongly held stereotypes (Feagin, 1972). For example, Cozzarelli and colleagues (2001) found a significant relationship between stereotype endorsement and attributions for social class, such that beliefs that lower social class is caused by internal factors such as disposition or ability is strongly related to holding more negative stereotypes about the poor. Moreover, social class stereotypes may also be influenced by whether people see social class itself as changeable or unchangeable. These stereotypes may be seen as more relevant to perceptions of others or the self when social class is seen as a stable group membership caused by internal characteristics rather than unstable and caused by external circumstances. In this paper, I propose that people who identify with lower social classes may be vulnerable to negative stereotypes about their social class (Croizet & Claire, 1998; Spencer & Castano, 2007) depending on whether they perceive their own social class identity as malleable or fixed.

Beliefs about the degree to which a social identity is malleable or fixed may be influenced by factors such as endorsement of biologically-based group differences (see Herrnstein & Murray, 1994), and perceived group entitativity (e.g., Brewer, Hong, & Li, 2004; Brewer, Weber, & Carini, 1995). At the broadest level, general beliefs about "why people are the way they are" may play a critical role. Research on these beliefs, termed implicit theories of

personality, shows that people tend to see individual characteristics as either fundamentally changeable or unchangeable across various personality domains (including personality traits, morality, and intelligence; see Dweck, Chiu, & Hong, 1995a). Because differences in intellectual aptitude are strong components of social class stereotypes (Croizet & Claire, 1998), the current research focuses on implicit theories of intelligence as a predictor of how people perceive their respective social class, and whether the nature of these changeability perceptions in turn influence vulnerability to social class stereotypes. Research evidence on implicit theories of intelligence and attribution theory provide support for the idea that vulnerability to stereotypes about social class might be influenced by beliefs about the nature and causes of social class.

The research presented here explores a conceptual model defining how broad, implicit theories of intelligence predict perceptions of social class identity changeability, which in turn predict self-endorsement of class-based stereotypes, which ultimately help predict stereotype-related outcomes (i.e., testing performance and stereotyping concerns): the Implicit Theory/Identity Changeability Model (see Figure 1). Rationale for the critical relationships of the proposed model will be addressed below, followed by three research studies that examine the suggested pathways (Studies 1 and 2) and the overall model (Study 3).

Implicit Theories of Intelligence, Attribution Styles, and Performance Outcomes

Research demonstrates that people tend to hold one of two general theories of intelligence, such that they either see intelligence as relatively fixed and stable (entity theory) or as malleable with potential for growth (incremental theory; Dweck & Leggett, 1988). Within the achievement domain, these theories of intelligence predict a consistent pattern of responses on achievement outcomes (e.g., Dweck, 1999). Entity theorists, compared to incremental theorists, tend to attribute failures to inherent low ability and subsequently show less persistence when

faced with challenging situations (Robins & Pals, 2002). Research demonstrates that implicit theories of intelligence influence goal setting (achievement vs. learning) as well as reactions to setbacks (see Dweck, Chiu, & Hong, 1995b for a review), and moreover, directly affect performance outcomes. For example, among 7th grade students, entity theorists tend to show lower performance, whereas incremental theorists tend to be high achievers and even tend to improve academically over time (Blackwell, Trzesniewski, & Dweck, 2007; Henderson & Dweck, 1990).

Similar to the research on implicit theories of intelligence, previous work on attribution theories indicates that people can show one of two attribution styles: an optimistic style, characterized by seeing internal causes for positive and external causes for negative events, and a pessimistic style, characterized by seeing external causes for positive and internal causes for negative events (Mezulis, Abramson, Hyde, & Hankin, 2004; Weiner, Nierenberg, & Goldstein, 1976). These attribution styles influence achievement-motivation patterns, such that an optimistic versus pessimistic attribution style can form the basis for adaptive versus maladaptive response patterns (Abramson, Metalsky & Alloy, 1989; Peterson, Semmel, von Baeyer, Abramson, Metalsky, & Seligman, 1982). Having a more negative explanatory style regarding academic achievement (e.g., explaining academic set-backs with internal, stable, and global causes) is related to poorer grades and being less likely to have specific academic goals (e.g., Cheng & Chiou, 2010; Liu, Cheng, Chen, & Wu, 2009; Peterson & Barrett, 1987).

In other words, attributional beliefs mediate maladaptive and adaptive reactions, such that perceiving setbacks as global, stable, and uncontrollable is related to maladaptation and perceiving setbacks as local, unstable, and controllable mediates adaptive reactions (Abramson, Seligman, & Teasdale, 1978; Gillham, Reivich, Jaycox, & Seligman, 1995; Weiner, 1979). Thus,

how people cope in the face of obstacles is directly related to the types of attributions/perceptions people have of the event. However, when just focusing on these situational and circumstantial attributions, the broader theories, belief systems, and conceptual frameworks that people bring with them to a situation are missing (Hong, Chiu, Dweck, Lin, & Wan, 1999). Thus, both general implicit theories about intelligence and more specific achievement attribution styles can have an important influence on achievement outcomes.

Dweck and colleagues (1995) described a theoretical model incorporating the dual roles of attributions and implicit theories of intelligence in shaping achievement outcomes. In their model, implicit theories are proposed to influence the type of attributions made regarding success and failure, with entity theories leading to more trait, or fixed, attributions for behaviors, and incremental theories leading to less of an emphasis on traits and more focus on process when trying to understand events (Dweck et al., 1995a; Dweck & Leggett, 1988; Hong et al., 1999). Entity theorists are more likely to form trait inferences from behaviors than incremental theorists, who are more likely to see the role of situations and temporary psychological states as causes of one's behaviors. Therefore, incremental versus entity theorizing predicts different attributions for negative events, such that academic failures are perceived as a reflection of low ability to entity theorists and as a reflection of low effort to incremental theorists. So, attributions may be organized around the broad implicit theories people carry with them every day. Specifically, when people make sense of their worlds, they lean on their implicit theories (Bruner & Tagiuri, 1954), suggesting that these general implicit theories are directional in forming the basis from which attribution styles emerge (Critcher & Dunning, 2009; Hong et al., 1999).

Of interest, Chiu, Parker, Hong, and Dweck argued that positive events are also seen as caused by one's traits more than by one's circumstances for entity theorists (as cited in Dweck et

al., 1995a). However, because negative events are seen as more meaningful than positive events (which may be generally more consistent with positive self-views), attributions for negative events may be particularly influential (e.g., Kahneman & Tversky, 1984; Vaish, Grossman, & Woodward, 2008). Dweck and Leggett (1988) further provide evidence for this, such that when experiencing failure, entity theorists tend to make more global, stable, negative self-assessments and attributions. In sum, the theoretical model described by Dweck and colleagues indicates that entity theorists may have more negative outcomes (in terms of lowered academic persistence in the face of challenges, for example), because they tend to see people, including themselves, in terms of stable, unchangeable traits rather than evolving circumstances or changeable abilities (Chiu et al., 1997; Dweck, Hong, & Chiu, 1993; Erdley & Dweck, 1993; Reich & Arkin, 2006).

Implicit Theories, Identity Changeability Perceptions, and Stereotypes

In the current research, I extend Dweck's theoretical model to the domain of social identities and stereotype-relevant situations. Facing negative stereotypes about one's identity, as when experiencing stereotype threat, can not only bring to mind the possibility of failure, but can also heighten the ramifications of that failure to the reputation of one's group (see Shapiro & Neuberg, 2007 for a review). Therefore, attributions for one's own social class identity might fit into this framework as a mediator of the relationship between implicit theories of intelligence and social identity threat-relevant outcomes, specifically because social class identity is associated with intelligence-based stereotypes (Croizet & Claire, 1998; Spencer & Castano, 2007).

Previous research has provided evidence that there is a predictive relationship between implicit theories and attributional beliefs (e.g., Dweck et al., 1995a; Hong et al., 1999). So, in order to examine this within the context of social class identity, the current research focuses on

capturing attributional beliefs about social class by measuring the perceived stability, globality, and controllability of the identity. These dimensions of social class mirror previous work on attribution and explanatory style (e.g., Abramson et al., 1989; Weiner, 1979). The current work focuses on beliefs about the nature of a social identity (Kraus et al., 2011), as opposed to beliefs about the causes of individual events; so instead of referring to these dimensions of stability, globality, and controllability as *attributions*, I will, henceforth, refer to them as *identity changeability perceptions*.

I propose that implicit theories of intelligence can not only shape attributions for academic events (as described by Dweck et al., 1995b), but can also influence changeability perceptions of one's social class identity, with implications for stereotype-relevant outcomes. If entity theorists make fixed trait inferences about events, it seems likely that they would make fixed trait inferences about the nature of social class identity as well. In stereotype-relevant situations, such as testing in a domain in which one's group is negatively stereotyped as a poor performer, the influence of entity vs. incremental theories of intelligence on stereotype-relevant outcomes (such as test performance) may be apparent. This may happen because entity theorizing leads to more stable and fixed views of one's social class identity, whereas incremental theorizing leads to perceptions that one's social class identity is more unstable and changeable.

Perceiving one's social class identity as fixed may contribute to poorer outcomes to the extent that the negative stereotypes about one's social class seem more self-relevant.

Specifically, previous research has demonstrated that entity theorists pay more attention to stereotype-consistent information than stereotype-inconsistent information (Plaks, Stroessner, Dweck & Sherman, 2001). Therefore, it is predicted that people who identify as lower social

class facing a scholastic aptitude test might be differentially vulnerable to low social class stereotypes depending on whether they perceive their social class as changeable or unchangeable, with changeable perceptions lessening the threat of potential failure to the reputation of one's group because stereotypes feel less self-relevant. Taken together, the current research expands upon the previous work showing that entity theorists tend to endorse stereotypes more readily (Plaks et al., 2001), by testing the hypothesis that in the context of social class identity and intelligence-based stereotypes, it may be that entity theorists in fact perceive their own social class identity as being more fixed (Dweck et al., 1993), thus stereotypes feel more self-relevant, ultimately affecting performance (Steele et al., 2002). In the following section I further explore the idea that different perceptions of one's social class identity changeability can lead to being more or less vulnerable to social class identity threat.

Identity Changeability Perceptions and Stereotypes about Social Class

In general, most research examining causes of poverty find that North Americans tend to believe there are multiple determinants of poverty. However, research demonstrates that North Americans, overall, tend to rate individualistic or "internal" causes (e.g., lack of effort, laziness, low intelligence) as more prevalent than societal or "external" causes of poverty (e.g., being a target of discrimination, receiving unfairly low wages, attending poor schools; see Feagin, 1972; Kluegel & Smith, 1986; Smith & Stone, 1989). Research has shown that there are demographic differences in these views, such that Whites and political conservatives tend to make more internal attributions for poverty compared to other racial groups and political liberals (Kluegel & Smith, 1986; Zucker & Weiner, 1993). Despite these differences, the perception that poor people are poor because of some innate characteristic of lower social class people is still rather pervasive with many North Americans tending to blame the poor for their poverty (see Weiner,

Osborne, & Rudolph, 2011, for a review).

Much of this previous literature examines the attributions that people make for *others'* social class, with less attention to the perceptions that people might have for *their own* social class. In contrast to other identities such as race and gender which are generally perceived as stable, perceptions of the changeability of one's own social class identity may be more likely to vary among individuals. Some people might think that they could easily identify with a different social class level if their circumstances changed, as in the case of receiving a great monetary windfall or losing a high paying job. This would reflect perceptions of one's social class identity as being changeable. In contrast, other people might think that even if their financial circumstances changed, they would still identify with their previous social class, that "money wouldn't change them," because they see their social class as a product of their long-held traits, abilities, and values. This would reflect perceptions of one's social class identity as unchangeable.

Similar to research on other social identities, research has demonstrated that people from lower social class are susceptible to social class stereotype threat (Croizet & Claire, 1998; Spencer & Castano, 2007). For example, Spencer and Castano (2007) manipulated the saliency of lower social class identity and the diagnosticity of an academic test and showed that low-income students were negatively affected by both manipulations as demonstrated through performance decrements. The finding that stereotype threat affects test performance for stereotyped group members has been consistently demonstrated across a range of social groups (see Steele et al., 2002). Beyond test performance, additional outcomes have been shown to be relevant consequences of threat, including threat-related distraction and stereotyping concerns (e.g., Schmader, Johns, & Forbes, 2008), which may contribute to performance outcomes or

serve as important outcomes in their own right.

The Current Research: Testing the Proposed Model

So far, I have argued that implicit theories may form the foundation from which perceptions of social class identity changeability emerge. These perceptions may then influence the extent to which individuals endorse stereotypes about their own identity, which in turn may affect stereotype-related outcomes. As discussed previously, both implicit theory of intelligence and explanatory style have independently been shown to be predictive of performance-related outcomes (Blackwell et al., 2007; Henderson & Dweck, 1990; Robins & Pals, 2002). These performance outcomes are also directly affected by the stereotypes about people from lower income groups (e.g., Spencer & Castano, 2007). By making social class identity salient in the current research, related stereotypes will be brought to mind as well (Shih, Pittinsky, & Ambady, 1999; Sinclair, Hardin, & Lowery, 2006; Steele & Ambady, 2006; White & Gardner, 2009). So, in the face of a stereotype-threatening situation, the types of identity changeability perceptions that people have of social class is predicted to mediate the known link between implicit theories of intelligence and stereotype-related outcomes, to the extent that stereotypes may feel more or less relevant to entity or incremental theorists (e.g., Marx & Stapel, 2006; Schmader et al., 2008). The ways in which people see intelligence at a broad, implicit level, may in fact predict the changeability perceptions they have for their own social class identity, which will influence the extent to which individuals endorse identity-relevant stereotypes, ultimately affecting test performance and stereotype concerns (see Implicit Theory/Identity Changeability Model; Figure 1).

Defining Social Class: Subjective and Objective Interpretations

While the role of social class identity in shaping individuals' attitudes and beliefs has

been acknowledged, often as a descriptive or control variable (Mueller & Parcel, 1981; Weeden & Grusky, 2005), it has generally been underexplored within psychology (Eysenck, 1960; Lott, 2002; Ostrove & Cole, 2003). Undoubtedly, social class is a complex and multidimensional construct. Work focusing on the effects of social class has largely taken two general approaches to measuring it: using objective markers or focusing on subjective self-identification.

Objective markers of social class are demographic in nature (i.e., educational attainment, income, occupational prestige) and give a general sense of an individual's social location. They tend to be face valid and easy to collect (Kamieniecki & O'Brien, 1984; Schooler & Schoenbach, 1994); nevertheless, recent research has suggested that there is no "single best" objective measure of social class (see Sanders, 2012). Subjective measures of social class (i.e., having respondents select from a number of social class descriptors or place an "X" on a "social ladder" that is reflective of where they feel they stand; Goodman et al., 2001; SurrIDGE, 2007) have their own drawbacks. For example, they usually depend on recognition of a broad social hierarchy, and individual ability to place oneself within it (e.g., Gordon, 1951; SurrIDGE, 2007). While subjective measures of social class are often correlated with objective measures (SurrIDGE, 2007), subjective identity may be more inflexible and more powerful in shaping how we perceive and understand the world (e.g., Jones, 2003).

Previous work explains social class identity to be a "lived experience" because of the role that the social context plays in development of social class awareness and identity (Sanders, 2012). In other words, social class is a deeply embedded set of practices and beliefs, and thus, objective markers of social class may not accurately reflect an individual's own understanding of one's social class identity. Sanders (2012) argues that a willingness to self-identify with a subjective class label represents a deeper part of one's identity (beyond income, for example)

that can shape more objective realities. Given that individual subjective understanding of what objective status means is context-dependent (e.g., Kraus, Piff, Mendoza-Denton, Rheinschmidt, & Keltner, 2012), and that the current research largely focuses on individuals who are currently in a context in which their lower income status is salient, the following research focuses on subjective measures of social class identity. However, comparison to objective markers will also be included. In general, the current research utilizes subjective measures by asking individuals to choose a specific class-based label with which they align themselves (see Appendix A; e.g., Bullock & Limpert, 2003; Sanders, 2012; SurrIDGE, 2007).

Research Overview

The research presented here extends previous social identity, implicit personality theory, and social class research by exploring the ways in which broad, implicit theories of intelligence affect stereotype-related outcomes, and in turn, how this relationship is weakened when examining the effect of differing perceptions of a salient, stigmatized social identity (lower social class). In other words, it is theorized that among people from lower social class backgrounds, perceptions of one's social class will mediate the relationship between implicit theories of intelligence and lower social class stereotype-relevant outcomes (e.g., performance in a class-stereotyped domain), specifically because these identity changeability perceptions will influence individual endorsement of class-related stereotypes. By employing both survey and experimental designs, I am able to examine the proposed Implicit Theory/Identity Changeability Model and test the strength of the relationships. Below, I outline the three studies presented in this paper.

Study 1 focuses on testing a core assumption of this research, specifically, that social class identity is a unique identity concerning changeability perception dimensions (stability, controllability, and globality), when considered relative to other identities such as race and

gender. This study also begins to examine the relationship between implicit theory of intelligence, perceptions of social class identity, and beliefs about the personal relevance of stereotypes (e.g., Levy, 1996; Shih, Ambady, Richeson, Fujita, & Gray, 2002). It is hypothesized that social class identity is different compared to other social identities on the dimensions of perceived stability, controllability, and globality. In addition, it is predicted that these social class changeability perceptions uniquely mediate the relationship between implicit theory of intelligence and perceived stereotype self-relevancy, a stereotype-related outcome (Figure 2).

Study 2 explores how a critical part of the proposed model works among lower income individuals experiencing a poverty identity-salient situation, in which intelligence-based stereotypes about class are salient. In other words, Study 2 seeks to test how the relationship between implicit theory of intelligence and test performance might be partially explained by the changeability perceptions of a stigmatized identity (Figure 3). It is proposed that people may be differentially vulnerable to stereotypes regarding their social class identity depending on their implicit theories of intelligence and changeability perceptions of their social class identity.

Study 3 expands upon the previous studies in order to 1) examine all four components of the Implicit Theory/Identity Changeability Model together (Figure 1), and 2) attempt to improve outcomes by changing either broad, implicit theories of intelligence or specific, individual perceptions of social class identity. First, Study 3 extends on the initial two studies by testing the complete model that suggests that implicit theory of intelligence predicts the changeability perceptions of social class identity among a lower income population, which in turn predicts the endorsement of relevant stereotypes (addressed in Study 1), which then predicts test performance and stereotype concerns (addressed in Study 2), thus weakening the direct relationship between implicit theories of intelligence and these stereotype-related outcomes. In addition, Study 3

attempts to manipulate implicit theory of intelligence and the changeability perceptions of social class, and compare across outcomes. Given that the previous work tends to demonstrate that holding both more entitative (fixed) views of intelligence and stable, uncontrollable, global views of a stigmatized social class identity are associated with more negative outcomes, Study 3 seeks to examine the effectiveness of manipulations designed to encourage more changeable views of each component. Study 3 also explores the influence of individual difference factors that may also play a role in shaping how implicit theories of intelligence and changeability perceptions of social class relate to one another and to the outcomes. In particular, Study 3 examines how individual differences in just world beliefs, optimism, and social dominance orientation may affect the predicted model by controlling for their influence and testing for model significance.

CHAPTER II

Study 1: Perceptions of Social Class Identity and Stereotype Self-Relevancy

Study 1 was designed to initially compare changeability perceptions of social class identity to other well-studied social identities (e.g., race and gender) in order to better understand the differing perceptions people might have along specific attribution dimensions. Specifically, the current research examines the dimensions of perceived controllability, stability, and globality (i.e., affecting many areas of one's life, Weiner, 1979) of one's social class identity compared to other important social identities. These identity changeability perceptions are analyzed by examining both the perceptions individuals have of their *own* identities and the perceptions individuals have of these social identities in general (e.g., the extent to which I view *my own* social class identity as changeable compared to the extent that I view social class overall as changeable). This will allow for the comparison not only between different social identities (e.g., race identity changeability perceptions compared to social class identity changeability perceptions), but also possible differences between changeability perceptions of own identity and perceptions of such identities more generally.

The current research also examines the relationships between these perceptions, implicit theories of intelligence, and feelings of stereotype relevancy—an important component of stereotype threat experiences (e.g., Kiefer & Sekaquaptewa, 2007; Steele et al., 2002). Specifically, entity theorists may be more likely to report increased feelings of self-relevance of identity-based stereotypes (e.g., Levy, Stroessner, & Dweck, 1998; Plaks et al., 2001), but this

relationship may be weakened when including identity changeability perceptions, to the extent that entity theorists report more unchangeable views and stereotypes therefore feel more relevant (Steele et al., 2002).

It is hypothesized that 1) individual implicit theories of intelligence will be uniquely related to the perceptions people have of social class identity compared to other social identities, both for perceptions of social class identity more generally and for perceptions of own social class identity; and 2) changeability perceptions of social class identity (seeing it as stable, uncontrollable, and global vs. unstable, controllable, and localized) will mediate the relationship between implicit theories of intelligence and feelings of perceived social class-stereotype relevancy (Figure 2).

