

The Impact of Entity and Incremental Implicit Theory Activation
On the Prioritization of Personal Goals

by

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B.Sc., McGill University, 2008

A Thesis Submitted in Partial Fulfillment
of the Requirements for the Degree of

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Supervisory Committee

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Abstract

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Individuals have different implicit theories. They may hold an incremental theory and believe traits are malleable or an entity theory and believe traits are fixed. In past research implicit theories have been linked to achievement goals. The present study extends this research by investigating the relationship between implicit theories and personal goals. An experimental design was used to examine if priming individuals with a specific implicit theory impacts their goal prioritization. It was expected that individuals primed with an entity theory would place greater importance on intrinsic goals while individuals primed with an incremental theory would place greater importance on extrinsic goals. It was found that female participants rated the importance of financial success higher in the Entity condition compared to the Incremental condition and rated the importance of community feeling higher in the Incremental condition compared to the Entity condition. No significant differences were found with male participants.

Table of Contents

Supervisory Committee	ii
Abstract	iii
Table of Contents	iv
List of Tables	v
List of Figures	vi
Acknowledgments.....	vii
Introduction.....	1
Implicit Theories and Achievement Goals.....	1
Implicit Theories of Personality	7
Personal Goals.....	10
Implicit Theories and Personal Goals	12
Present Study.....	14
Method	15
Participants	15
Procedure.....	15
Measures of Personal Goal Prioritization.....	18
<i>A priori</i> Sample Size Calculations	19
Results.....	19
Implicit Theory Manipulation Check.....	21
Personal Goal Prioritization	23
Discussion	32
Goal Prioritization.....	32
Gender Differences in Experimental Manipulation	34
Gender Differences in Goal Prioritization	37
Inconsistencies among Goal Prioritization Measures.....	38
Limitations	39
Future Directions.....	41
Conclusion	43
References.....	44

List of Tables

Table 1: Means, Standard Deviations, and Between-Person Intercorrelations of Aspiration Index, Goal Rating and Goal Ranking Scales.....	20
Table 2: Between-Person Intercorrelations of Entity Beliefs and Article Difficulty, Credibility, and Persuasiveness	21
Table 3: Means and Standard Deviations of Entity Beliefs and Relative Goal Importance using the Multi-item Goal Rating Measure	25
Table 4: Means and Standard Deviations of Relative Goal Importance using the Single-item Goal Rating Measure.....	27
Table 5: Means and Standard Deviations of Goal Ranking.....	28

List of Figures

Figure 1: Interaction of gender and implicit theory manipulation on entity beliefs	23
Figure 2: Interaction of gender and experimental condition on relative importance of goals using the multi-item goal rating measure	29
Figure 3: Interaction of gender and experimental condition on relative importance of goals using the single-item goal rating measure	30
Figure 4: Means of goal ranking for males and females in the incremental and entity condition	31

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Introduction

Personal beliefs influence the way individuals interact with their environment. They impact how individuals view and interact with the world and influence thoughts, goals and behaviour. One research domain where there has been a particularly strong interest deals with whether an individual believes that traits are malleable or fixed (Dweck & Leggett, 1988). Dweck (1999) argues that people's beliefs about the malleability of their traits (aka implicit theories) influence the type of goals they prefer to pursue and the effort they put into improving their abilities. A better understanding of the underlying mechanisms that lead to goal preference might provide insight into what influences goal selection.

The objective of this research was to explore the relationship between malleability, beliefs and goals. Below I will present on the relationship between implicit theories of personality and an individual's personal goal prioritization, by first examining past research on implicit theories and goals, including correlational research and studies that have used priming to impact goal selection. I then review research on implicit theories of personality and explain the classification used for personal goals. Finally, I examine how past research might suggest ways in which implicit theories of personality and personal goals may be related, a relationship which I further explore in the current study. Specifically, I report findings of a study that aimed to test if activating implicit theories of personality can cause noticeable group differences in personal goal preferences.

Implicit Theories and Achievement Goals

Over the last twenty years, more than 250 studies, using a variety of methods, have been conducted on the topic of implicit theories. Implicit theories are lay assumptions about the self and others that are generally unarticulated yet impact the way information about an individual's

world is processed and understood (Dweck, Chiu, & Hong, 1995). An individual may believe that traits are malleable or fixed (Dweck & Leggett, 1988). People who believe that traits are malleable are labelled *incremental theorists*, whereas people who believe that traits are fixed and unchanging are labelled *entity theorists* (Dweck, 1999). It has been shown that individuals can hold implicit theories about their own traits, as well as the traits of other people (Chiu, Dweck, Tong, & Fu, 1997). Implicit theories have also been shown to be trait-specific (Dweck & Leggett, 1988); individuals can hold implicit theories about the malleability of numerous characteristics and abilities, including intelligence (Plaks, Grant, & Dweck, 2005), personality (Erdley & Dweck, 1993), morality (Gervey, Chiu, Hong, & Dweck, 1999), relationships (Knee, Patrick, Vietor, & Neighbors, 2004), sports ability (Cury, Da Fonseca, Rufo, & Sarrazin, 2002), and musical ability (Smith, 2005) among others. They have also been linked to numerous outcomes, including achievement aspirations (Ahmavaara & Houston, 2007), performance versus mastery goals (Cury et al., 2002), social judgements (Erdley & Dweck, 1993), relationship satisfaction (Franiuk, Cohen, & Pomerantz, 2002), social stereotyping (Levy et al., 1998), IQ test performance (Cury, Da Fonseca, Zahn, & Elliot, 2008), and volunteering behaviour (Karafantis & Levy, 2004).