Method

Participants

Study 1 was conducted using Amazon's Mechanical Turk (MTurk) website, and the only participation requirement was that participants reside in the United States. Participants were paid \$1.00 to complete a 10-minute survey that was presented as a "short survey on perceptions of different social identities (such as race and gender)". The sample included 204 participants, 49% female. The age of participants ranged from 18 to 68, with a median age of 32 years and an average age of 35 years. Of the sample, 81% of the participants reported their race as White, not Hispanic or Latino, 7% as Black/African American, 6% as Asian or Pacific Islander, 3% as Hispanic or Latino, and 1% reported being American Indian or Alaskan Native.

The social class of the sample was quite diverse. First looking at the objective measures of education and income, 54% of participants reported their current education as less than or equal to an associate's degree, and 46% reported an education level of bachelor's degree or

higher. Using a 1-10 scale measuring objective income (“What is your household total before-tax income in the past year? (Please provide your best estimate)”, anchored by 1 “Below \$10,000” and 10 “\$200,000+”), responses revealed that 25.5% of participants indicated their household income to be in the \$40,000 to \$59,999 range, and 63.2% of respondents were at or below this level. A subjective measure of social class (“How would you describe your social class?”) revealed that 15% of the sample identified as upper-middle, upper class, or wealthy, 43% of the sample identified as middle class, and 42% identified as lower-middle, lower-working, or poverty level. Correlations demonstrate that income and education are significantly related ($r = .41, p < .001$), and that these objective measures of social class are also significantly related with the subjective identification measure (income: $r = .65, p < .001$; education: $r = .30, p < .001$). See Appendix A for social class demographic measures.

Procedure

A recent review of the validity and reliability of using MTurk as a means for collecting data argues that data obtained on MTurk is at least as reliable as other forms of data collection and can be used to obtain high-quality data (Buhrmester, Kwang, & Gosling, 2011). Because the goal of this research was to examine the perceptions that people seem to generally have of different social identities, MTurk was used in order to obtain a high number of relatively diverse participants (as compared to the typical university subject pool sample). The study was a simple survey design in which participants were first asked to report their demographic information, and then respond to a variety of items designed to assess participant perceptions of five social identities (race, gender, nationality, social class, and political affiliation; see Measures section below). Participants were also asked questions measuring their implicit theory of intelligence and their perceptions of the self-relevancy of stereotypes for each of the five identities.

Measures

Changeability perceptions of social identities. Working from previous research of attribution and explanatory style (e.g., Abramson et al., 1989; Weiner, 1979), the current research focused on three critical dimensions of attributions: perceived stability of the identity, perceived globality of the identity, and perceived controllability of the identity. Using these dimensions, a measure of changeability perceptions was created for each social identity. Each measure (for each identity) consisted of six questions, with two questions targeting each dimension. In addition, for each social identity, there were six questions designed to measure perceptions of one's *own* identities, and six questions designed to measure perceptions of social identities generally, in order to examine potential differences between perceptions. The order of presenting the different target types was counterbalanced across participants.

Changeability perceptions of own social identities. The perceptions participants had of their own social identities was assessed using 6 items, anchored by 1 “Strongly Disagree” to 7 “Strongly Agree” for each of the five social identities (race, gender, nationality, social class, and political affiliation). The items of the measure were modeled after items designed to measure attribution style including the elements of controllability (e.g., “I could change my social class if I really wanted to”), stability (e.g., “I feel like I will always be a member of my current race” [reverse scored]), and globality (e.g., “My nationality influences the way I think about most things in life” [reverse scored]). Items were combined to create a composite such that higher scores indicate a more controllable, unstable, localized view of one's different social identities (Race: $\alpha = .67$; Gender: $\alpha = .60$; Nationality: $\alpha = .65$; Social Class: $\alpha = .74$; Political Affiliation: $\alpha = .71$).

Changeability perceptions of social identities. Similar to perceptions of participants'

own social identities, the perceptions that participants had of the changeability of social identities more generally were assessed using 6 comparable items for each of the five social identities using the dimensions of controllability (e.g., “People could change their social class if they really wanted to”), stability (e.g., “People will always stay a member of their current race” [reverse scored]), and globality (e.g., “Nationality influences the way people think about most things in their lives” [reverse scored]). Items were combined to create a composite such that higher scores indicate a perception that participants see the different social identities of people in general as more controllable, unstable, and localized (Race: $\alpha = .72$; Gender: $\alpha = .71$; Nationality: $\alpha = .75$; Social Class: $\alpha = .68$; Political Affiliation: $\alpha = .73$).

Implicit theory of intelligence. The three-item questionnaire developed by Dweck and colleagues (1995a) was used in order to measure participants’ implicit theory of intelligence (incremental vs. entity theory; e.g., “You have a certain amount of intelligence and you really can’t do much to change it” [reverse scored]; $\alpha = .94$). Higher scores indicate an incremental theory of intelligence.

Stereotype self-endorsement. Two questions about each identity were included in order to measure the extent to which participants felt as if stereotypes about their different social identities might apply to them. Responses were on a 7-point scale anchored by 1 “Not at All” to 7 “A Lot” (e.g., “When thinking about stereotypes about your Social Class, how much do you personally feel that those stereotypes apply to you?” “When thinking about stereotypes about your Political Affiliation, how much do you think other people believe those stereotypes are true of you?”). Because scores on personal feelings that stereotypes apply to oneself and perceptions that others think they apply to oneself were significantly correlated across each identity group (Race: $r = .57, p < .001$; Gender: $r = .69, p < .001$; Nationality: $r = .65, p < .001$; Social Class: r

= .65, $p < .001$; Political Affiliation: $r = .67, p < .001$), items were averaged within ratings of each identity for self and others' stereotype endorsement responses to create composites such that higher scores indicate greater perceived self and others' relevancy of identity-based stereotypes for each of the five identities. See Appendix A for all self-report measures.

Results

Social Class Identity Changeability Perceptions

In order to compare the changeability perceptions of own social class identity and the identity more generally (composite score of stability, controllability, and globality) relative to all other identities, paired-samples t-tests were conducted. Importantly, the results demonstrate that participants viewed their own social class identity as significantly less stable, more controllable, and less global compared to their race, gender, and nationality identity (see Table 1). In contrast to this, participants viewed their social class identity as more stable, less controllable, and more global compared to their political affiliation. Following this same pattern, participants viewed social class identity more generally as significantly less stable, more controllable, and less global compared to their general perceptions of race, gender, and nationality identity; and viewed social class identity as more stable, less controllable, and more global compared to their general perceptions of political affiliation. These results suggest that social class is a unique social identity that people perceive significantly differently from other social identities on the dimensions of stability, controllability, and globality. Additionally, people seem to vary in their perceptions of social class identity in that social class identity scores are normally distributed rather than skewed towards changeable or unchangeable (own social class identity changeability perceptions: skewness = $-.187$ ($SE = .170$), kurtosis = $-.026$ ($SE = .339$); social class identity in general: skewness = $-.038$ ($SE = .170$), kurtosis = $.739$ ($SE = .339$); normal distributions produce

skewness and kurtosis statistics of zero).

On the two identities that are perceived to be the most changeable (social class and political affiliation), participants did not differ on the extent to which they perceived their own compared to the identity more generally to be changeable ($ps > .43$). However, participants did significantly differ on the perceived changeability of race, gender, and nationality, such that participants tended to see gender and nationality identity conceived more generally to be more unstable than perceptions of their own identities ($ps < .001$), but tended to see race identity conceived more generally as being more stable ($p < .01$).

Social Class Identity Changeability Perceptions and Implicit Theory of Intelligence

The next goal of this study was to examine the relationship between broad implicit theories of intelligence and how they might relate to different perceptions of social class identity changeability. In order to examine this relationship, inter-variable correlations were examined. The results show that implicit theory of intelligence is significantly related to the perceptions people have of their own social class identity ($r = .21, p < .01$) and those they have of the social class identity more broadly ($r = .17, p < .02$), such that holding a more entity theory of intelligence is related to more stable, uncontrollable, and global perceptions of social class identity. Implicit theory of intelligence is also significantly related to the perceptions that people have of political affiliation generally ($r = .17, p < .02$). However, none of the other identities are significantly related to implicit theory of intelligence (see Table 2). This suggests that there is something unique about the perceived stability, controllability, and globality of social class identity (and to a lesser extent, political affiliation) and its relationship to more general implicit theories of intelligence.

Mediation Models: Testing Changeability Perceptions of Social Class as a Mediator

Implicit theory of intelligence predicted the extent to which participants report social class stereotype self-endorsement ($b = -.152, SE = .06, t(203) = -2.74, p < .01; R^2 = .04, F(1, 202) = 7.53, p < .01$), such that those with more of an entity theory of intelligence reported that stereotypes about social class seemed more self-relevant. In order to test social class changeability perceptions (of own social class identity and social class identity more generally) as potential mediators of the effect of implicit theories of intelligence on perceived self-relevancy of stereotypes, I assessed whether the effect of implicit theory on this outcome was weakened when social class identity perceptions were taken into account. Importantly, results showed that the effect of implicit theory of intelligence on perceptions of social class stereotype self-endorsement was decreased when controlling for changeability perceptions of own social class identity and social class identity more generally (see Figures 4a and 4b).

Bootstrapping confidence intervals tested whether the indirect effects were significantly different from zero, using a 95% bias-corrected bootstrap confidence interval based on a sample of 10,000 iterations (e.g., Hayes, 2009; Hayes, 2012; Hayes, Preacher, & Myers, 2011). When confidence intervals (CIs) do not include zero, support is provided for the predicted indirect (mediated) effect. Specifically, the current research will report confidence intervals for the unstandardized indirect effects. The effect coefficients can be interpreted as “the decrease in the effect of X on Y when M is added to the model or as the amount by which Y is expected to increase indirectly through M per a unit change in X ” (Preacher & Kelley, 2011, p. 99).

Results showed that changeability perceptions of own social class identity significantly mediated the relationship between implicit theory of intelligence and social class stereotype self-endorsement (CI range $-.09$ to $-.01$; with an effect of $-.04$ and $SE = .02$), and that the changeability perceptions of social class identity in general significantly mediated the

relationship as well (CI range $-.07$ to $-.003$; with an effect of $-.03$ and $SE = .02$). In other words, stereotype self-endorsement is expected to decrease $.03$ to $.04$ for every unit increase in implicit theory of intelligence, if considering only the indirect influence via changeability perceptions of social class. Overall, these results support the argument that changeability perceptions of social class reduce the effect of implicit theories of intelligence on a stereotype-related outcome: self-endorsement of social class stereotypes.

All other models for race, gender, nationality, and political affiliation identity were not significant, such that using the same bootstrapping procedure demonstrated that all of the confidence intervals overlap with zero, except for the model testing the potential mediating effect of perceptions of political affiliation in general (see Table 3). These primarily non-significant mediation models provide additional support for the proposed relationship between broader implicit theories of intelligence and more specific perceptions of a social identity that is generally perceived as a changeable identity, and about which exists a related intelligence-based stereotype.

Examining the subcomponents of perceptions of social class identity. In order to examine the independent effects of the perceived stability, controllability, or globality of social class identity compared to the composite measure, mediation analyses were conducted using each subcomponent for both perceptions of own and perceptions of social class in general. Results demonstrate that only one individual subcomponent, the general stability perceptions of social class identity, mediates the effect of implicit theory of intelligence on perceived stereotype self-endorsement (CI range $-.07$ to $-.003$; with an effect of $-.03$ and $SE = .02$; see Table 4). This suggests that, in general, the composite measure better captures the changeability perceptions of social class identity, compared to the individual subcomponents.

Testing Alternative Models

The hypothesized model tests whether a broad concept (implicit theories of intelligence) predicts a more specific factor (perceptions of social class identity). However, it is possible (but unlikely) that the direction of this relationship is the opposite, with changeability perceptions of one's social class (or other social identity) predicting broader concepts of the nature of intelligence. Therefore, I tested the alternative model, which would suggest that implicit theory of intelligence would act as the mediator of the effect of identity changeability perceptions on stereotype self-endorsement. These alternative models were analyzed also using the bootstrapping procedure. Results demonstrate that even though effect coefficients of the models are somewhat comparable to the proposed model, all of the confidence intervals overlap with zero (own social class identity: CI range -.10 to .002, effect of -.04 and $SE = .03$; social class identity in general: CI range -.11 to .02, effect of -.04 and $SE = .03$), providing additional support for the originally proposed model. These non-significant mediation models provide additional support for the suggested relationship between broader implicit theories of intelligence helping to shape more specific, perceptions of a relevant social identity.

Role of Participant Subjective Social Class

Stereotype self-relevancy may have different implications for people identifying as lower, middle, and upper social class. Because social class stereotypes about lower social classes may be more negative than those about higher social classes, perceived stereotype self-endorsement may lead to negative outcomes only for lower social class identifiers. Although respondents in Study 1 were not in a testing situation, Studies 2 and 3 will examine lower social class identifiers in a testing situation. Therefore, I tested the mediation models for upper, middle, and lower subjective social class identifiers separately, to assess whether the effects of

implicit theories of intelligence and identity changeability perceptions on stereotype self-endorsement emerge for lower social class identifiers distinct from higher class identifiers. To test this, the data was split into three groups: wealthy ($N = 30$; composed of participants who self-identified as “very wealthy” [$n = 1$], “upper” [$n = 4$], and “upper-middle” [$n = 25$]); middle class ($N = 89$; composed of all participants who self-identified as “middle class”); and lower than middle class ($N = 85$; composed of participants who self-identified as “lower-middle” [$n = 48$], “lower-working” [$n = 31$], and “poverty level” [$n = 6$]). One-way ANOVA analyses across groups demonstrate objective differences between groups (e.g., in terms of reported income) that correspond to the subjective, self-identified group classifications.

In order to test the mediation model across the different self-identified social classes, initial tests were run examining the extent to which implicit theory of intelligence predicts reports of social class stereotype self-endorsement for each group. Results reveal a marginal effect for participants self-identifying as lower than middle class ($b = -.156$, $SE = .08$, $t(84) = -1.83$, $p = .07$; $R^2 = .04$, $F(1, 83) = 3.34$, $p = .07$), a marginal effect for participants self-identifying as middle class ($b = -.144$, $SE = .08$, $t(88) = -1.76$, $p = .08$; $R^2 = .03$, $F(1, 87) = 3.09$, $p = .08$), and a non-significant effect for those in the wealthiest categories ($p = .51$).

Mediation models were then analyzed to assess whether the effect of implicit theory of intelligence on self-endorsement of social class stereotypes was mediated by changeability perceptions of social class identity for each of the three subjective social class groups (Hayes, 2012; although the direct effects do not reach conventional standards for significance, recent work has suggested that direct effects should not be a requirement for examining the role of indirect effects; see Hayes, 2009). Using bootstrapping confidence intervals, the results demonstrate that the relationship between implicit theory of intelligence and social class

stereotype self-endorsement is only significantly reduced for the middle class group when including changeability perceptions of *own* social class identity (CI range -.21 to -.03; with an effect of -.11 and $SE = .05$; all other confidence intervals included zero; see Table 5). While none of the other models were significant, the models for the self-identified lower class group and for the middle class group on perceptions of social class in general were in the predicted direction.

Exploratory mediation analyses conducted on the subjectively identified middle class *and* lower group combined ($n = 174$) demonstrate that the relationship between implicit theory of intelligence and social class stereotype self-endorsement ($b = -.149$, $SE = .06$, $t(173) = -3.55$, $p < .02$; $R^2 = .04$, $F(1, 172) = 6.48$, $p < .02$) is significantly reduced for both models: when including changeability perceptions of one's own social class identity (CI range -.11 to -.01; with an effect of -.05 and $SE = .03$) and when including changeability perceptions of social class identity more generally (CI range -.08 to -.01; with an effect of -.04 and $SE = .02$). In other words, the model holds when excluding those to whom social class-based stereotypes may be most positive (those identifying as higher social classes; Cozzarelli et al., 2001). Comparing across three groups divided by objective class indicators reveals a similar pattern of results, such that the model is only significant for the middle class group's perceptions of their own social class identity (CI range -.22 to -.01; with an effect of -.09 and $SE = .05$). All other confidence intervals overlap with zero.

Discussion

Study 1 helps establish that social class identity is unique relative to other well-studied identities, such as race and gender. Specifically, people differed in their perceptions of social class identity, such that it was perceived to be less stable, more controllable, and less global compared to race, gender, and nationality identity. However, social class identity was also

perceived as more stable, less controllable, and more global relative to political affiliation. This research provides evidence that social class identity is perceived in a different way compared to other social identities. Additionally, this research provides evidence for a relationship between an individual's broader, implicit theories of intelligence and their changeability perceptions of a social identity. Unlike the other identities (except for perceptions of political affiliation in general), implicit theory of intelligence is related to both perceptions of one's own social class identity and for social class identity in general. This is important because it suggests a unique relationship of the perceived malleability of intelligence and a social identity, about which there are relevant intelligence-based stereotypes.

The mediation analyses (when analyzing the entire sample) also provide additional support for this relationship such that changeability perceptions of social class identity significantly reduce the direct effect of implicit theory of intelligence on stereotype self-endorsement. Importantly, the critical link between implicit theory of intelligence and changeability perceptions of race, gender, nationality, and political affiliation did not emerge (with the exception of perceptions of political affiliation in general). The current study crucially demonstrated important qualities of social class identity, and also provided some evidence for the proposed Implicit Theory/Identity Changeability Model, such that individual perceptions of social class identity changeability partially explains the relationship between implicit theory of intelligence and stereotype self-endorsement.

Interestingly, additional analyses across self-identified, subjective social class levels demonstrate that this framework holds most consistent for those who identified as belonging to the "middle class." Specifically, the mediation model holds when examining the role of changeability perceptions of *own* social class identity among the self-identified "middle class"

participants. The results of the model testing, while not significant for other subjective social class groups (i.e., wealthiest and lower than middle class groups) or for perceptions of social class identity more generally for the “middle class” participants, demonstrate that the patterns are in the predicted direction except for those in the self-identified wealthiest group. This may suggest that power was lost when dividing the sample that prevented seeing significant results, especially given the relatively small effects of the model. This is further supported by the model significance that emerged in analyses excluding only the participants who self-identified with higher social classes, about which the relevant stereotypes may be more positive (Cozzarelli et al., 2001). Or perhaps, given the non-identity salient, neutral context in which participants likely completed the survey, participants were not actively thinking about the particular stereotypes that may specifically apply to each identity. Across all social identities that were examined in the current study, participants did not differ in the stereotype self-endorsement measure across the subjective social class groups ($ps > .24$). Therefore, the proposed model should be tested among a population in which a specific, stigmatized identity is salient (in this case, lower income identity) in order to better explore how the relationship between broad implicit theories of intelligence and stereotype-related outcomes (i.e., test performance; Croizet & Claire, 1998; Spencer & Castano, 2007) is affected by the changeability perceptions individuals have of a relevant, negatively-stereotyped identity.

Applying the Model to Lower Income Identity in an Identity Salient Situation

Thus far, the current research has demonstrated that social class is an important social identity with a unique relationship to individual implicit theories of intelligence. Study 2 seeks to more closely examine different consequences of holding these different perceptions of social class about one’s own *stigmatized* identity. Specifically, Study 2 focuses on individuals of lower

social class statuses, about which there are negative intelligence-related stereotypes. Study 2 seeks to apply this framework to an identity-salient situation, in which specific intelligence-based stereotypes exist for the salient identity (e.g., lower income identity; Croizet & Claire, 1998; Steele et al., 2002). This is in contrast to Study 1, in which participants were in an uncontrolled (neutral) environment and were asked questions about multiple identities.

Because Study 1 showed that holding an entity (over an incremental) theory of intelligence predicted greater stereotype self-endorsement, it seems likely that outcomes including test performance and concerns about stereotyping would be affected as well among a lower income population who is experiencing an identity-salient and threatening situation (following stereotype threat theory; Steele et al., 2002). In other words, the model is likely to emerge on more stereotype-specific outcomes among people who are negatively stereotyped in a testing domain. Low income participants in an identity salient situation will face a similar predicament that entity theorists face when encountering a difficult situation, in that the implication is that he or she is intellectually limited without the possibility for improvement (Aronson, Fried, & Good, 2002). Thus, Study 2 tests whether low income-specific stereotype-related outcomes (i.e., test performance and stereotyping concerns) are affected by broader, implicit theories of intelligence, and examines the extent to which that relationship can be explained by individual changeability perceptions of this negatively stereotyped identity.

In related research, Levy and colleagues (1998) demonstrated a strong link between implicit theories and social stereotyping. Explicitly, entity theorists are more prone to express and endorse stereotypic beliefs and more readily form stereotypes in contrast to incremental theorists. As seen in Study 1, Levy's work can also be extended to perceptions of the self-relevancy and endorsement of stereotypes about one's own ingroup. Study 2 examines how

changeability perceptions of one's own social class identity, in a stereotype-relevant and identity-salient situation may affect the relationship between implicit theory of intelligence and test performance outcomes. Previous work has provided evidence that entity theorists tend to perform more poorly in the face of challenges and difficult situations (e.g., Blackwell et al., 2007; Dweck & Leggett, 1988; Henderson & Dweck, 1990), and Study 2 extends this to examine how this may work within a context in which negative stereotypes about a changeable identity may feel particularly relevant. Specifically, when lower income identity is made salient and test performance is analyzed, it is predicted that entity theorists will tend to perform more poorly, but that this relationship will be at least partly explained by taking into account individual changeability perceptions of social class identity (e.g., for those that believe "if something as fundamental as intelligence can change, perhaps social class can change as well", the stereotypes may feel less self-relevant and so, performance will not be negatively impacted).

Initial support for this performance-based hypothesis was found in previous work that examined the relationship between a component of individual changeability perceptions of one's own social class (perceived controllability) and stereotype-related outcomes (i.e., quiz performance) among lower social class group members (Bennett & Sekaquaptewa, 2012). Sixty-six participants were recruited from a health care center that offers free pre-natal care to low-income women in a Colorado city. Participants completed a measure of perceived control over one's social class (e.g., "I could change my social class if I really wanted to"), as well as a short nutrition quiz (nutrition was selected because it was relevant to the information the women received during a mandatory intake course) and assessments of their concerns about stereotypes being relevant to their performance on the quiz (e.g., "I fear that my score on this test will reflect badly on others of my income level"). Results provided initial evidence for the predicted

relationships, such that perceptions of low control over social class (akin to lower changeability perceptions) was related to greater concern about quiz performance being associated with social class stereotypes ($r = .47, p < .001$), and tended to predict lower actual quiz scores ($r = -.21, p = .09$). This work suggested that thinking of lower social class as uncontrollable is associated with diminished social class stereotype-relevant outcomes, specifically, decreased quiz performance and increased stereotyping concerns.

CHAPTER III

Study 2: Perceptions of Lower Social Class Identity and Quiz Performance

Extending on Bennett and Sekaquaptewa (2012), Study 2 included a broader conceptualization of social class changeability perceptions, including stability and globality as well as controllability (comparable to Study 1), among a sample of lower income people. Study 2 also included the assessment of implicit theories of intelligence, and changeability perceptions of social class identity was examined as a mediator of the relationship between implicit theories of intelligence and test performance outcomes. Specifically, participants completed a memory quiz based on information they read which detailed factual information about applying to community college. This topic (Community College enrollment) was selected as a way to further create an identity-salient experience for participants through a performance situation because the topic is relevant to lower social class stereotypes.¹

Method

Participants

The participants in this study were 80 individuals (32 men and 38 women, 10 did not report gender) recruited at a Colorado organization that serves the needs of low-income community members in Colorado Springs. The organization assists homeless and working-poor families by providing them with services such as rent assistance, bus passes, clothing vouchers, utility assistance, access to food pantries, eye exams, child immunizations, and school supplies.

¹ The topic was therefore not selected to promote attending community college as the best way to “improve” one’s social class position.

In order to be eligible for assistance, individuals must demonstrate a genuine need for the services they are requesting (e.g., a utility shut-off notice for utility assistance). The age of participants ranged from 18 to 65, with the average age being 43 years.

Participants were asked to indicate their self-identified social class, income, and education. Of the 80 participants, 95% of respondents self-identified as lower than or equal to middle class (“upper middle class” (n = 2); “middle class” (n = 9); “lower-middle class” (n = 20); “lower class” (n = 24); “poverty level” (n = 23); 2 participants did not respond) because the current research is most interested in identification with lower social class, participants who self-identified with a class higher than middle class (n = 2) were not included in the analyses. Eleven participants (9 who identified as “middle class” and 2 who did not indicate their social class) were retained because their objective indices of social class were mostly low and similar to those who self-identified as a lower social class (i.e., reported income of 11 participants: “less than \$10,000” (n = 6); “\$20,000—29,999” (n = 2); “\$30,000—\$39,999” (n = 1); “\$60,000—79,999” (n = 1); 1 participant did not respond). This resulted in a final sample of 78 participants.

Of the final sample, 87% of the participants indicated that their income was below \$19,999 in the last year, which is near the federal poverty line for a family of three (\$18,530; U.S. Department of Health and Human Services, 2011), and well below the per capita United States income amount of \$27,915 (United States Census Bureau, 2011). Sixty-three percent of all respondents reported an income of less than \$10,000. Regarding education level, 92% of participants indicated receiving less than or equal to a two-year associate’s degree²; 67% of all

² It is important to note that five participants reported attaining an associate’s degree suggesting that they may be graduates of a community college, which could bias the performance outcomes (quiz scores on information about applying to community college). However, results of a t-test indicate that these participants did not perform differently from other participants ($t = -1.21, p = .23$).

respondents reported either a “GED/high school graduation” or “some college.”

Measures

Implicit theory of intelligence. The same three-item questionnaire developed by Dweck and colleagues (1995a) that was used in Study 1 was used in Study 2 ($\alpha = .81$). Higher scores indicated an incremental theory of intelligence.

Changeability perceptions of social class identity. The degree to which participants perceived their social class as stable, controllable and global was assessed using 8 items, anchored by 1 “Strongly Disagree” to 7 “Strongly Agree”. The items of the measure were modeled after items designed to measure attribution style including the elements of controllability (e.g., “I could change my social class if I really wanted to”), stability (e.g., “I feel like I will always be a member of my current social class” [reverse scored]), and globality (e.g., “My social class influences the way I think about most things in life” [reverse scored]). Items were combined to create a composite such that higher scores indicate a more changeable perception of lower social class identity; specifically, perceiving one’s lower social class identity as controllable, unstable, and as influencing few domains of one’s life (localized) ($\alpha = .71$).

Community College (CC) quiz. Participants read a short narrative relaying information on enrolling in a community college within the Colorado Community College System (see Appendix B). Participants then completed a 10-item memory quiz over the information they had read (e.g., “What is the difference between a student loan and a grant?” and “What is the Colorado Community College System website address?”). The research examines both number of quiz questions attempted, as well as how many items participants respond to correctly as measures of effort and memory accuracy, respectively (both outcomes that are affected by stereotype threat; Schmader & Johns, 2003; Stone, 2002).

Social class stereotyping concerns. It was likely that all participants would be experiencing stereotype threat because they were taking an academic test in a setting in which their social class identity was already made salient (the low income-serving organization setting). In light of these strong situational cues, a reduced threat manipulation was not introduced, making it important to assess the degree to which participants may have experienced stereotype threat; therefore, a measure of stereotyping concerns was included. Participants responded to six items designed to assess the extent to which they felt their performance would be perceived as related to their social class (e.g., “I fear that my score on this test will reflect badly on others of my income level.”; $\alpha = .75$). Stereotyping concerns scores differed significantly from one (the absence of stereotype concerns), $t(75) = 15.47, p < .001$, and a negative correlation emerged between social class stereotyping concerns and quiz performance ($r = -.31, p < .02$), suggesting that participants may have been experiencing a threatening situation (or at least a situation in which there existed concerns about the effects of relevant stereotypes).

Social class identity importance. Although the current research focuses on the role of perceptions of social class, it seems possible that perceptions of social class could be confounded with the importance of that identity to one’s self-concept, such that seeing social class as an important identity is related to stable social class perceptions. Therefore, a 2-item measure of social class identity importance was included (e.g., “Overall, my social class is unimportant to my sense of what kind of person I am”; adapted from the Multidimensional Inventory of Black Identity Centrality Scale; Sellers, Smith, Shelton, Rowley, & Chavous, 1998) ($r = .40, p < .001$) to address this possibility. See Appendix A for all self-report measures.

Community college interest. Participants were also asked to indicate their interest in, and perceived feasibility of, attending community college by responding to two questions,

anchored by 1 “No” and 7 “Yes” (“Based on the information you just read, does applying to a community college seem like something you could do?” and “Based on the information you just read, does this seem like something you would be interested in?”; $r = .61$, $p < .001$, $M = 4.36$, $SD = 1.91$). This measure served as a covariate in the following analyses.

Procedure

This study was conducted on-site, at the low-income community-serving organization. The researcher announced to patrons the opportunity to complete a survey packet in exchange for \$5.00. The data were collected over several weeks. Interested participants were first asked to read and sign an informed consent document, and then completed the questionnaire. Participants completed the survey privately. Upon completion, participants returned the survey to the researcher and received payment. Participants were told that if they did not finish the survey, they would receive partial payment. Participants could also just look at the survey and decide not to complete any of it, which still would have resulted in partial payment; however, all participants finished the survey.

Participants completed the measures of changeability perceptions of social class identity and implicit theory of intelligence, followed by the short narrative relating information on enrolling in a community college within the Colorado Community College System and the 10-item CC quiz³. Participants were instructed not to look back at the narrative to find answers while taking the quiz. Next, participants completed the measures of social class stereotype threat concerns and social class identity importance, followed by demographic questions (e.g., age, sex,

³ Participants also read one of two brief essays that presented information asserting that social class is either unstable or stable over time. Results showed that reading either essay had no significant effect on outcomes (for example, there were no differences on reported threat concerns based on condition ($t(76) = .32$, $p = .75$) and did not influence social class identity perceptions ($t(76) = .97$, $p = .34$), perhaps suggesting the strength of participants’ perceptions of social class identity. This manipulation is not discussed further.

and social class identification).

Results

Testing the Direct Effect of Implicit Theory of Intelligence on Outcomes

The outcome measures (CC quiz performance and social class stereotype concerns) were regressed on the measure of implicit theory of intelligence. Across all models, gender was also tested as a moderating variable and no significant effects emerged, indicating that the influence of implicit theory of intelligence on outcomes did not differ between men and women.

Additionally, reported community college interest was a covariate in the following analyses because self-rated interest might influence attention to and retention of quiz material.

CC quiz items attempted and accuracy. Scores were calculated for how many questions about the community college information participants attempted to answer out of the ten items (i.e., did not leave blank; $M = 9.62$, $SD = 5.37$), as well as how many questions were answered correctly ($M = 8.09$ out of 25 possible points, $SD = 5.36$).

Because participants were told not to look back at the community college narrative when completing the memory quiz, but looking back was possible for participants, the survey included the item “Did you look back to the essay in order to get any of the answers?” (“yes” or “no”) at the end of the survey. Results indicate that of the 78 participants, 19 respondents reported that they had looked back at the community college narrative in order to look up the answers for the memory test (one participant did not respond to this item). Of note, these 19 participants differed from the remaining participants, such that they tended to report having more entity theory of intelligence ($t(75) = 1.85$, $p = .07$) and more unchangeable perceptions of social class identity ($t(74) = 2.28$, $p = .03$). Additionally, the 19 participants who reported looking back for answers answered significantly more quiz questions correctly ($t(74) = 2.39$, $p = .02$) and attempted to

answer more questions overall ($t(74) = 2.26, p = .03$) compared to those who did not report having looked back.

Whether or not participants reported looking back for answers significantly interacted with identity changeability perceptions as a predictor of quiz questions correct ($b = -1.67, SE = .59, t(74) = -2.83, p = .01$), and test questions attempted ($b = -1.71, SE = .58, t(74) = -2.91, p = .01$), and showed a marginally significant interaction as a predictor of stereotyping concerns ($b = .277, SE = .15, t(73) = 1.90, p = .06$). These interactions suggest that participants who looked back for answers are significantly different from those who did not. Given the unreliability of their responses (particularly on the performance quiz), all subsequent analyses include only the 58 participants who specifically reported not looking back for answers (this also excludes the one participant who did not respond). Finally, one participant did not attempt any portion of the quiz and responded with “7”s for all remaining questions, indicating a lack of attention to directions and items, and thus was excluded from analyses. This resulted in a final sample of 57 participants.

Implicit theory of intelligence was a marginally significant predictor of the number of questions that participants attempted to answer on the memory test, $b = .838, SE = .44, t(54) = 1.92, p = .06$. Further, implicit theory also explained a marginally significant proportion of variance in number of questions attempted, $R^2 = .09, F(2, 52) = 2.54, p = .09$. In other words, those who have a more entity theory of intelligence tended to attempt fewer of the questions on the memory test, consistent with past research.

Implicit theory of intelligence demonstrated a non-significant effect on number of questions correctly answered on the test. However, the trend was in the anticipated direction, $b = .650, SE = .43, t(54) = 1.52, p = .13$, such that those who have an entity theory of intelligence

tended to get fewer answers correct ($F(2, 52) = 1.74, p = .19$).

Social class stereotyping concerns. Implicit theory of intelligence significantly predicted the extent to which participants were concerned about social class stereotyping while taking the quiz, $b = -.242, SE = .11, t(53) = -2.26, p < .03$, and explained a significant proportion of the variance in stereotyping concerns, $F(2, 51) = 3.12, p = .05$. Those with an entity theory of intelligence reported more social class stereotyping concerns.

In sum, implicit theory of intelligence emerged as a significant predictor of social class stereotyping concerns, and as a marginally significant predictor of quiz performance outcomes.

Testing Perceived Social Class Identity Changeability Perception as a Mediator

Because implicit theory of intelligence emerged as only a marginally significant predictor of quiz performance, it called into question whether the predicted mediation model should be tested on all outcomes. In support of testing all outcomes, recent work has suggested that direct effects (the total effect from X to Y) should not be a requirement for proceeding with tests of indirect (mediation) effects (e.g., Hayes, 2009; MacKinnon, Krull, & Lockwood, 2000). Hayes (2009) argues that failing to test for indirect effects in the absence of total effects can be inadequate. Specifically, the direct effect can be considered the sum of many different paths of influence, which the formal current model might not be capturing. If there is another mediating factor not measured in the research that is the opposite sign of the mediator included, the direct effect could appear non-significant. Additionally, because of needing to exclude the participants that looked back for answers on the quiz, statistical power was reduced. Because I am interested in the indirect pathways between implicit theories of intelligence on threat-related outcomes, through different changeability perceptions of social class, the indirect effects on all outcomes were examined.

Changeability perceptions of social class identity. To test social class perceptions as a potential mediator of the effect of implicit theories of intelligence on threat-related outcomes, analyses assessed whether the effect of implicit theory on the outcome variables was weakened when social class changeability perceptions were taken into account. Importantly, results showed that when social class changeability perceptions were controlled for, the effect of implicit theory of intelligence on number of attempted CC quiz questions, CC quiz accuracy, and stereotyping concerns was weakened (see Figures 5a, 5b, and 5c).

Bootstrapping confidence intervals tested whether the indirect effects were significantly different from zero, using a 95% bias-corrected bootstrap confidence interval based on a sample of 10,000 iterations (e.g., Hayes, 2009; Hayes, 2012; Hayes et al., 2011). Results showed that perceptions of social class identity significantly mediated the relationship between implicit theory of intelligence and number of quiz questions attempted (CI range .15 to 1.17, with an effect of .54 and $SE = .25$), CC quiz accuracy (CI range .18 to 1.14, with an effect of .54 and $SE = .24$), and stereotyping concerns (CI range -.32 to -.03, with an effect of .14 and $SE = .07$)⁴. Overall, these results support the hypothesis that perceptions of social class mediate the effect of implicit theories of intelligence on quiz performance outcomes and stereotyping concerns.

As in Study 1, results were also analyzed using income as an objective social class marker for data inclusion. Of the original 80 participants, 5 reported incomes of greater than \$30,000 and 1 participant did not respond (income $M = 1.58$, $SD = 1.03$). Excluding these

⁴ The model was also tested excluding the 11 participants self-identifying as “middle class” or not responding to the question, resulting in a sample of 50 after excluding those that reported looking back for answers. Results suggest similar effects among this sample, such that changeability perceptions of social class significantly weakened the relationship between implicit theory of intelligence and number of quiz questions attempted (CI range .07 to .97, with an effect of .47 and $SE = .22$), CC quiz accuracy (CI range .11 to 1.00, with an effect of .48 and $SE = .22$), and stereotyping concerns (CI range -.34 to -.03, with an effect of .15 and $SE = .08$).

participants and those who reported looking back for answers reveals comparable results with this objective class identification sample ($n = 54$) as with the subjective identification sample. Bootstrapping confidence intervals demonstrate that none of the intervals for the outcomes overlap with zero, suggesting that perceptions of social class identity significantly weaken the relationship between implicit theory of intelligence and number of questions attempted (CI range .13 to 1.09, with an effect of .51 and $SE = .24$), number of questions answered correctly (CI range .17 to 1.09, with an effect of .52 and $SE = .23$) and stereotyping concerns (CI range -.32 to -.03, with an effect of -.14 and $SE = .07$).

Examining the subcomponents of perceptions of social class identity. In order to examine the effects of the perceived stability, controllability, or globality compared to the composite measure, mediation analyses were conducted using each subcomponent (as in Study 1). Results demonstrate that perceptions of globality significantly mediates the relationship between implicit theory of intelligence and number of quiz questions answered correctly (CI range .02 to .70, with an effect of .26 and $SE = .16$) and that perceptions of stability is a significant mediator for the outcome of number of quiz questions attempted (CI range .01 to .73, with an effect of .27 and $SE = .18$; see Table 6 for all subcomponent effects and confidence intervals). However, the effects are smaller and not consistent across all outcomes as when using the composite measure. Coupled with the non-significant subcomponent results of Study 1 (when only the composite measure and the stability subcomponent emerged as significant mediators), this suggests that the composite measure captures unique dimensions that individually contribute to the role that changeability perceptions of social class identity plays in the model.

Including the participants who looked back for answers. Using the same tests for mediation, the people that looked back were included in analyses of the models. Results

demonstrate that none of the mediation effects are significant when using bootstrapping regression, such that all confidence intervals overlap with zero (quiz attempt: CI range -.56 to .27; quiz correct: -.48 to .32; stereotyping concerns: CI range -.007 to .18).

Social class identity importance. Correlations demonstrated that social class identity importance and changeability perceptions of social class identity are unrelated ($r = .01, p = .65$; see Table 7). Additionally, testing social class identity importance as the mediating variable in the model results in confidence intervals that overlap with zero (quiz attempt: CI range -.06 to .42; quiz correct: -.05 to .36; stereotyping concerns: CI range -.05 to .05), indicating that identity importance and social class perceptions are different constructs.

Testing Alternative Models

In order to test the alternative model, as in Study 1, which suggests that implicit theory of intelligence would act as the mediator of social class identity perceptions and threat-related outcomes, the same bootstrapping procedure was used. Results demonstrate that all of the confidence intervals overlap with zero, providing additional support for the direction of the originally proposed model (quiz attempt: CI range -.45 to 1.25; quiz correct: -.68 to .97; stereotyping concerns: CI range -.39 to .13).

Discussion

This research provides evidence that individuals are differentially vulnerable to situations in which stereotypes regarding their social class identity are salient, depending on their own implicit theory of intelligence. Further, the relationship between certain stereotype-related outcomes and implicit theories is mediated by the extent to which one sees social class identity as global, stable, and uncontrollable versus specific, unstable, and controllable. Thus, the current research highlights the role that changeability perceptions of one's social class play in the effect

that implicit theories of intelligence have on memory test performance and social class stereotyping concerns. Results indicated that when including perceptions of a threatened identity, the relationship between implicit theories of intelligence and stereotype-related outcomes is weakened. In other words, the extent to which one views intelligence as fixed tends to predict the extent to which one sees lower social class identity as stable, uncontrollable, and global, which then predicts poorer outcomes related to stereotypes about that identity.

The results demonstrate that perceptions of social class weakened the relationship between implicit theories and number of quiz questions answered, number of correct responses, and reported stereotyping concerns. Taken together, these results indicate that having more unstable, controllable, and localized perceptions of lower social class identity and a more incremental theory of intelligence are associated with better outcomes, because incremental theories of intelligence lead to perceptions of social class that are more conducive to positive outcomes. In other words, the manner in which an individual views social class identity (as changeable or unchangeable) helps explain why one's implicit theory of intelligence can predict stereotype-relevant performance outcomes among a stereotyped group in an identity-salient situation.

Broadly speaking, implicit theories appear to have consequences for the perceptions that people have for a social identity, which in turn helps explain part of the relationship that exists between implicit theories of intelligence and threat-related outcomes (e.g., test performance). In the context of Study 2, entity theorists tend to believe that intelligence levels cannot change, which leads them to have more stable and uncontrollable perceptions of social class, which in turn diminishes their performance, perhaps because stereotypes about lower social class people begin to seem more personally relevant.

Research has demonstrated the negative outcomes for people of low socioeconomic status (SES) that are associated with interacting with people who hold negative stereotypes of low SES individuals (e.g., Darley & Gross, 1983; Miller, McLaughlin, Haddon, & Chansky, 1968). The current work suggests that having more changeable perceptions of one's social class identity might actually serve as a buffer against the possibility of being stereotyped by others. Seeing a negatively stereotyped identity as changeable and controllable seems to limit the negative consequences associated with encountering relevant stereotypes, perhaps because people who hold these more changeable perceptions think the negative stereotypes do not apply to them. This lowered perceived relevance of stereotypes may emerge because these individuals see themselves as a different "subtype" for whom the negative stereotypes do not apply (e.g., Steele et al., 2002, p. 408), or perhaps they are just generally less likely to endorse stereotypic beliefs about their ingroup (Levy et al., 1998). Additionally, it could be that this increased perception of control is beneficial (Langer, 1975), which is supported by the research demonstrating that people in lower income groups who have higher sense of control demonstrate elevated levels of health and well-being (Lachman & Weaver, 1998).

Study 3 specifically turns to examining the complete Implicit Theory/Identity Changeability Model, which predicts the potential for unstable and controllable perceptions of lower social class identity to act as a protective factor when encountering a stereotype-salient situation *because* individuals are less likely to endorse stereotypes about one's own stigmatized ingroup. In addition, Study 3 extends upon this previous work in order to examine the possibility of manipulating individual implicit theory of intelligence and changeability perceptions of social class identity, while also exploring the broader, individual difference factors that may be predicting these variables.

CHAPTER IV

Study 3: Testing the Implicit Theory/Identity Changeability Model

Studies 1 and 2 demonstrated that more negative outcomes are associated with perceiving a stigmatized identity as more stable, more global, and less controllable, and they provided evidence that individual implicit theories of intelligence provide a meaning-making framework from which these different perceptions occur. Specifically, the extent to which an individual holds a more entitative theory of intelligence is related to increased stable, global, and uncontrollable perceptions of lower social class identity, which in turn reduces the relationship that exists between these implicit theories of intelligence and stereotype-related outcomes (i.e., test performance and stereotyping concerns). The current research will test the full model by also incorporating individual endorsement of identity-relevant stereotypes. It is predicted that individual changeability perceptions will predict the extent to which stereotypes are endorsed about one's own ingroup, which will in turn predict the stereotype-related outcomes (Dweck et al., 1995b; Schmader & Johns, 2003; Steele et al., 2002).

Study 3 was additionally designed to test the effectiveness of manipulations at reducing the more negative outcomes associated with entity views of intelligence and unchangeable perceptions of social class and to explore the role that individual difference factors (e.g., social dominance orientation) may play in the model. These study components are addressed in detail below.

Implicit Theory of Intelligence and Identity Changeability Perceptions Manipulation

Study 3 examined the effects of either manipulating individual implicit theories of intelligence or individual perceptions of social class identity on stereotype-related outcomes. In other words, given the previous research that demonstrates that holding more incremental views of intelligence and having more controllable, unstable, and local perceptions of lower income identity are predictive of more positive outcomes (e.g., higher quiz scores), Study 3 tests the success of manipulating implicit theories of intelligence and social class perceptions to these (arguably) more positive views. Given the demonstrated (Study 2), and predicted model, both implicit theory and social class changeability perceptions were targeted independently in order to assess if one may be easier to change in an identity-threatening situation. In addition, including manipulations for both of these model components will allow for efficacy comparisons to each other, as well as to a control condition.

In general, participants in the implicit theory of intelligence manipulation condition will be encouraged to view intelligence as more malleable (i.e., an incremental view; Chiu, Hong, & Dweck, 1997; Levy et al., 1998), whereas participants in the perceptions of social class manipulation condition will be encouraged to adopt more controllable, unstable, and localized views of social class. These groups will be compared to a control condition on the main outcomes of interest: performance on the memory quiz and stereotyping concerns.

Implicit Theory of Intelligence Manipulation. One condition of the current research will target the broader, more general implicit theory of intelligence component of the model. Using previous research on changing implicit theories (e.g., Chiu et al., 1997; Levy et al., 1998), and efficacy of public commitment research (e.g., Aronson et al., 2002), the current study will specifically target individual implicit theories of intelligence as a way to mitigate the negative outcomes associated with holding an entity theory of intelligence (and subsequently, perceiving

lower social class identity as more stable and less controllable). Studies 1 and 2, in addition to other previous research (e.g., Chiu et al., 1997), demonstrate the association between implicit theories and ensuing attributions and perceptions such that holding more entity views predicts a tendency to make more stable, global, and uncontrollable attributions for events.

Work examining the efficacy of manipulating implicit theories has demonstrated that teaching incremental theory as an intervention step is successful in decreasing the number of trait judgments about an individual (Chiu et al., 1997), decreasing overall stereotype endorsement (Levy et al., 1998), and importantly, has increased classroom motivation among low-achieving students (Blackwell et al., 2007). Aronson (1999) further demonstrated that informing students to see ability as expandable before a challenging test resulted in better performance compared to students who were told that ability is fixed.

Research by Aronson and colleagues (2002) has additionally shown that encouraging students to see intelligence as malleable, rather than fixed, is associated with increased enjoyment of education, increased identification with academic achievements, and better academic performance. Specifically, Black and White students were told that they would be mentoring young students through a pen pal program. Students in the *malleable* intelligence condition were encouraged to communicate to their pen pals the expandable capacity of the brain. Students in this condition tended to obtain higher grades at the end of a semester compared to all other study conditions. And of particular interest, the Black students (the group about which a negative intelligence-based stereotype exists; e.g., Steele, 1997; Steele & Aronson, 1995) showed a significant increase in reported enjoyment of the educational process and identification with academic achievement. Aronson and colleagues (2002) conclude that their intervention did something to change responses to the experience of stereotype threat by Black

students in an academic setting.

In line with the previous research that has further demonstrated the malleability of implicit theories and the positive outcomes associated with it (e.g., Blackwell et al., 2007; Chiu et al., 1997; Levy et al., 1998), the current research will examine the use of an implicit theory of intelligence manipulation as a way to mitigate some of the negative effects associated with holding a more fixed view.

Perceptions of Social Class Manipulation. Another condition of the current research will target individual changeability perceptions of social class identity. Using previous research on attributional retraining (e.g., Haynes Stewart, Clifton, Daniels, Perry, Chipperfield, & Ruthig, 2011; Wilson & Linville, 1985), research on reframing adversity (e.g., Walton & Cohen, 2011), and work on the effectiveness of public commitments at changing attitudes (e.g., Aronson et al., 2002), the current research seeks to change perceptions of lower social class identity by presenting external explanations for poverty, modeling positive attributional styles, and by having participants advocate for these external causes.

Attributional retraining is essentially the process through which individuals are encouraged to adopt more positive attributional styles (or in this case, more positive perceptions of social class identity). Wilson and Linville (1985) conducted research in which struggling college students were provided with information that explained that the causes of poor academic performance are unstable and they also watched a video in which a peer demonstrated actively engaging in these more unstable, positive perceptions with academic setbacks. More recent work conducted by Haynes Stewart and colleagues (2011), used a similar methodology that aims to restructure causal explanation for poor performance by encouraging individuals to adopt more controllable attributions (e.g., effort), as opposed to more uncontrollable causes (e.g., natural

ability or intelligence). Results of both studies demonstrate the effectiveness of this type of manipulation, such that both long-term and short-term benefits of attributional retraining were shown (e.g., succeeding in challenging courses and increased test performance).

Similarly, research examining the success of reframing social adversity as a common and transient experience among Black students has been shown to be a successful intervention by increasing overall well-being, along with also improving student GPAs (Walton & Cohen, 2011). In research conducted by Walton and Cohen (2011), students received information that reframed social adversity in school as a shared and short-lived experience, which was designed to encourage students to attribute adversity to the college-adjustment process, as opposed to some fixed deficit unique to themselves. Importantly, students who had received the manipulation showed an upward trajectory of GPA over all four years in college and also increased their reported subjective happiness and the extent to which felt as if they belonged in college. Building on this previous work, Study 3 will extend these techniques in order to examine the efficacy of a social class perception manipulation at reducing negative outcomes associated with seeing lower income identity as relatively stable and uncontrollable.

Individual Difference Factors

In addition to testing the efficacy of manipulating individual implicit theories of intelligence and perceptions of social class identity, Study 3 also controls for the influence of individual difference factors. In particular, Study 3 takes into account Just World Beliefs, Optimism, and Social Dominance Orientation. Specifically, Study 3 examines the strength of the proposed model when controlling for the effect of these individual difference factors. In other words, the current research will assess whether these individual differences play a role above and beyond the role of unchangeable/changeable perceptions of social class identity on the outcomes,

by controlling for their influence and testing for model significance. Generally, these individual difference factors (Just Worlds Beliefs, Optimism, and Social Dominance Orientation) were chosen because of their possible relationship with perceived stereotype self-endorsement, and thus, their likely affect on performance outcomes, working similarly as individual perceptions of social class identity changeability in the model.

Just World Beliefs. The belief in a just world suggests that people engage in different attributional practices for understanding their world, and in the process, people are motivated to believe that people get what they deserve (e.g., Lerner, 1977; Furnham, 2003). Research has demonstrated that attitudes towards poverty are linked to the belief that people get what that deserve (Furnham & Gunter, 1984; Zucker & Weiner, 1993), such that greater just world beliefs are related to more internal and stable attributions for poverty (Cozzarelli et al., 2001). Put another way, the ability to see the external causes of poverty is negatively related to belief that people get what they deserve in life. So, similar to the role that changeability perceptions of social class identity plays in the model, there may also exist a relationship between just world beliefs and stereotype self-endorsement, such that those who tend to believe that people get what they deserve in life may also report greater endorsement of lower social class stereotypes because of the belief that they (“we”) are deserving of their social status; ultimately negatively affecting the stereotype-related outcomes. Thus, the current research will measure and control for the effect of just world beliefs when testing the proposed model.

Optimism. Research on dispositional optimism suggests that it is beneficial for physical and psychological well-being (e.g., Aspinwall & Taylor, 1992; Friedman et al., 2006; Scheier & Carver, 1985). Optimism is negatively related to depression, and positively related to active coping and planning. Optimists tend to hold positive expectations for their future, so it could be

that, similar to people who hold more unchangeable perceptions of lower social class identity, individuals low on optimism may perceive identity-relevant stereotypes to be more true of themselves and also be more likely to apply stereotypes to oneself, thus performance suffers and stereotype concerns increase. Controlling for the role that optimism may play in the model will help elucidate this possibility.

Social dominance orientation. Work on social dominance orientation (SDO) has defined it as an individual's preference for group-based hierarchy and inequality (e.g., Pratto, Sidanius, Stallworth, & Malle, 1994; Sidanius, 1993; Sidanius & Pratto, 1993). More recently, analyses have suggested that SDO consists of two complementary dimensions—Dominance (the preference for some groups to dominate others) and Egalitarianism (a preference for nonegalitarian intergroup relations; Ho et al., 2012; Jost & Thompson, 2000). The current research examines the role SDO-Dominance (SDO-D) might play in the proposed model.

Previous research has demonstrated that SDO is related to a large number of social and political ideologies that support hierarchy (Pratto et al., 1994), such that individuals who are higher in SDO-D tend to support the status quo even if it is detrimental to their own ingroup (e.g., Levin, Federico, Sidanius, & Rabinowitz, 2002; Overbeck, Jost, Mosso, & Flizik, 2004). While higher status groups tend to demonstrate higher dominance beliefs, research has shown that there are significant intragroup differences as well (Levin et al., 2002). So, similar to those that believe that social class is stable and uncontrollable, it might be that individuals who report a greater preference for hierarchy and the status quo will be more likely to endorse identity-relevant stereotypes. In other words, beliefs about how there *should* be inferior and superior groups, may be related to beliefs about your own “inferior” group status, such that stereotypes feel more relevant, which then leads to poorer outcomes. Controlling for the role of SDO-D will

reveal how dominance beliefs may play a role in the model.

Current Hypotheses

Study 3 tests the general hypothesis that the relationship between implicit theory of intelligence and stereotype-related outcomes can be partially explained by individual perceptions of the changeability of social class identity, which then affects stereotype endorsement about one's ingroup (the Implicit Theory/Identity Changeability Model). In addition, it is hypothesized that encouraging lower income individuals to view intelligence as malleable or their social class identity as less stable and more controllable will mitigate the negative outcomes associated with experiencing a stereotype threatening situation, such that participants who receive either the implicit theory of intelligence manipulation or the perceptions of social class manipulation will perform better on a performance task and will report fewer stereotype concerns relative to those in a control condition. Additionally, the current study seeks to examine individual difference factors that may influence the model by controlling for their effect. Specifically, Study 3 will examine the role of individual just world beliefs, reported optimism, and SDO-D by exploring whether or not the predicted model still holds when controlling for the role of these individual differences.

Method

Overview

Among a sample of lower social class individuals, participants were asked to read some information either providing arguments for the malleability of intelligence, the external causes of poverty, or tips for overcoming fears of public speaking (the three conditions: implicit theory of intelligence condition, perceptions of social class condition, and control condition, respectively). Following this, participants read a personal testimonial that provided personal support

demonstrating this previous information (see Appendix C). Finally, participants wrote a letter to someone who was reportedly experiencing a challenging situation related to theories of intelligence, social class perceptions, or public speaking. Participants were told that their job was to convey to this individual the information that they had just read; either about the malleability of intelligence, the instability of social class, or the commonality of public speaking fears.

Following the manipulation, all participants completed the same attribution and implicit theory of intelligence measures as in Study 2, along with the measure of stereotype concerns and the performance task (CC quiz). In addition, participants completed items measuring stereotype endorsement and completed the individual difference measures.

Participants

The participants in Study 3 were 99 individuals (60 men and 39 women) recruited at a Colorado organization that serves the needs of low-income community members (same location as Study 2). Study 3 occurred more than a year after data collection for Study 2. It is unlikely that participants completed both studies, but for those that may have, this time lapse made it less likely that participants would remember the content of Study 2 (although participants were not tracked across the two studies). The age of participants ranged from 21 to 64, with the average age being 44 years.

Similar to the previous research, participants were asked to indicate their self-identified social class, income, and education. Of the 99 participants, 84% of respondents self-identified as lower than or equal to middle class (13% of participants did not respond), with 72% of all participants indicating that they felt they were a member of “lower middle social class”, “lower social class”, or “poverty level”; as in Study 2, participants who self-identified with a class higher than middle class were not included in the analyses. This resulted in a sample of 96

participants.

Of these participants, 88% indicated that their income was below \$19,999 in the last year (77% of all respondents reported an income of less than \$10,000). Regarding education level, 89% of participants indicated receiving less than or equal to a two-year associate's degree; 67% of all respondents reported either a "GED/high school graduation" or "some college".

Seven other participants were excluded from subsequent analyses for various reasons. Two participants were excluded because they did not write anything for the letter-writing portion of the survey, suggesting that they were not following directions. The remaining five participants were excluded for behaviors that suggested a lack of attention to instructions or the survey material. The researcher recorded these observations during the survey sessions. For example, one participant copied down information from the Community College narrative to use for the quiz portion, two participants responded with "7s" for every question on the survey, another participant did not attempt to answer any questions on the quiz, and the final participant that was excluded from analyses only responded with "5s" for every question on the survey. Four of the excluded participants were in the implicit theory of intelligence manipulation, two received the perceptions of social class manipulation, and one participant was in the control condition. This resulted in a final sample of 89 participants.

Measures

Implicit theory of intelligence. The same three-item questionnaire was used as in Studies 1 and 2 ($\alpha = .78$). Higher scores indicate an incremental theory of intelligence.

Changeability perceptions of social class identity. Similar to the previous studies, the degree to which participants perceived their social class as controllable, unstable, and local vs. uncontrollable, stable, and global was assessed using several items, anchored by 1 "Strongly

Disagree” to 7 “Strongly Agree”. The same eight items were used in the current study as were used in Study 2. However, two additional items were added to measure participants’ locus of control (i.e., “A person’s social class is mostly caused by forces beyond their control,” [reverse scored] and “I have control over what social class I am a member of”). These items were included based on research that suggests that locus (whether causes are believed to lie within [internal to] or outside of [external to] an actor; Heider, 1958; Rotter, 1966) is an important causal dimension to examine when understanding individual constructions of poverty (Weiner et al., 2011). Items were combined to create a composite score, such that higher scores indicate more positive perceptions of lower social class; specifically, perceiving one’s lower social class identity as controllable, unstable, influencing few areas of ones life, and with an internal locus of control ($\alpha = .67$).

Community College (CC) quiz. As in Study 2, participants read a short narrative relating information on enrolling in a community college within the Colorado Community College System (see Appendix B). Participants completed the same 10-item memory quiz. Scores were calculated for both the number of quiz questions attempted, as well as how many items participants responded to correctly.

Social class stereotype concerns. Participants responded to the same six items as in Study 2, which are designed to assess the extent to which participants feel their performance on the Community College quiz would be perceived as related to their social class ($\alpha = .76$). Higher scores reflect greater stereotype concerns.

Social class stereotype endorsement. Research has previously shown that there is a significant relationship between stereotype endorsement and beliefs that poverty is caused by internal factors (Cozzarelli et al., 2001). Moreover, the results of Study 1 suggest that beliefs of

stereotype self-relevancy are related to implicit theories of intelligence and perceptions of social class identity. So, it may be that stereotype endorsement leads to greater vulnerability to threat. Specifically, previous research has shown that both entity and incremental theorists can name the same amount and same type of stereotypes about groups, but entity theorists tend to rate stereotypes as more true (see Dweck et al., 1995b; Levy & Dweck, 1999). In order to assess how this might also relate to perceptions of stereotypes about one's own ingroup, participants completed four items that were designed to measure the extent to which participants agreed with stereotypes about lower income individuals (e.g., "In general, I think that people from lower social classes don't care about education"). Items were combined to create a composite score, such that higher scores reflect greater endorsement of negative stereotypes about lower income individuals ($\alpha = .82$).

Community college interest. Participants were asked to indicate their interest in attending community college ($M = 4.36$, $SD = 2.10$). This item served as a covariate in the following analyses.

Individual Difference Measures

Just World Beliefs. In order to examine the role of just world beliefs, the current research included six-items from the global belief in a just world scale (e.g., "I feel that people get what they are entitled to have"; Lipkus, 1991). In Lipkus' (1991) paper validating the global belief in a just world scale, the six-items that were included in the current survey had an acceptable level of internal consistency. A composite score was created by combining all six items, such that higher scores indicate greater just world beliefs ($\alpha = .79$).

Optimism. A six-item measure of optimism was included in the survey in order to assess the role of optimism in the model (e.g., "Overall, I expect more good things to happen to me than

bad”; Scheier, Carver, & Bridges, 1994). A composite score was created, such that higher scores indicate greater optimism ($\alpha = .73$).

Social Dominance Orientation-Dominance. In order to examine the role that beliefs about hierarchy and dominance may play in the model, participants completed the eight-item subscale validated by Ho and colleagues (2012) that captures the SDO-Dominance dimension (e.g., “It’s probably a good thing that certain groups are at the top and other groups are at the bottom”). Higher scores indicate a higher SDO-D ($\alpha = .86$). See Appendix A for all self-report measures.

Procedure

This study was conducted on-site, at the low-income community-serving organization that was used in Study 2. The researcher announced to patrons the opportunity to complete a survey packet in exchange for \$10.00. The surveys were collected over two weeks. Participants completed the survey in a back hallway of the organization, such that it was possible to have eight people participating at any given moment. Interested participants were first asked to read and sign an informed consent document, and then completed the two-part questionnaire. Upon completion, participants returned the surveys to the researcher and received payment. The entire study took participants no more than 35 minutes.

After completing the informed consent form, participants were handed the first questionnaire, which consisted primarily of one of the three manipulations, the measures of social class identity perceptions and implicit theory of intelligence, and the same narrative as in Study 2 that relayed information about the Colorado Community College System. As indicated previously, the current research was designed to examine the effects of manipulating either implicit theories of intelligence or perceptions of social class identity compared to a control

condition on threat-related outcomes. Participants were randomly assigned to one of the three conditions based on which questionnaire they were handed. Participants were not told that there were different questionnaires and the researcher did not know which questionnaire she was handing to each individual.

In general, participants in the implicit theory of intelligence manipulation condition were provided information detailing the malleability of intelligence in order to promote a more incremental view (e.g., Chiu et al., 1997; Levy et al., 1998), whereas, participants in the perceptions of social class condition read about the external causes and instability of social class (e.g., low wages of some businesses and industries, failure of society to provide good schools for many Americans, etc.; Feagin, 1972). Participants in the control condition were given information about the commonality of public speaking fears and were provided tips on how to overcome those fears. All surveys were structured in a similar manner, regardless of condition (see Appendix C for full manipulations). Participants first read some general information related to their condition (e.g., ways to increase intelligence or the broader causes of lower social class). Following this, participants read a personal narrative that provided specific support and experiential evidence demonstrating the information they had read previously (e.g., a school teacher who has witnessed students' intelligence growing or a woman who has experienced the external causes of lower incomes).

Finally, participants read a short biography about "John" who either 1) had a son who was struggling in school; 2) was struggling to find employment; or 3) had to give a speech at his cousin's wedding, respective of condition. Participants were then asked to write John a personal letter detailing the information that they had read earlier (e.g., advocating for the malleability of intelligence, detailing some of the external causes of poverty, or describing some of the tips to

overcome a fear of public speaking; see sample letters Appendix D). This final element is taken from the research examining attitude change, in which advocating for a particular position (“saying-is-believing”) is associated with increased acceptance of the advocated stance (e.g., Higgins & Rholes, 1978; Pallak, Cook, & Sullivan, 1980). The additional components of the manipulations were included based on the previous research on attributional retraining and implicit theory manipulations (e.g., Aronson et al., 2002; Blackwell et al., 2007; Chiu et al., 1997; Haynes Stewart et al., 2011; Wilson & Linville, 1985), research on reframing adversity (e.g., Walton & Cohen, 2011), and work on the effectiveness of public commitments at influencing long-term outcomes (e.g., Aronson et al., 2002).

After the manipulation, participants completed the measures of perceptions of social class identity and implicit theory of intelligence, followed by the Colorado Community College narrative. Participants were informed before reading this narrative that they would be asked to complete a short quiz about the information. Upon finishing this first questionnaire, participants received the second questionnaire from the researcher, which included the 10-item quiz and the additional measures of interest. Finally, participants completed demographic questions (i.e., age, sex, income, education, and social class identification). Regardless of condition, all participants received the same second questionnaire. Having the narrative and the quiz in separate questionnaires ensured that participants would not have to be dropped from analyses because they looked back for answers (as in Study 2).

Results

Testing the Effects of Manipulations

Initial analyses tested the effects of the manipulations on the predictor variables (implicit theory of intelligence and changeability perceptions of social class identity), and on the outcome

variables (test performance and stereotype concerns). Of the 89 participants in the final sample, 32 participants received the implicit theory of intelligence manipulation, 28 received the perceptions of social class identity manipulation, and 29 participants were in the control condition. Results of one-way ANOVAs comparing across all three groups demonstrated no significant differences between any of the groups on all model variables ($ps > .14$), suggesting that the manipulations did not change individual implicit theories of intelligence or perceptions of social class identity, nor did they affect test performance or reported stereotype concerns. Because the manipulations did not significantly influence any outcomes, ensuing analyses focused on testing the predicted model combining participants across conditions.

Changeability Perceptions and Stereotype Endorsement as Serial Mediators

Testing the direct effect of implicit theory of intelligence on outcomes. The outcome measures (CC quiz performance and social class stereotype concerns) were regressed on the measure of implicit theory of intelligence for all participants collapsed across conditions. As in Study 2, scores were calculated for how many questions participants attempted to answer and how many questions participants answered correctly on the CC quiz. Implicit theory of intelligence was a marginally significant predictor of the number of questions that participants attempted to answer on the quiz ($b = .492, SE = .26, t(88) = 1.91, p = .06$), and explained a significant proportion of variance ($R^2 = .09, F(2, 86) = 3.97, p < .03$). Those with a more entity theory of intelligence attempted to answer fewer questions. Similarly, implicit theory of intelligence significantly predicted the number of questions correctly answered on the quiz ($b = .578, SE = .22, t(88) = 2.61, p < .02$), and explained a significant proportion of variance ($R^2 = .11, F(2, 86) = 5.11, p < .01$). Specifically, participants with entity theories of intelligence tended to get fewer answers correct.

Implicit theory of intelligence was also a significant predictor of stereotyping concerns ($b = -.347$, $SE = .08$, $t(86) = -4.36$, $p < .001$), and explained a significant proportion of variance ($R^2 = .20$, $F(2, 84) = 10.39$, $p < .001$), such that those with more entitative views of intelligence tended to report greater stereotype concerns. In sum, implicit theory of intelligence emerged as a significant predictor of number of quiz questions answered correctly and stereotyping concerns, and as a marginally significant predictor of number of quiz questions attempted (see Table 8 for bivariate correlations among all variables of interest).

Testing the Implicit Theory/Identity Changeability model. To test social class changeability perceptions and stereotype endorsement as mediators of the effect of implicit theories of intelligence on the performance and stereotype-related outcomes, analyses assessed whether the effect of implicit theory on outcome variables was weakened when social class perceptions and stereotype endorsement were taken into account. Social class perceptions and stereotype endorsement scores were entered as serial mediators, such that the model tested the extent to which implicit theory of intelligence predicted social class perceptions, which in turn predicted stereotype endorsement of social class stereotypes, ultimately affecting test performance and reported stereotype concerns (i.e., the mediators are linked in a causal chain; Hayes, 2012). Results show that the effect of implicit theory of intelligence on number of attempted CC quiz questions, CC quiz accuracy, and stereotyping concerns was weakened when changeability perceptions and stereotype endorsement are included (see Figures 6a, 6b, and 6c).

Bootstrapping confidence intervals tested these indirect effects on a sample of 10,000 iterations (e.g., Hayes, 2009; Hayes, 2012; Hayes et al., 2011). Results demonstrate that perceptions of social class identity and stereotype endorsement significantly mediated the relationship between implicit theory of intelligence and number of quiz questions attempted (CI

range .001 to .17, with an effect of .05 and $SE = .04$), CC quiz accuracy (CI range .01 to .16, with an effect of .05 and $SE = .04$), and stereotyping concerns (CI range -.07 to -.004, with an effect of -.03 and $SE = .02$)⁵.

Examining the subcomponents of perceptions of social class identity. Similar to Studies 1 and 2, the individual subcomponents (perceived stability: $M = 4.64$, $SD = 1.23$, controllability: $M = 4.52$, $SD = 1.27$, globality: $M = 3.48$, $SD = 1.63$, and locus: $M = 4.28$, $SD = 1.63$) of the changeability perceptions of social class composite measure were analyzed separately in the model. On all outcomes, only perceptions of globality emerged as a significant mediator in the model on quiz accuracy (CI range .003 to .14, with an effect of .03 and $SE = .03$) and stereotyping concerns (CI range -.07 to -.003, with an effect of -.02 and $SE = .01$). All other confidence intervals overlapped with zero (see Table 9).

Testing the alternative model. The alternative model, in which the positions of identity changeability perceptions and implicit theory of intelligence are switched, resulted in non-significant models for quiz accuracy (CI range -.01 to .25), number of questions attempted (CI range -.01 to .25), and reported stereotyping concerns (CI range -.11 to .005).

Controlling for Individual Difference Factors

In order to examine the role that the individual difference factors may play in affecting the model, the full model was run, in which each individual difference factor was included as a control variable. Results demonstrate that the model and predicted pathways still held when controlling for just world beliefs and optimism. However, when accounting for the role of SDO-

⁵ Even though condition did not affect any of the variables of interests, exploratory analyses tested mediation models within each condition. Results demonstrate that in all three conditions (implicit theory manipulation, perceptions of social class manipulation, and control) none of the models were significant for the outcomes of test performance and stereotyping concerns. However, path betas were all in the anticipated direction, which further suggests that the manipulations did not affect the variables of interest.

D, the model was no longer significant (see Table 10). Therefore, additional analyses further examined the potential role of SDO-D.

Expanding on the Role of Social Dominance Orientation

Examining the role of SDO-D as a covariate in the original model demonstrates that dominance most strongly acts as a predictor variable on stereotype endorsement, thus weakening the strength of the relationship between identity changeability perceptions and social class stereotype endorsement. Specifically, the path between identity changeability perceptions and stereotype endorsement in the original model on the outcome of number of quiz questions answered correctly (without including SDO-D as a covariate) is significant ($b = -.440$, $SE = .20$, $p < .04$); however, when including SDO-D, this path is reduced to non-significance ($b = -.264$, $SE = .20$, $p = .20$) and the relationship between SDO-D and stereotype endorsement emerges ($b = .492$, $SE = .13$, $p < .001$). This same pattern also exists for the outcomes of number of quiz questions attempted and stereotyping concerns, suggesting that individual SDO-D may capture a belief system similar to that captured by the changeability perceptions of social class measure.

Therefore SDO-D was then entered in the original model in place of changeability perceptions of social class identity. Bootstrapping confidence intervals tested the indirect effect of SDO-D and stereotype endorsement on the relationship between implicit theory of intelligence and the outcomes (e.g., Hayes, 2009; Hayes, 2012; Hayes et al., 2011). Results demonstrate that the model is significant for number of quiz questions answered correctly (CI range .01 to .20, with an effect of .06 and $SE = .05$) and stereotyping concerns (CI range -.12 to -.01, with an effect of -.04 and $SE = .02$). However, the model is not significant on the outcome of number of quiz questions attempted, such that the confidence interval overlaps with zero (CI range -.007 to .21, with an effect of .06 and $SE = .05$) (see Figures 7a, 7b, and 7c).

Recent research has suggested that mediation model analyses should focus on the magnitude of indirect effects when assessing model significance (Preacher & Kelley, 2011; Rucker, Preacher, Tormala, & Petty, 2011). Comparing between the original full model and that which replaces identity changeability perceptions with SDO-D, reveals that the effect coefficients are comparable.

Discussion

Extending the results of Studies 1 and 2, Study 3 tested and provided evidence for the full Implicit Theory/Identity Changeability Model. Specifically, Study 3 found support for the model in which the relationship between implicit theory of intelligence and stereotype-related outcomes is partially accounted for by the predicted indirect pathway: implicit theory of intelligence predicts changeability perceptions of social class, which in turn predicts the endorsement of identity-related stereotypes, ultimately affecting quiz performance and reported stereotyping concerns. However, the results did not support the anticipated effect of manipulations designed to influence implicit theory and perceptions of social class manipulations. The manipulations were not successful in changing reported individual implicit theory of intelligence or changeability perceptions of social class identity, when compared to a control condition.

The lack of significant effects of the manipulations may suggest that the manipulations were not powerful enough given the situation; alternatively, these views of intelligence and social class identity may be quite difficult to change. Previous research did reveal substantial evidence for the malleability of implicit theories of intelligence and attributions for events, such that interventions have been shown to increase incremental views (e.g., Aronson et al., 2002; Blackwell et al., 2007) and induce more positive attributions for events (e.g., Haynes Stewart et al., 2011; Wilson & Linville, 1985). Although the current manipulations were modeled after this

previous work, the design of the current research only allowed for the use of a short-term intervention in a relatively uncontrolled setting. Specifically, Study 3 occurred over the span of a few minutes, whereas the previous work on implicit theory malleability and attributional retraining have occurred over the course of several hours, several weeks, or several months. Moreover, the extent to which participants read and engaged with the survey manipulation was determined by each individual participant, which is in contrast to previous research that has provided more in depth teaching and interactive experiences. In addition, participants were in a distracting and stereotype-threatening situation. All participants were at the study site actively seeking immediate financial assistance, so the environment may have been too performance-disruptive on its own to see any effects of the different manipulations.

The non-significant differences between conditions may also be accounted for by the possibility that individual implicit theories of intelligence and perceptions of social class may be quite fixed and difficult to change. Previous research has suggested that as individuals age, implicit theories become more entrenched (Aronson et al., 2002), which is reflected by the increased belief that intelligence is fixed among older compared to younger students (Ablard & Mills, 1996; Dweck, 1999). As individuals age, their self-concepts tend to be more stable (e.g., Bong & Skaalvik, 2003). Therefore, the more mature sample in the current research (relative to much previous work) may have been more resistant to changing perceptions of an identity. Future research should focus on teasing apart whether the manipulations were unsuccessful because of the situation and characteristics of the sample, or because of the strength of the stability of implicit theories of intelligence and identity changeability perceptions.

Additionally, Study 3 found evidence suggesting that an individual difference factor, social dominance orientation (specifically, dominance-related beliefs, or SDO-D), is closely

related to changeability perceptions of social class, such that when controlling for the effect of individual dominance beliefs, the full model does not hold. The relationship between SDO-D, changeability perceptions of social class, and stereotype endorsement, and the significance of the model with social dominance replacing the perceptions measure, suggests that while capturing different beliefs, perhaps they are reflective of the same underlying factor. Specifically, beliefs about social group hierarchies and beliefs about a hierarchy-based identity (social class) may stem from a latent factor of power structure preferences.

In particular, previous research has demonstrated that members of lower-status groups who are high in social dominance orientation tend to also show favoritism to high-status groups (Sidanius, 1993; Sidanius & Pratto, 1993), such that these low-status members show more negative affect toward other low status-groups (Levin & Sidanius, 1999). Dominance beliefs are related to more stereotypical beliefs as well (Quist & Resendez, 2002; Sidanius, 1993; Sidanius & Pratto, 1993). So the current research may demonstrate the overlap of social dominance beliefs and changeability perceptions of social class, in that both seem to be related to more stereotypic views of one's own ingroup identity. In other words, dominance beliefs and perceptions of social class are related to stereotype endorsement, and this endorsement serves to maintain and reproduce the hierarchical system. Both high SDO-D and stable perceptions of social class identity seem to increase the perceived legitimacy of the system, thus making related stereotypes also seem more legitimate.

The current research suggests that the measure of SDO-D captures beliefs about how the world *should* be, whereas perceptions of social class identity captures beliefs about how the world *is* within the context of one's own hierarchy-relevant identity, perhaps with both stemming from underlying preferences for defined and unchanging power structures. Future research could

further explore this idea by examining how other beliefs that may stem from this latent factor may fit into the model, such as valenced perceptions of outgroup identities, measures of prejudice, and authoritarianism. Any measure that contributes to the support of differential power structures may fit the model in similar ways as social dominance beliefs and perceptions of social class identity changeability.

CHAPTER V

General Discussion

These three studies tested whether the relationship between implicit theories of intelligence and social class stereotype-related outcomes may be partially explained by an indirect pathway through the changeability perceptions of social class identity and stereotype self-endorsement. Results suggest that entitative views of intelligence tend to predict stable perceptions of social class, which in turn increases endorsement of social class stereotypes, ultimately predicting lower quiz performance and increased stereotyping concerns among a lower social class population. In contrast to this, incremental theorists tend to see social class identity as being more changeable, so stereotypes feel less self-relevant, and performance is not negatively affected.

Study 1 demonstrated that social class identity is unique compared to other well-studied identities on the dimensions of perceived stability, globality, and controllability. In addition, Study 1 found that there is a distinctive relationship between social class identity (relative to other social identities such as race) and beliefs about the stability of intelligence. Study 2 extended Study 1 to focus on a population about which the intelligence-based stereotype exists, tested the model in a stereotype-relevant situation, and examined performance-based outcomes. The results of Study 2 showed that the relationship between implicit theory of intelligence and test outcomes is weakened when including individual perceptions of the changeability of social class. Finally, Study 3 tested the full Implicit Theory/Identity Changeability Model (Figure 1),

examined the effects of manipulations designed to change implicit theories of intelligence and identity changeability perceptions, and explored the role that individual difference factors may play in influencing the overall model. Results provided evidence supporting the indirect pathway described in the full four-component model. However, the manipulations were unsuccessful at changing implicit theories of intelligence and identity changeability perceptions. Social dominance orientation (specifically, dominance beliefs; SDO-D) also emerged as an important individual difference factor that affects the significance of the model.

Additional exploration of the role that SDO-D plays in the model demonstrated a strong relationship between SDO-D and self-endorsement of social class-based stereotypes. Similar to changeability perceptions of social class identity, accounting for the indirect pathway of SDO-D to stereotype endorsement weakens the relationship between implicit theory of intelligence and stereotype-related outcomes among a negatively stereotyped group. This finding suggests that there may be an underlying latent factor that is formed by, or that predicts, these dominance beliefs and perceptions of social class identity. Future research examining what other variables may contribute to the model will further clarify what this latent factor may actually be.

Because the model held when controlling for individual just world beliefs and optimism, but not when controlling for SDO-D, some evidence is provided suggesting that this underlying factor may be based more strongly in beliefs about relative power structures than in beliefs about individuals earning what they have in life, for example. In other words, the similar roles of SDO-D and perceptions of social class in the model may actually be stemming from the same fundamental belief that intergroup power differences are not only necessary, but are also relatively stable. Future research that more systematically examines the relationship between SDO-D and individual perceptions of social class identity will shed more light on how one factor

may specifically predict the other (i.e., gauging whether identity changeability perceptions or SDO-D is more fundamental), and will help develop a better picture of what the underlying factor of these beliefs may be.

The capacity to manipulate implicit theory of intelligence and perceptions of social class (or this underlying, latent factor) also merits further exploration. The manipulations of Study 3 did not affect incremental beliefs regarding intelligence or increased changeability perceptions of social class compared to baseline, possibly because of the relative fixedness of this more mature population compared to previous work (e.g., Ablard & Mills, 1996; Bong & Skaalvik, 2003) or because of the threatening and distracting environment within which the study occurred. Additional studies could help clarify why the current manipulations were unsuccessful by more closely following the protocols used in previous work (e.g., interventions delivered over longer period of time, in a non-threatening environment; Aronson et al., 2002; Blackwell et al., 2007). By studying this among a comparable sample as to the population that participated in the current research would clarify whether it was the situation or the population that rendered the current manipulations ineffectual.

Attention should also be paid to the discrepant effect coefficients between the models in Study 1 and Study 3 (.03 to .06), and the much larger effect coefficients of the models in Study 2 (.14 to .54). Specifically, Study 3 demonstrated that the quiz performance outcomes are expected to decrease by about .05 units for every 1 unit increase in entity views when considering the indirect path through perceptions of social class identity and stereotype endorsement (see Preacher & Kelley, 2011). In contrast to this, Study 2 suggests an approximate .50 decrease in performance. Explanations for this difference in the magnitude of the effects found are speculative. One possibility is that this disparity could be explained by the loss of many entity

theorists in Study 2 who were more likely to be dropped for looking back for answers on the memory quiz, thus affecting quiz performance error variance in the remaining sample. For example, removing the participants that reported that they had looked back may have eliminated the highest performers on the memory quiz, although the model would predict that they would tend to be at the lower end of the performance spectrum because they tended to be more entitative. In addition to this, perhaps the remaining sample still included participants who looked back for answers (and did not acknowledge it), thus artificially inflating their quiz performance, and the statistical relationship between incremental theorists and the quiz outcomes. In other words, the survey structure (two separate questionnaires) in Study 3 ensured that participants could not look back for answers on the quiz, so the performance outcomes (and the resulting effect coefficients) in Study 2 may be less reliable.

Future research could address this by replicating the current work across different samples using different types of performance outcomes and comparing effect coefficients (e.g., testing the model on diagnostic academic outcomes among a sample of lower income high school students; i.e., Croizet & Claire, 1997; Spencer & Castano, 2007). Also, additional research could more closely examine the strength of the different model pathways for entity compared to incremental theorists by testing successful manipulations (e.g., do entity theorists drive the overall effect of the model by impairing performance, as opposed to incremental theorists improving performance? Does the model change if the manipulation successfully changes entity theorists to look more like incremental theorists?). Work that specifically targets the stereotype self-endorsement component of the model may also reveal distinctions between model strength for entity and incremental theorists (e.g., does allowing for self-affirmation of positive ingroup attributes change the model, particularly for entity theorists?; Cohen, Garcia,

Apfel & Master, 2006; Martens, Johns, Greenberg, & Schimel, 2006; Schimel, Arndt, Banko, & Cook, 2004).

Research has suggested that self-affirmation may be effective at reducing negative outcomes associated with stereotype threat-related experiences because self-affirming alleviates some of the psychological burden of feeling like one may confirm identity-based stereotypes (Cohen et al., 2006; Martens et al., 2006). In the context of the current research, entity theorists tended to endorse ingroup stereotypes, so allowing lower social class entity theorists to affirm important values, skills, and characteristics may help reduce the more negative outcomes associated with holding more fixed views of intelligence and unchangeable perceptions of social class. In line with this, Cohen and colleagues (2006) demonstrated that allowing Black students to self-affirm at the beginning of the semester for 15 minutes resulted in better academic performance and lowered accessibility of racial stereotypes at the end of the semester, further suggesting the possible effectiveness of this type of intervention, particularly for those who may feel most “threatened” by the negative identity-based stereotypes (i.e., entity theorists).

The current research tests the prediction that beliefs about intelligence cause changeability perceptions of social class identity. This directional relationship was anticipated because previous theoretical and empirical work has suggested that individual, broad implicit theories form the basis from which attributions emerge (e.g., Dweck et al., 1995a; Hong et al., 1999). The research presented in this dissertation extended this work to examine the specific relationship between implicit theory of intelligence and perceptions of social class identity. It was predicted that beliefs about the nature of intelligence causally contribute to individual perceptions of social class changeability. In other words, the current research explored the idea that a person’s beliefs about intelligence is predictive of social class perceptions (e.g., believing

that “if I can change my intelligence, I can change my class”), in contrast to the idea that perceptions of social class identity predict more fundamental views of intelligence (e.g., believing that “if I can change my social class, that will also cause my intelligence change”).

The current analyses of the Implicit Theory/Identity Changeability Model support this directional relationship because the alternative model (in which identity changeability perceptions predict implicit theory of intelligence) is not significant. However, mediation model testing, by its correlational nature, only provides suggestive evidence for how these theoretical factors work together. Therefore, additional work should be conducted in order to provide further evidence of the relationship between these two variables. Future work could examine how this model may work when including other implicit personality theories as predictor variables (i.e., what else contributes to perceptions of social class identity?), or could test effective manipulations (i.e., changing implicit theory of intelligence should also affect perceptions of social class, but a manipulation that changes perceptions of social class may not affect implicit theory of intelligence). Future work could even explore temporal development of implicit theory of intelligence compared to changeability perceptions of social class identity, perhaps by examining the development of these beliefs across the lifespan. These lines of inquiry would help provide additional evidence for the proposed directionality of the model and elucidate other possibilities about the nature of the relationships between variables.

Implications

The research presented here provides evidence that incremental theorists with a salient stigmatized identity may already be somewhat buffered against the negative effects of encountering identity-related stereotypes because those stereotypes seem less self-relevant, but for those with entity and fixed beliefs, additional intervention steps may be beneficial. For

example, research has suggested that lower social class individuals tend to be more empathic and more often, and more readily, tend to engage in prosocial behaviors (for review see Kraus et al., 2011). Reminding individuals of these identity-based, positive attributes in the context of a threatening situation may help alleviate some of the negative outcomes associated with lower income individuals who tend to perceive the identity as unchanging.

This work draws attention to the unique experiences of people of lower social class, indicating that lower income individuals do not all view their identity in the same way, such that people vary in how they perceive their identity (as changeable or unchangeable), which can determine how they respond to threat associated with that identity. Thus, community organizations and educators seeking to educate low social class individuals about programs and procedures designed to help them (e.g., how to obtain additional education, financial assistance, or access health services) could benefit from knowing that retention of such information may be influenced by how such individuals perceive their social class identity. People who hold entity theories of intelligence and thus see their low social class identity as unchanging may retain less of the information provided to them, undermining the possibility that they will utilize the information. The results of this work suggests that there might be strategic ways for organizations to facilitate retention of resource information among low income individuals who are seeking assistance, such that perceptions of social class changeability could be taken into consideration when providing the resource information (e.g., taking greater care to ensure critical information was well understood particularly among those with fixed views, or by exploring different self-affirmation interventions).

The current research increases our understanding of a proposed theoretical model, the Implicit Theory/Identity Changeability Model, which examines the relationship between broad,

implicit theories and perceptions of a social class identity (Hong et al., 1999), and also highlights important qualities of social class identity. Evidence from all three research studies suggests that there is a critical relationship between implicit theories of intelligence and individual changeability perceptions of social class identity (Graham, 1995; Hong et al., 1999), and that stereotype threatening experiences cannot be assumed to have similar consequences across a shared identity because the way that individuals might think about that identity plays a role during encounters with a stereotype-relevant situation. The work reported here suggests a more complicated story of social class identity, but also sheds light on a unique aspect of social class and the role of it in changing the relationship between people's implicit beliefs about the nature of intelligence and their performance in stereotype-relevant situations.

TABLES

Table 1
Means and t-values Comparing Perceptions of Race, Gender, Nationality, and Political Affiliation Identity to Social Class Identity (Study 1)

		Mean	SD	<i>t</i>	df	Sig (2-tailed)
Pair 1	Own SES	4.12	1.03	20.10	203	.000
	Own Race	2.41	.85			
Pair 2	Own SES	4.12	1.03	22.80	203	.000
	Own Gender	2.15	.79			
Pair 3	Own SES	4.12	1.03	12.97	203	.000
	Own Nation	3.04	1.00			
Pair 4	Own SES	4.12	1.03	-10.56	203	.000
	Own Politic	4.98	.97			
Pair 5	General SES	4.07	.91	24.84	203	.000
	General Race	2.28	.85			
Pair 6	General SES	4.07	.91	13.80	203	.000
	General Gender	2.84	1.03			
Pair 7	General SES	4.07	.91	9.66	203	.000
	General Nation	3.30	1.08			
Pair 8	General SES	4.07	.91	-13.95	203	.000
	General Politic	5.03	.92			

Note. All “Own” variables (pairs 1-4) represent responses to questions about perceptions of own social identities, whereas variables labeled with “General” (pairs 5-8) represent responses to questions about perceptions of the social identities in general; SES=Social Class, Race=Race, Gender=Gender, Nation=Nationality, Politic=Political Party. Higher numbers reflect more unstable, localized, and controllable perceptions.

Table 2

Descriptive Statistics and Bivariate Correlations Among Changeability Perceptions for Different Social Identities and Implicit Theory of Intelligence (Study 1)

	M (SD)	1	2	3	4	5	6	7	8	9	10	11	12
1. Implicit Theory Intelligence	4.27 (1.63)	--											
2. Own SES	4.12 (1.03)	.21**	--										
3. Own Race	2.41 (.85)	.05	.18**	--									
4. Own Gender	2.15 (.79)	.04	.10	.66***	--								
5. Own Nation	3.04 (1.00)	.00	.31***	.47***	.45***	--							
6. Own Politic	4.98 (.97)	.11	.33***	-.21**	-.21**	.14*	--						
7. General SES	4.07 (.91)	.17*	.54***	.24***	.09	.26***	.18**	--					
8. General Race	2.28 (.85)	-.05	.12†	.73***	.60***	.43***	-.17*	.32***	--				
9. General Gender	2.84 (1.03)	.12†	.07	.38***	.51***	.13†	-.15*	.15*	.37***	--			
10. General Nation	3.30 (1.08)	-.01	.27***	.28***	.18*	.53***	.14*	.36***	.37***	.24***	--		
11. General Politic	5.03 (.92)	.17*	.28***	-.17*	-.18*	.09	.51***	.43***	-.09	.05	.24**	--	
12. ST Self-Endorsement	3.67 (1.31)	-.19***	-.28***	-.03	.05	-.08	-.14*	-.27***	-.02	.02	-.06	-.21**	--

† $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

Table 3

Effect Coefficients and Confidence Intervals (CIs) for All Social Identities Testing the Mediation Model (Study 1)

	Effect (<i>SE</i>)	Lower Endpoint of CI	Upper Endpoint of CI
Own SES*	-.04 (.02)	-.09	-.01
Own Race	-.006 (.01)	-.03	.01
Own Gender	-.006 (.01)	-.03	.01
Own Nation	-.0002 (.01)	-.02	.02
Own Politic	-.03 (.02)	-.09	.01
General SES*	-.03 (.02)	-.07	-.003
General Race	.004 (.01)	-.01	.02
General Gender	-.008 (.01)	-.03	.01
General Nation	.001 (.01)	-.01	.02
General Politic*	-.04 (.02)	-.09	-.004

*Significant indirect effect through Changeability Perceptions demonstrated

Table 4

Effect Coefficients and Confidence Intervals (CIs) for Mediation Models Analyzing Perceptions of Social Class Identity Subcomponents (Study 1)

	Subcomponent	Effect (<i>SE</i>)	Lower Endpoint of CI	Upper Endpoint of CI
Own Social Class Perceptions	Stable	-.02 (.02)	-.06	.003
	Global	-.02 (.02)	-.06	.02
	Control	-.01 (.01)	-.04	.01
General Social Class Perceptions	Stable*	-.03 (.02)	-.07	-.003
	Global	-.01 (.01)	-.04	.02
	Control	-.01 (.01)	-.03	.01

*Significant indirect effect demonstrated

Table 5

Effect Coefficients and Confidence Intervals (CIs) for Mediation Models Dividing the Sample by Subjective Social Class (Study 1)

		Effect (<i>SE</i>)	Lower Endpoint of CI	Upper Endpoint of CI
Wealthiest Group	Own SES	.01 (.04)	-.06	.12
	General SES	.01 (.07)	-.11	.18
Middle Class Group	Own SES*	-.11 (.05)	-.21	-.03
	General SES	-.06 (.03)	-.13	.001
Lower Class Group	Own SES	-.01 (.02)	-.06	.02
	General SES	-.02 (.02)	-.06	.02

*Significant indirect effect demonstrated

Table 6

Effect Coefficients and Confidence Intervals (CIs) for Mediation Models Analyzing Perceptions of Social Class Identity Subcomponents on All Outcomes (Study 2)

Outcome	Subcomponent	Effect (<i>SE</i>)	Lower Endpoint of CI	Upper Endpoint of CI
Quiz Questions Attempted	Stable*	.27 (.18)	.01	.73
	Global	.23 (.16)	-.004	.65
	Control	.04 (.17)	-.29	.43
Quiz Questions Answered Correctly	Stable	.21 (.16)	-.04	.62
	Global*	.26 (.16)	.02	.70
	Control	.05 (.16)	-.25	.42
Reported Stereotyping Concerns	Stable	-.06 (.06)	-.22	.02
	Global	-.07 (.06)	-.23	.001
	Control	.03 (.05)	-.07	.15

*Significant indirect effect demonstrated

Table 7
Descriptive Statistics and Bivariate Correlations Among All Variable of Interest (Study 2)

	M (SD)	1	2	3	4	5	6	7
1. Perceptions of Social Class	4.04 (.94)	--						
2. Imp. Theory of Intelligence	4.98 (1.57)	.43***	--					
3. Looked Back on Quiz		.26***	.21†	--				
4. Quiz Attempt	8.93 (4.84)	.35**	.24†	--	--			
5. Quiz Correct	7.33 (4.68)	.32*	.18	--	.95***	--		
6. ST Concerns	3.30 (1.29)	.13	-.41***	-.24†	-.36**	-.36**	--	
7. Identity Importance	3.10 (1.69)	.01	-.02	-.08	-.16	-.10	.10	--

Note. Quiz questions attempted and quiz questions answered correctly are descriptive statistics and correlations when people who looked back for answers are excluded. † $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

Table 8

Descriptive Statistics and Bivariate Correlations Among All Variable of Interest (Study 3)

	M (SD)	1	2	3	4	5	6	7	8	9
1. Perceptions of Social Class	4.24 (.95)	--								
2. Imp. Theory of Intelligence	5.27 (1.63)	.39***	--							
3. Stereotype Endorsement	3.17 (1.58)	-.32***	-.28**	--						
4. Quiz Attempt	9.26 (4.07)	.10	.20†	-.18†	--					
5. Quiz Correct	5.69 (3.55)	.11	.27*	-.23*	.85***	--				
6. ST Concerns	3.46 (1.31)	-.34**	-.43***	.45***	-.14	-.17	--			
7. JW Beliefs	3.25 (1.35)	-.08	-.40***	.23*	-.02	-.08	.10	--		
8. Optimism	4.58 (1.18)	.40***	.22*	-.23*	.02	.02	-.34**	.01	--	
9. SDO-D	2.56 (1.34)	-.39***	-.37**	.46***	-.22*	-.25*	.30**	.49***	-.28*	--

† $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

Table 9
Effect Coefficients and Confidence Intervals (CIs) for Serial Mediation Models Analyzing Perceptions of Social Class Identity Subcomponents (Study 3)

Outcome	Subcomponent	Effect (<i>SE</i>)	Lower Endpoint of CI	Upper Endpoint of CI
Quiz Questions Attempted	Stable	.01 (.04)	-.03	.13
	Global	.03 (.03)	-.002	.13
	Control	.00 (.01)	-.01	.01
	Locus	.01 (.01)	-.002	.08
Quiz Questions Answered Correctly	Stable	.02 (.04)	-.04	.12
	Global*	.03 (.03)	.003	.14
	Control	.00 (.01)	-.02	.02
	Locus	.01 (.01)	-.002	.07
Reported Stereotyping Concerns	Stable	-.01 (.02)	-.06	.03
	Global*	-.02 (.01)	-.07	-.003
	Control	.001 (.01)	-.02	.01
	Locus	-.01 (.01)	-.04	.002

*Significant indirect effect demonstrated

Table 10

Effect Coefficients and Confidence Intervals (CIs) for Serial Mediation Models when Controlling for the Individual Difference Factors (Study 3)

Individual Difference Factor	Outcome	Effect (<i>SE</i>)	Lower Endpoint of CI	Upper Endpoint of CI
Just World Beliefs	Quiz Attempt*	.06 (.04)	.01	.21
	Quiz Correct*	.06 (.04)	.01	.19
	ST Concerns*	-.03 (.02)	-.09	-.01
Optimism	Quiz Attempt	.03 (.03)	.000	.15
	Quiz Correct*	.04 (.03)	.002	.15
	ST Concerns*	-.02 (.01)	-.06	-.001
Social Dominance Orientation (Dominance Scale)	Quiz Attempt	.02 (.03)	-.003	.12
	Quiz Correct	.02 (.03)	-.003	.12
	ST Concerns	-.01 (.01)	-.05	.001

*Significant indirect effect demonstrated

FIGURES

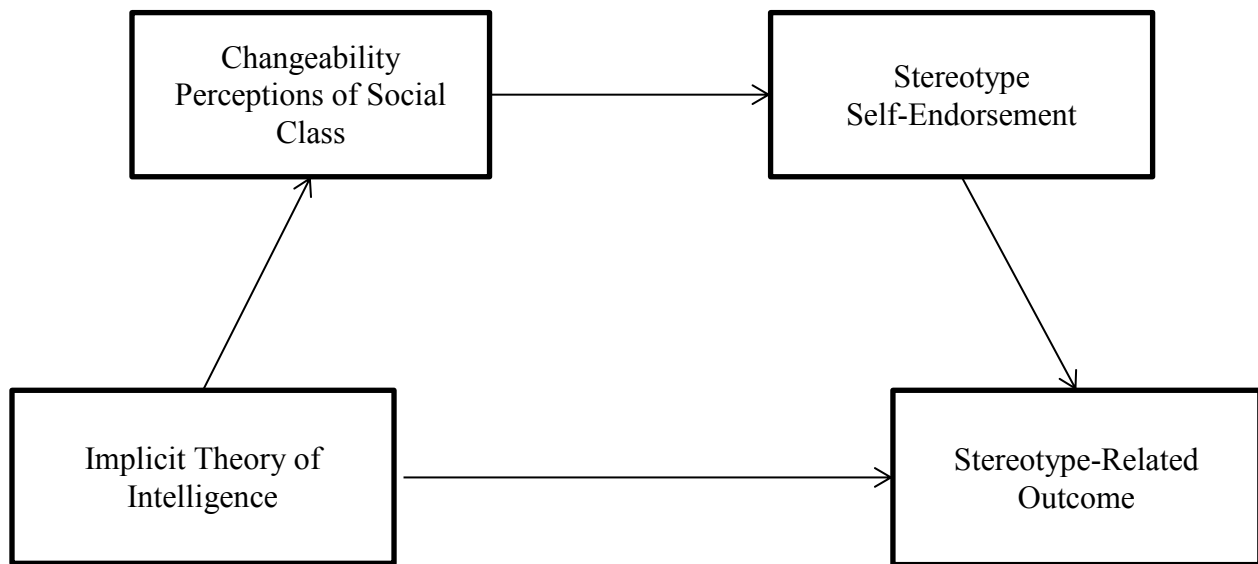


Figure 1. Implicit Theory/Identity Changeability Model-- Proposed four-component model in which the relationship between implicit theory of intelligence and stereotype related outcomes is weakened by the indirect path through changeability perceptions of social class and stereotype self-endorsement.

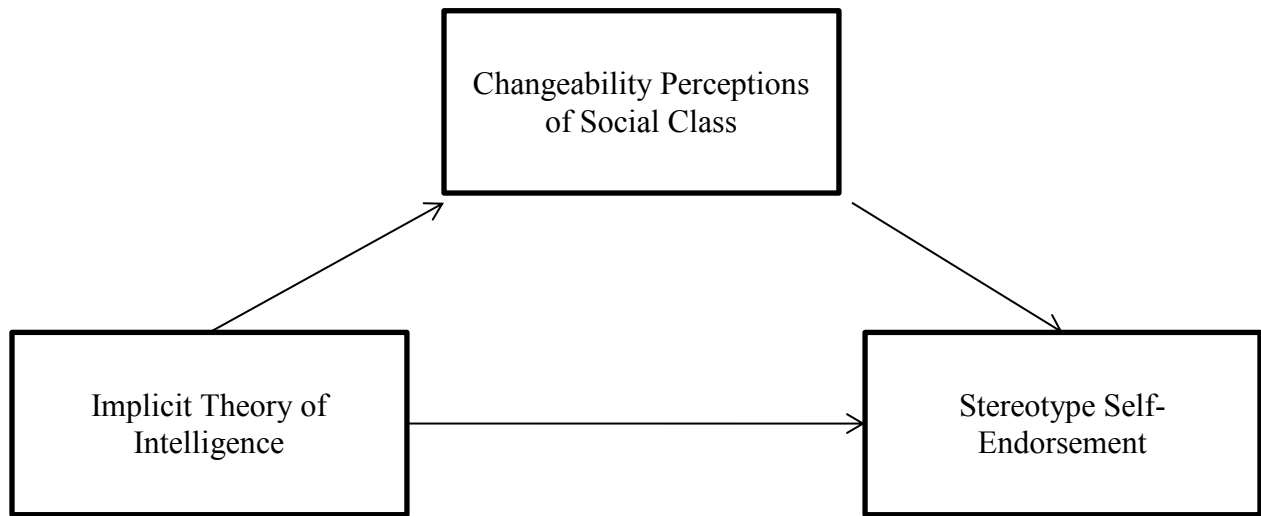


Figure 2. Study 1 mediation model.

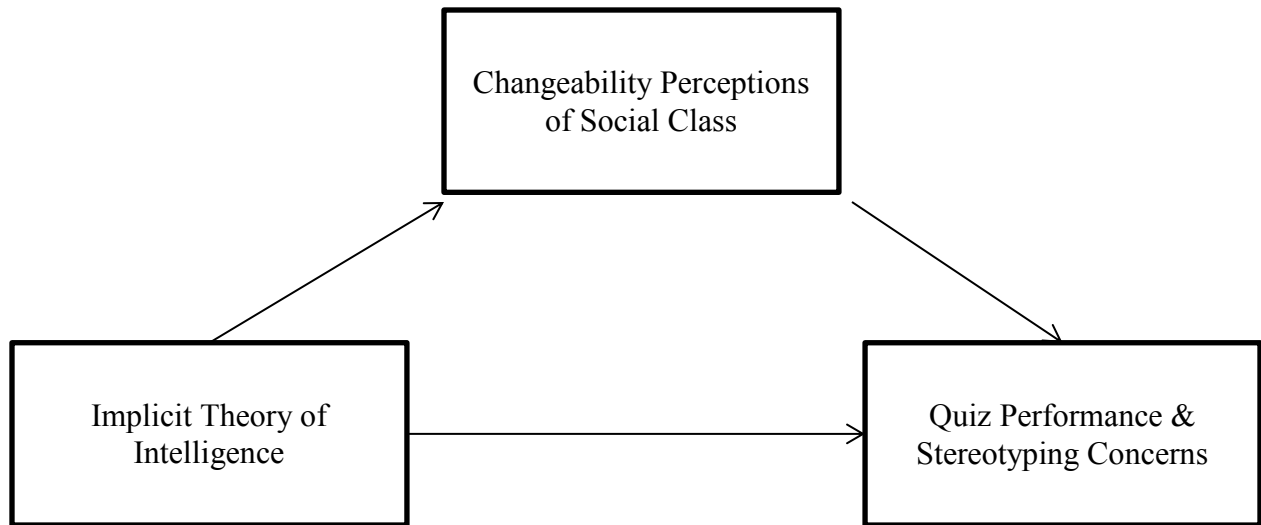
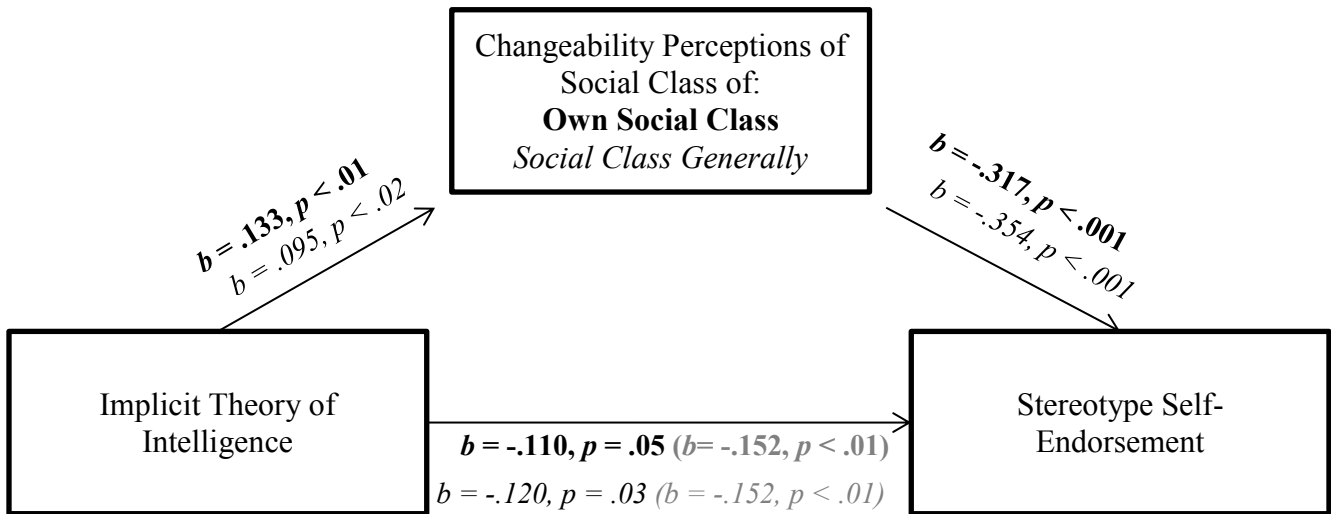
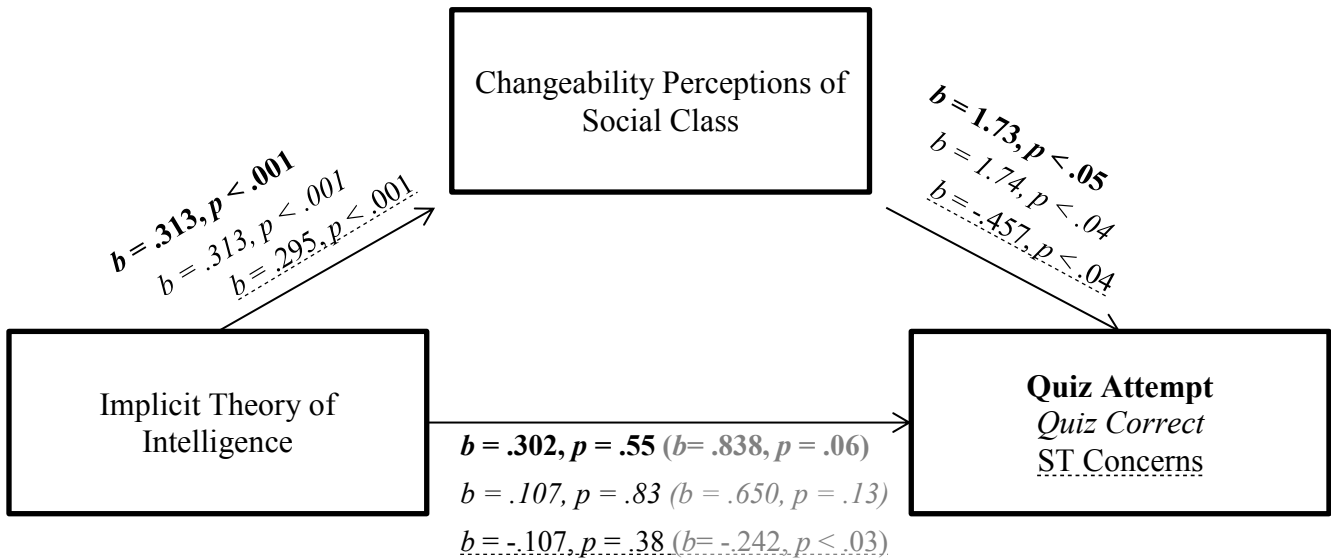


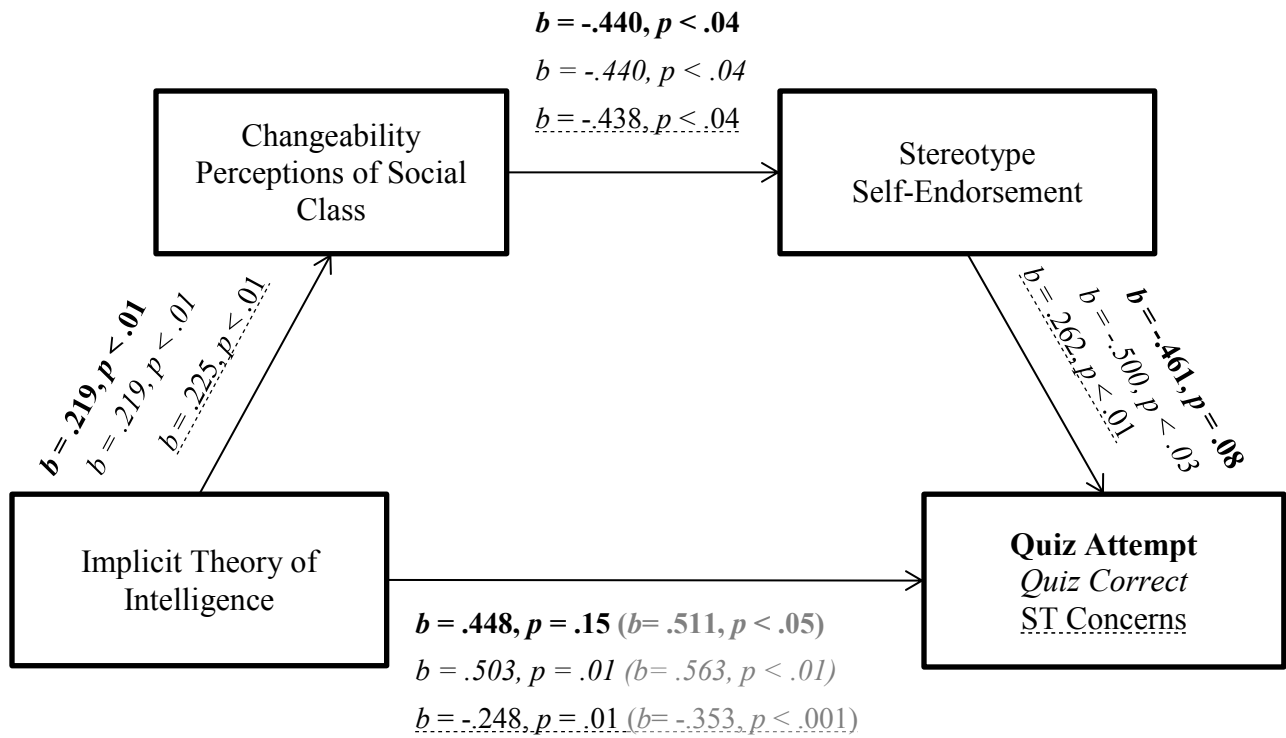
Figure 3. Study 2 mediation model.



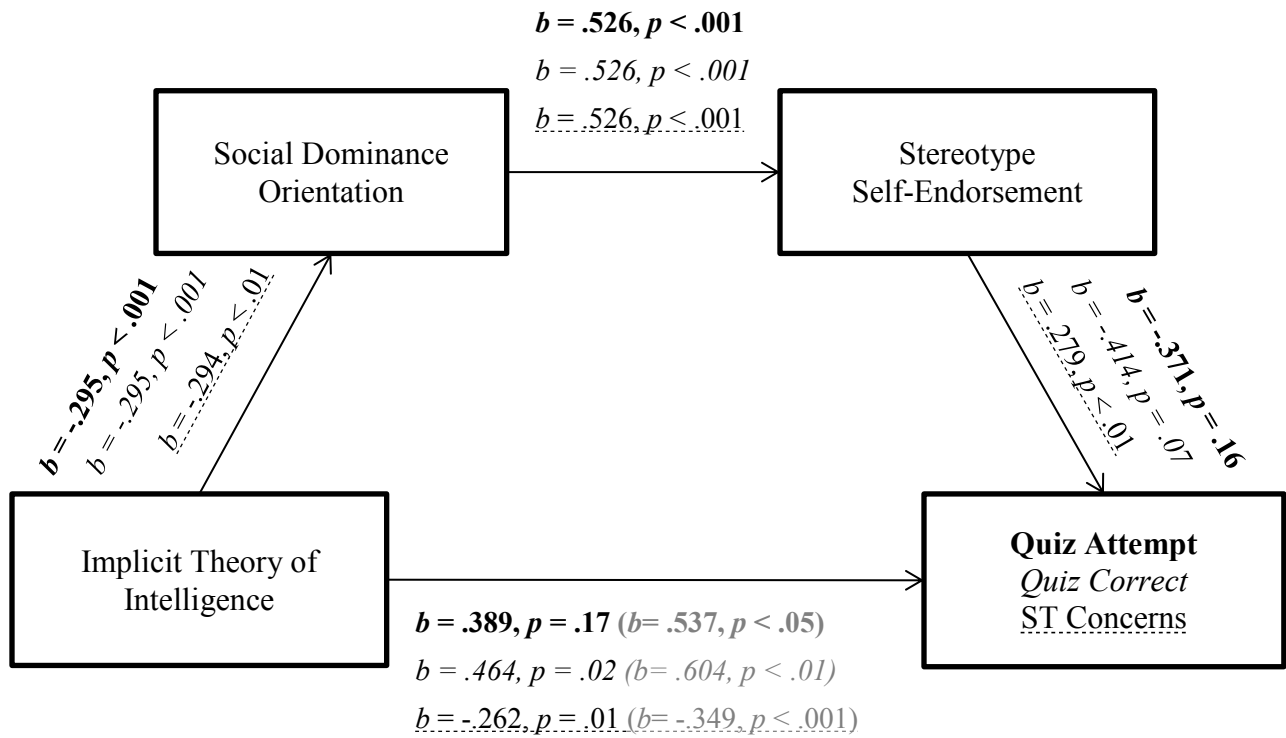
Figures 4a and 4b. Mediation models showing indirect effect of implicit theory of intelligence on stereotype self-endorsement via perceptions of own social class identity (Figure 4a; represented by **bold** text) and perceptions of social class generally (Figure 4b; represented by *italicized* text) (Study 1).



Figures 5a, 5b, and 5c. Mediation models showing the indirect effect of perceptions of social class changeability on the relationship between implicit theory of intelligence and number of quiz questions attempted (Figure 5a, represented by **bold** text), number of quiz questions answered correctly (Figure 5b, represented by *italicized* text), and reported stereotyping concerns (Figure 5c, represented by dot-underlined text) (Study 2).



Figures 6a, 6b, and 6c. Serial mediation models showing the indirect effect of perceptions of social class changeability and stereotype self-endorsement on the relationship between implicit theory of intelligence and number of quiz questions attempted (Figure 6a, represented by **bold** text), number of quiz questions answered correctly (Figure 6b, represented by *italicized* text), and reported stereotyping concerns (Figure 6c, represented by dot-underlined text) (Study 3).



Figures 7a, 7b, and 7c. Serial mediation models showing the indirect effect of social dominance orientation and stereotype self-endorsement on the relationship between implicit theory of intelligence and number of quiz questions attempted (Figure 7a, represented by **bold** text), number of quiz questions answered correctly (Figure 7b, represented by *italicized* text), and reported stereotyping concerns (Figure 7c, represented by dot-underlined text) (Study 3).

APPENDICES

Appendix A

Measures (Studies 1, 2, and 3)

Self-Report Items (Studies 1, 2, and 3)

Implicit Theory of Intelligence Measures (Studies 1, 2, and 3)

1. You have a certain amount of intelligence and you really can't do much to change it.
(1 = Strongly Disagree, 7 = Strongly Agree)
2. Your intelligence is something about you that you can't change very much.
(1 = Strongly Disagree, 7 = Strongly Agree)
3. You can learn new things, but you can't really change your basic intelligence.
(1 = Strongly Disagree, 7 = Strongly Agree)

Changeability Perceptions of Own Social Class Identity (Questions 1-6) and Social Class Identity in General (Questions 7-12) (Study 1)

1. I feel like I will always be a member of my current social class. (stability)
(1 = Strongly Disagree, 7 = Strongly Agree)
2. I believe that once I am a part of one social class, I will always remain a member of that social class. (stability)
(1 = Strongly Disagree, 7 = Strongly Agree)
3. My social class influences the way I think about most things in my life. (globality)
(1 = Strongly Disagree, 7 = Strongly Agree)
4. My social class affects nearly all of my life outcomes, such as my health, wealth, and/or life expectancy. (globality)
(1 = Strongly Disagree, 7 = Strongly Agree)
5. My social class is determined by forces largely out of my control. (controllability)
(1 = Strongly Disagree, 7 = Strongly Agree)
6. I am able to control which social class I belong to. (controllability)
(1 = Strongly Disagree, 7 = Strongly Agree)
7. People will always stay a member of their current social class. (stability)
(1 = Strongly Disagree, 7 = Strongly Agree)
8. I believe that once someone is a part of one social class, they will always remain a member of that social class. (stability)
(1 = Strongly Disagree, 7 = Strongly Agree)
9. Social class influences the way that people think about most things in their lives. (globality)
(1 = Strongly Disagree, 7 = Strongly Agree)
10. Social class affects nearly all of people's life outcomes, such as their health, wealth, and/or life expectancy. (globality)
(1 = Strongly Disagree, 7 = Strongly Agree)
11. People's social class is determined by forces largely out of their control. (controllability)
(1 = Strongly Disagree, 7 = Strongly Agree)
12. People are able to control what social class they belong to. (controllability)
(1 = Strongly Disagree, 7 = Strongly Agree)

Perceived Stereotype Self-Relevancy (Study 1)

1. When thinking about stereotypes about your Social Class, how much do you personally feel that those stereotypes apply to you?
(1 = Not at All, 7 = Very Much)
2. When thinking about stereotypes about your Social Class, how much do you think other people believe those stereotypes are true of you?
(1 = Not at All, 7 = Very Much)

Changeability Perceptions of Social Class Identity (Studies 2 and 3)

Note: Questions 9 and 10 were added in Study 3 to capture Locus of Control (LOC).

1. I feel like I will always be a member of my current social class. (stability)
(1 = Strongly Disagree, 7 = Strongly Agree)
2. How easy would it be to change your social class? (controllability)
(1 = Very Difficult, 7 = Very Easy)
3. I could change my social class if I really wanted to. (controllability)
(1 = Strongly Disagree, 7 = Strongly Agree)
4. My social class influences the way I think about most things in life. (globality)
(1 = Strongly Disagree, 7 = Strongly Agree)
5. My social class affects nearly all of my life outcomes, such as my health, wealth, and life expectancy. (globality)
(1 = Strongly Disagree, 7 = Strongly Agree)
6. I have the ability to overcome my social class. (controllability)
(1 = Strongly Disagree, 7 = Strongly Agree)
7. People are able to control what social class they belong to. (controllability)
(1 = Strongly Disagree, 7 = Strongly Agree)
8. I believe that once you are in one social class, you will always remain a member of that social class. (stability)
(1 = Strongly Disagree, 7 = Strongly Agree)
9. A person's social class is mostly caused by forces beyond their control. (LOC)
(1 = Strongly Disagree, 7 = Strongly Agree)
10. I have control over what social class I am a member of. (LOC)
(1 = Strongly Disagree, 7 = Strongly Agree)

Reported Stereotyping Concerns (Studies 2 and 3)

1. I am worried that my level of income prevented me from remembering information in general.
(1 = Strongly Disagree, 7 = Strongly Agree)
2. I am worried that my level of income prevented me from remembering the information on the quiz I just completed.
(1 = Strongly Disagree, 7 = Strongly Agree)
3. I have less knowledge of community colleges compared to wealthier people.
(1 = Strongly Disagree, 7 = Strongly Agree)
4. I fear that my score on this test will reflect badly on others of my income level.
(1 = Strongly Disagree, 7 = Strongly Agree)

5. I believe that thinking about social class stereotypes could distract me from more important issues.
(1 = Strongly Disagree, 7 = Strongly Agree)
6. I often find myself thinking about my social class and how it negatively affects me.
(1 = Strongly Disagree, 7 = Strongly Agree)

Social Class Identity Importance (Study 2)

1. Overall my social class has very little to do with how I feel about myself.
(1 = Strongly Disagree, 7 = Strongly Agree)
2. My social class is unimportant to my sense of what kind of person I am.
(1 = Strongly Disagree, 7 = Strongly Agree)

Stereotype Self-Endorsement (Study 3)

1. In general, I think that low income people make poor nutritional choices.
(1 = Strongly Disagree, 7 = Strongly Agree)
2. In general, I think that people from lower social classes don't care about education.
(1 = Strongly Disagree, 7 = Strongly Agree)
3. In general, I think that people from low social class don't know very much about money management.
(1 = Strongly Disagree, 7 = Strongly Agree)
4. In general, I think that people from lower social classes aren't as smart as people from higher social classes.
(1 = Strongly Disagree, 7 = Strongly Agree)

Just World Beliefs (Study 3)

1. I feel that people get what they are entitled to have.
(1 = Strongly Disagree, 7 = Strongly Agree)
2. I feel that people earn the rewards and punishments they get.
(1 = Strongly Disagree, 7 = Strongly Agree)
3. I feel that people who meet with misfortune have brought it on themselves.
(1 = Strongly Disagree, 7 = Strongly Agree)
4. I feel that people get what they deserve.
(1 = Strongly Disagree, 7 = Strongly Agree)
5. I feel that rewards and punishments are fairly given.
(1 = Strongly Disagree, 7 = Strongly Agree)
6. I basically feel that the world is a fair place.
(1 = Strongly Disagree, 7 = Strongly Agree)

Optimism (Study 3)

1. In uncertain times, I usually expect the best.
(1 = Strongly Disagree, 7 = Strongly Agree)

2. If something can go wrong for me, it will.
(1 = Strongly Disagree, 7 = Strongly Agree)
3. I'm always optimistic about my future.
(1 = Strongly Disagree, 7 = Strongly Agree)
4. I hardly ever expect things to go my way.
(1 = Strongly Disagree, 7 = Strongly Agree)
5. I rarely count on good things happening to me.
(1 = Strongly Disagree, 7 = Strongly Agree)
6. Overall, I expect more good things to happen to me than bad.
(1 = Strongly Disagree, 7 = Strongly Agree)

Social Dominance Orientation-Dominance (Study 3)

1. Some groups of people are just more worthy than others.
(1 = Strongly Disagree, 7 = Strongly Agree)
2. In getting what your group wants, it is sometimes necessary to use force against other groups.
(1 = Strongly Disagree, 7 = Strongly Agree)
3. Superior groups should dominate inferior groups.
(1 = Strongly Disagree, 7 = Strongly Agree)
4. To get ahead in life, it is sometimes necessary to step on other groups.
(1 = Strongly Disagree, 7 = Strongly Agree)
5. If certain groups of people stayed in their place, we would have fewer problems.
(1 = Strongly Disagree, 7 = Strongly Agree)
6. It's probably a good thing that certain groups are at the top and other groups are at the bottom.
(1 = Strongly Disagree, 7 = Strongly Agree)
7. Inferior groups should stay in their place.
(1 = Strongly Disagree, 7 = Strongly Agree)
8. Sometimes other groups must be kept in their place.
(1 = Strongly Disagree, 7 = Strongly Agree)

Demographic Social Class Items (Studies 1, 2, and 3)

Subjective Social Class

1. How would you describe your social class?
 - a. Very Wealthy
 - b. Upper Class
 - c. Upper-Middle Class
 - d. Middle Class
 - e. Lower-Middle Class
 - f. Lower Class
 - g. Poverty Level

Income

1. What is your (and your spouse's combined) total before-tax income in the past year? Please consider income from all sources, including work, alimony, child support, rental income, additional government money, investment income and any other money you may receive. (MARK ONE ANSWER ONLY).
 - a. Below \$10,000
 - b. \$10,000 to \$19,999
 - c. \$20,000 to \$29,999
 - d. \$30,000 to \$39,999
 - e. \$40,000 to \$59,999
 - f. \$60,000 to \$79,999
 - g. \$80,000 to \$99,999
 - h. \$100,000 to \$149,999
 - i. \$150,000 to \$199,999
 - j. \$200,000+

Educational Attainment

1. How much education have you completed so far? (MARK ONE ANSWER ONLY)
 - a. Less than High School
 - b. Some High School
 - c. GED/High School Graduate
 - d. Some College
 - e. Associate's Degree (2-year)
 - f. Bachelor's Degree (4-year)
 - g. Master's Degree
 - h. Beyond Master's
 - i. Other Degree or Certification: _____

Appendix B

Community College Narrative and Quiz Questions (Study 2 and Study 3)

Please read the following narrative carefully. After reading the story below, there will be questions about what you have read on another questionnaire, so you will not be able to look back at the story below for answers.

Christa is interested in attending one of the Colorado Community Colleges. She is interested in this because she knows that she will be able to stay close to home, will have to pay less money to get her degree, will have a flexible schedule, and will help her to master basic concepts that were not her strengths in high school. After doing her research on the website (www.cccs.edu), Christa is debating between attending Colorado Northwestern Community College, Lamar Community College, Northeastern Junior College, and Otero Junior College. She knows she must first complete her application online, but then she plans on also applying for the College Opportunity Fund. This fund supports Colorado residents who are undergraduate students. She also will apply for federal financial aid (FAFSA—Forms #11 and #15 [these forms need to be completed by June 30th]) so that she can receive more money for tuition and living expenses. Christa has recently learned that grants do not need to be repaid (such as the Federal Pell Grant and Federal Supplemental Educational Opportunity Grant), but that student loans will need to be repaid (such as Federal Stafford Loans and the Federal Perkins Loan). Christa knows that the Colorado Community College System awards nearly 9,500 Associate degrees and certificates annually in more than 800 post secondary programs so she will have plenty of choices and options when she decides on a program. So, after applying for the college of her choice and for the different financial aid opportunities, Christa will take the basic ACCUPLACER Assessment Test in Reading, Writing, and Math. She will then take her assessment results to a new advisor at her college so that they can develop her educational plan together.

Please do your best to respond to the following questions based on what you just read.

- 1. There were four reasons Christa was interested in attending a Colorado Community College. Please name as many as you can remember.**

- 2. Christa is debating between several of the local community colleges. Please name the ones you can remember.**

- 3. What is the Colorado Community College System website?**

- 4. Colorado residents are eligible to receive financial assistance through what fund?**

- 5. What is the difference between a student loan and a grant?**

- 6. Please list the names of any grant or student loan names that you read about?**

- 7. What forms on the FAFSA will Christa need to complete?**

- 8. When is the FAFSA deadline?**

- 9. If Christa attends a Colorado Community College, how many post secondary programs will she have to choose from?**

- 10. Please list the steps that were included in the essay that Christa will need to complete in order to enroll in a community college.**

Appendix C

Complete Manipulations (Study 3)

Implicit Theory of Intelligence Manipulation

Recent studies have shown that no one's intelligence level is set in stone and cannot be changed. In fact, through effort and determination people can actually increase their intelligence. Please take a look at the list below of some of the most helpful tips that increase intelligence.

1. Take time to reflect
 - Spending some time alone without distractions gives you a chance to organize your thoughts
2. Make sure to get plenty of sleep
3. Read challenging books
 - Reading books that require concentration help increase reading and writing abilities
4. Play games that require you to concentrate
 - Logic and word games such as crossword puzzles or even video games help you solve problems and think in different ways
5. Don't give up
 - Remember that it is possible to increase your intelligence if you work at it

After thinking about some ways people can increase their intelligence, please read the following personal story.

Lara's Story

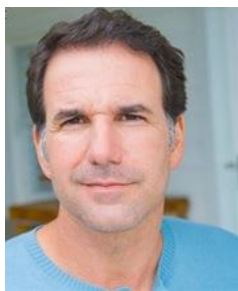
I have been a middle school teacher for over 30 years and if I have learned anything over these years, it is that all students have the capacity to learn. I initially thought that students either had intelligence or they didn't, but now I know that everyone has the ability to increase their intelligence with a little bit of effort and hard work. When I was younger, I would even state that I just "wasn't smart enough", but over time, I saw a change in myself. I worked hard and slowly started to improve on tests and papers.

Because of experiences that I have had with my students now, I truly believe that people can change the amount of intelligence that they have. Now, I tell all of my students this and I notice the difference. Intelligence is changeable. It is not something that you either have or you don't. I often tell my students the importance of challenging themselves, getting plenty of rest, and working hard. I have personally seen the increases in intelligence that can occur among my students and even myself! –Lara Wright, age 56

Now that you've read the personal story, please imagine that you received a letter from John, the parent of a middle school student who is having some difficulties in school. This student is struggling in certain classes and is beginning to feel frustrated. We are interested in how people from all walks of life would communicate a message to someone who wants to help a child struggling with school.

So now you will read about John and then write your own message to him. We will not send your words to the actual person you are said to be writing to; instead, we hope to just get some good ideas about how people communicate information to others in their own words. In writing your message, you should try to convey some of the main points of the information listed above.

Please read about John below.



John Windsor

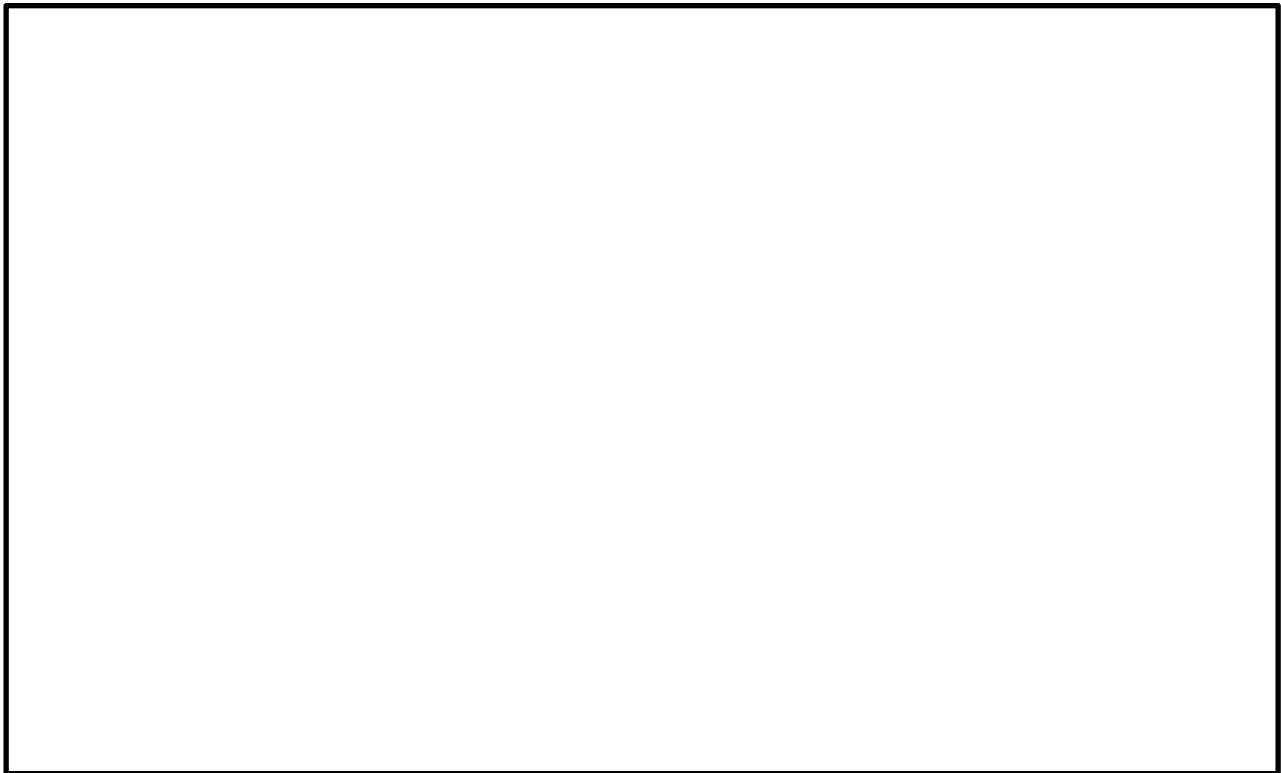
**-PARENT OF A CHILD
STRUGGLING IN SOME OF HIS
CLASSES
-CHILD IS IN 7TH GRADE AND
ENJOYS SCHOOL**

“My son likes school but recently has been struggling in some of his classes. He is feeling very bad about it and seems like he doesn't want to try as hard.”

These are the same tips for increasing intelligence that were listed on the previous page. Please take another look at the list:

1. Take time to reflect
2. Make sure to get plenty of sleep
3. Read challenging books
4. Play games that require you to concentrate
5. Don't give up

Please write a letter that would help John convince his son that he can get smarter and do better in school through effort. It will be helpful to incorporate in the information you read above by stressing that that intelligence is not unchangeable, but rather an ability that can be increased if one works at it. Please try to tell this person that if students view intelligence as an unchanging quantity they may feel that they are incapable of learning if they encounter difficulty with their schoolwork. It is your job to help John convince his son that intelligence can be increased.

A large, empty rectangular box with a black border, intended for the student to write a letter. The box is currently blank.

Perceptions of Social Class Identity Manipulation

Recent studies have shown that there are many contributors to a person experiencing lower social class that do not have anything to do with one's personality or abilities. Below are several potential reasons why people come to be in the social class they are in. Please take a look at the list below and think about each potential cause.

1. Low wages in some businesses and industries
 - Too many jobs are part time or only pay low wages
2. Failure of society to provide good schools for many Americans
 - Many students do not have access to good public schools
3. Prejudice and discrimination against some groups of people
4. Changing life circumstances
 - Life events, such as getting sick, getting a divorce, or getting laid off can impact someone's social class
5. A bad economy or being in a recession

After thinking about some of things that determine people's social class, please read the following personal story.

Lara's Story

I grew up in a family that didn't have much. Immediately after high school, I started working at a local supermarket as a clerk, and soon enough was promoted to assistant store manager. A few months later, I was hit by a drunk driver and suffered injuries that limited my mobility. I couldn't work at the store anymore, and unemployment benefits were not enough to live on. It seemed like no one would hire me because I didn't have a car. I felt helpless and ended up spending time at a shelter for women. It was very clear that this change of events was about something other than myself. I then realized that there were many causes for lower social class and poverty.

A few years later, by pure chance I ran into an old friend who now worked as a schoolteacher. She got me to go back to school. Things were tough, but I got funding for school because of a scholarship for people with disabilities. Some time ago, I became a teacher too and I make a good salary. I am now able to support my family. It's amazing to me how much your financial situation can change over a lifetime. External circumstances really can impact your social class. I have personally experienced how unstable social class really can be because of many of the things outside of myself that can contribute. —Lara Wright, age 56

Now that you've read the personal story, please imagine that you received a letter from someone named John who is struggling financially and is feeling bad about his situation. We are interested in how people from all walks of life would communicate a message to someone who is struggling with finances.

So now you will read about John and then write your own message to him. We will not send your words to the actual person you are said to be writing to; instead, we hope to just get some good ideas about how people communicate information to others in their own words. In writing your message, you should try to convey some of the main points of the information listed above, Please read about John below. .



John Windsor

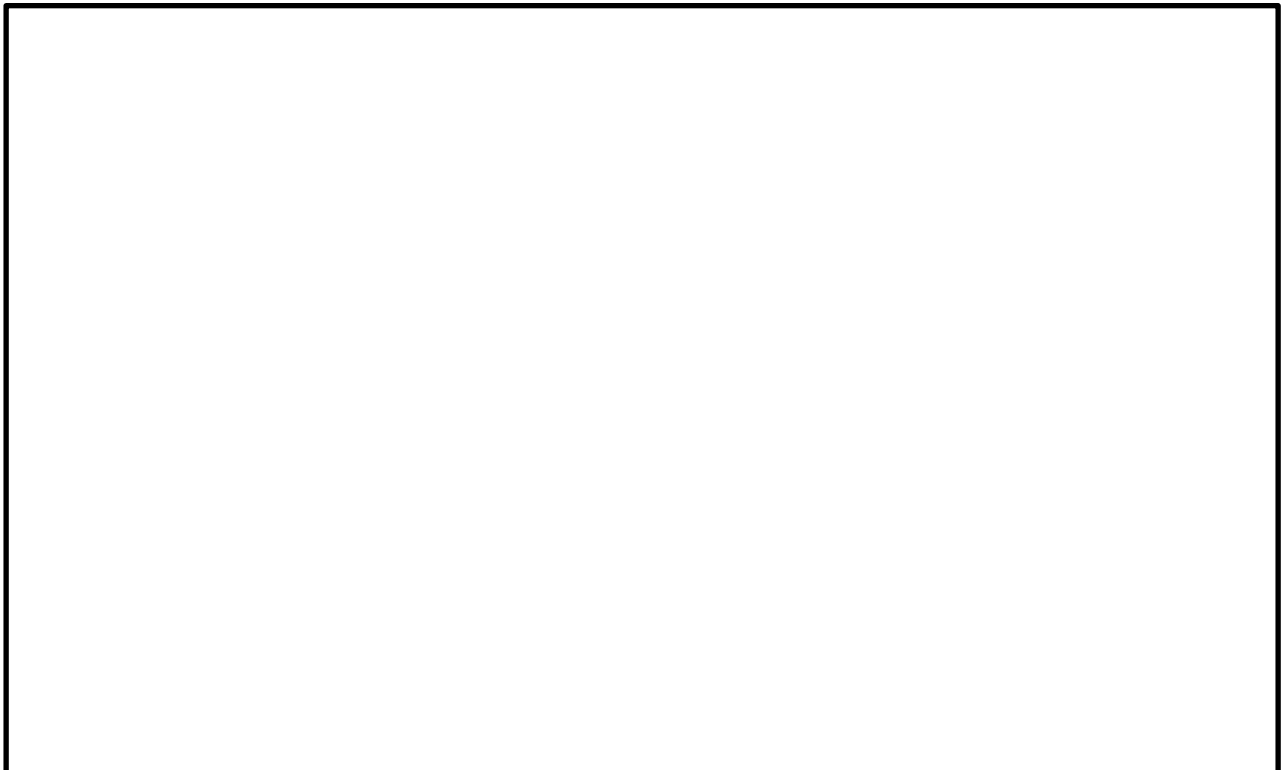
- STRUGGLING FINANCIALLY
- HIGH SCHOOL GRADUATE
- LOOKING FOR WORK

"I was recently laid off from a job. I was excited about looking for a new job but I am now discouraged and feeling very bad about where I am in life."

These are the same causes for lower social class that were listed on the previous page. Please take another look at the list:

1. Low wages in some businesses and industries
2. Failure of society to provide good schools for many Americans
3. Prejudice and discrimination against some people
4. Changing life circumstances
5. The economy is bad

Please write a letter to John that encourages him to think about the different causes of lower social class. It will be helpful to incorporate and explain at least one of the causes that are listed above. Please try to tell this person that there are many things that cause lower social class. If people learn that one's social class can change due to different circumstances, they may be less likely to experience discouragement and anxiety. It is your job to convince John that there are many causes of lower social class.

A large, empty rectangular box with a black border, intended for the student to write a letter to John. The box is currently blank.

Control Condition

Recent studies have shown that public speaking is one of the most common fears among people. Several strategies have been identified to help people with public speaking. Please take a look at the list below of some of the most helpful tips that improve public speaking.

1. Practice your speech several times
 - The more times you say your speech, the more comfortable you will be with the material
2. Imagine yourself delivering a successful speech
 - If you believe that you will be great, you will be more relaxed when speaking
3. Be aware of your audience
 - Know who your audience is and try to shape your speech to them
4. Don't talk too fast
 - Many people have the tendency to speak more quickly when they are speaking publicly, so remember to speak at a normal speed
5. Relax
 - Remember to breathe and remain calm while speaking

After thinking about these tips that improve public speaking, please read the following personal story.

Lara's Story

Like many people I am afraid of speaking in front of other people. During school I would get nervous when I was called on to speak in front of the class. One of my worst memories was when I wanted to give a speech to my community a few years ago. Our neighborhood had been dealing with an increase in littering and I was very upset so I went to the neighborhood meeting to tell them about my concerns. When it was finally my turn to speak, I felt so lightheaded that I could barely even stand. I completely forgot what I wanted to say and I was so embarrassed.

After the meeting, I went home and learned some things that could help me with my fear of public speaking. I practiced what I wanted to say in front of the mirror several times and imagined myself doing a good job speaking in front of the neighborhood meeting. A few weeks later, I returned to the meeting and delivered a great speech. The neighborhood committee agreed with me and now we have a group of volunteers that cleans up the trash. I am now very comfortable with public speaking and I truly believe that everyone can overcome their fear! –Lara Wright, age 56

Now that you've read the personal story, please imagine that you received a letter from someone named John who is preparing to give a toast at his cousin's wedding. John struggles with public speaking and he is very nervous about giving his speech. We are interested in how people from all walks of life would communicate a message to someone who is struggling with a fear of public speaking.

So now you will read about John and then write your own message to him. We will not send your words to the actual person you are said to be writing to; instead, we hope to just get some good ideas about how people communicate information to others in their own words. In writing your message, you should try to convey some of the tips that were listed above. Please read about John below.



John Windsor

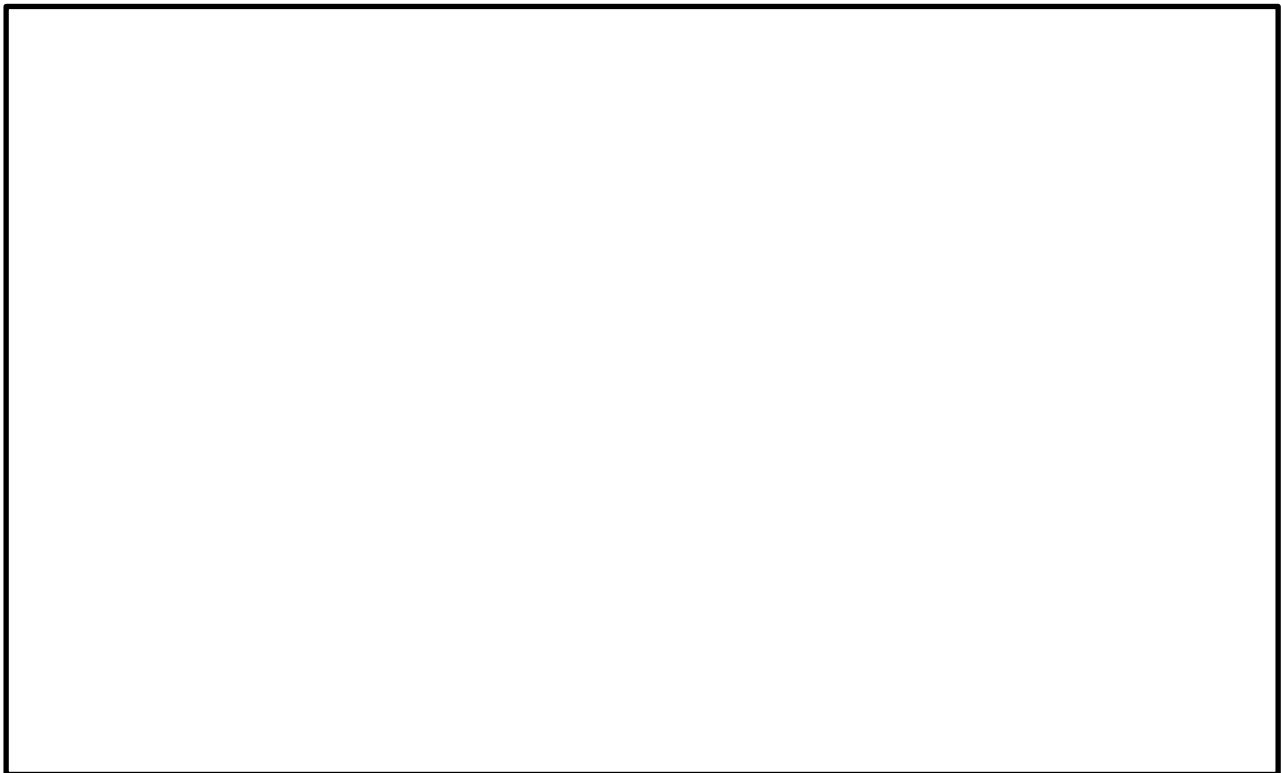
**-STRUGGLING WITH PUBLIC
SPEAKING
-ENJOYS THE MOUNTAINS**

“My cousin is getting married in a few weeks and I would really like to speak at his wedding. I like family events but I am nervous about speaking in front of people.”

These are the same tips for public speaking that were listed on the previous page. Please take another look at the list:

1. Practice your speech
2. Imagine yourself delivering a successful speech
3. Be aware of your audience
4. Don't talk too fast
5. Relax

Please write a letter to John that encourages him to think about the different tips for public speaking. It will be helpful to incorporate and explain at least one of the tips that are listed above. Please try to tell this person that there are many things that can help with fears of public speaking. If people can learn about the different tips to improve their public speaking, they may be less likely to have negative experiences and to feel nervous. It is your job to convince John there are many ways to help overcome public speaking fears.

A large, empty rectangular box with a black border, intended for the student to write a letter to John. The box is completely blank and occupies the lower half of the page.

Appendix D

Sample Participant Letters (Study 3)

Implicit Theory of Intelligence Condition Sample Letters

“Every child has smarts and can do the best that they can. As long as you try your best that’s what we ask for.”

“You learn something new everyday whether you realize it or not, and learning makes your intelligence grow. Get plenty of sleep so you can concentrate on what you are doing and learning. Take time to think back on things you have learned so you do not forget them, and they may even help you learn more. Read challenging books, not right off, but start easy and get a more challenging one each time. The levels of reading can be seen like the levels of a video game each one a little harder than the last. Play games that make you think and concentrate like having to find clues and solve riddles on a grand quest. Do not give up, thinking of learning and getting smarter... like riding a bike. If I gave up fully I would not be riding one today. When you are young it is hard to see that but as you grow you learn that giving up does not work to help you learn, ride a bike, get smarter or anything you try. So keep at it and get help with it if you need to, but just keep trying and you can get smarter just like when you learn to ride a bike.”

“Dear John, I am writing this letter to encourage that your son keeps excelling in school. It is important. Knowledge is proven. Have him read interesting subjects. Let his mind absorb as much as possible. Also take care of his body so that his mind can be sharp. Education is key to his survival so don’t lose hope.”

Perceptions of Social Class Identity Condition Sample Letters

“I know things are hard due to low wages and society doesn’t help much, but you can usually find help in prayer. Even as hard as things seem you can try to find the good things to be thankful for.”

“Dear John, there are many things that are causes for lower social classes. For one, the economy is bad, people are prejudice, low wages. But John my point is social class can change in a second. Opportunity is always at the door so don’t give up things will change. “

“John, I have personally walked a wide variety of social classes in my upbringing. Whether you are struggling to make ends meet or living with no cares the importance of your life should be substance and functionality not material possessions and obsessions.“

Control Condition Sample Letters

“I would tell John to practice his speech. Maybe even memorize it so that the audience should not even matter the speech would become almost repetitive. The easier the speech is, the easier it is to present it to an audience.”

“Dear John, I’m sorry about your fear. I have the same problem. It is very difficult for me to speak to family and friends and or public. I try to put my head in another place where I’m comfortable. You should try that some time and good luck on your speech!”

“Dear John, if you are having difficulties with public speaking, I would suggest a few things to help you out. The first is practice—you cannot practice your speech enough! This will give you confidence, as will positive visualization of yourself if giving an amazing speech that is well received. Your cousin will appreciate your extra effort. Remember, a wedding is a happy occasion, and the audience is not there expecting to criticize you. Remember not to speak too fast, and to breathe normally while speaking. To relax you might try visualizing yourself hiking on a beautiful serene day in the mountains. Think of your cousin and what he will want to hear at his wedding. Good luck John!”

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