Early work by Dweck and Leggett (1988) established a clear link between individuals' implicit theories about intelligence and their achievement goals. In this framework, entity theorists believe that their intelligence is fixed, they believe that they have a certain amount of intelligence and that it does not change over the course of their life time. This belief leads them to develop performance goals that are concerned with both gaining favourable judgments of their skills and avoiding negative judgments; they want to demonstrate their best skills and prefer to perform easy tasks they can do well on rather than tasks that require effort. In fact, entity

theorists see applying effort as a sign of low ability (Dweck, Chiu, & Hong, 1995). On the other hand, incremental theorists believe their intelligence is malleable, they believe they can work to increase their intelligence through effort and tend to prefer learning goals (Dweck & Leggett, 1988). Given the opportunity to improve their competence and focus on learning new skills, they actively engage in challenging activities. Incremental theorists show persistence, increased effort, and strong performance while facing challenge (Dweck & Leggett, 1988) and even after experiencing setbacks do not consider themselves to be failing and do not question their abilities (Dweck, 1999). This model of implicit theories suggests that differences in beliefs can result in differences in goals and behaviour. In other words, individuals with an entity theory want to demonstrate their ability while individuals with an incremental theory want to improve their ability. Recent research has further examined the relationship between implicit theories and achievement goals in other domains. For example, individuals who hold an entity theory of science ability agree with statements such as “You have a certain amount of science ability, and you really can’t do much to change it” and are more likely to endorse performance goals (e.g., “I want to do better than other students in my science class”) (Chen & Pajares, 2010). In contrast individuals who hold an incremental theory of science ability agree with statements such as “No matter who you are, you can change your science abilities a lot” and tend to endorse learning goals (e.g., “I like science assignments I can learn from, even if I make a lot of mistakes”) (Chen & Pajares, 2010). Similarly, Robins and Pals (2002) found that individuals who held an entity theory of math ability emphasised performance goals (e.g., “Exams are stressful because I may not achieve the grade I want”) while those who held an incremental theory emphasized learning goals (e.g., “The knowledge I gain in school is more important than the grades I receive”). Similar results were reported with implicit theories of tennis ability (Li, Solmon, Lee, Purvis, &

Chu, 2007), sports ability (Cury et al., 2002; Warburton & Spray, 2009) and music ability (Smith, 2005). Taken together, these findings suggest that holding entity versus incremental implicit theories may cause individuals to endorse different types of goals.

Implicit theory activation. While individuals may have a dominant implicit theory related to a trait, they actually hold different degrees of both malleable and fixed beliefs that may become activated under certain conditions (Dweck et al., 1995). Support for this hypothesis has been demonstrated via the successful selective activation of an individual's theories through priming (e.g., McConnell, 2001). To explain this phenomenon, Dweck et al. (1995) suggest that both types of implicit theories may exist in memory and form links of differing strengths with goals and causal attributions. A specific, external stimulus could thus activate one of the theories and the links to goals and attributions the theory has formed, while a different external stimulus could activate the other theory. The coexistence of both theories allows experimenters to randomly distribute individuals to incremental and entity groups, regardless of their dominant beliefs, and then use priming techniques to activate the desired theory.

Many studies (e.g., Chiu, Hong, & Dweck, 1997; Levy, Stroessner & Dweck, 1998) have employed a priming procedure to successfully activate implicit theories. The experimenters randomly assigned participants to conditions where different stimuli were presented. A wide variety of implicit theories were investigated including personality (e.g., Poon & Koehler, 2006), intelligence (e.g., Plaks & Stecher, 2007), moral character (e.g., Hong et al., 2004), and various abilities.

The general methods used to prime implicit theories can be divided into two major categories: studies that activated the participants' implicit theory indirectly and studies that activated participants' implicit theory directly. In the indirect studies, individuals were exposed

to the implicit theories of others with the intention of indirectly influencing the participant's implicit theories (e.g., Jain, Mathur, & Maheswaran, 2009). This manipulation was accomplished in one of two ways: either participants were informed of the implicit theories of others or they observed people behaving in a fixed or malleable fashion. For example, in a study by Poon and Koehler (2006), participants were asked to read the biography of a fabricated Nobel Prize winner which described his major life events as well as his personality. In the entity condition the personality of the character was shown to be unchanging throughout his life while in the incremental condition the character's personality was portrayed as changing over time. In studies in which the direct method was used participants were presented with information about the malleability of a trait. In some studies the message was delivered in the instructions (e.g., El-Alayli & Baumgardner, 2003). In a second group of studies, the primer was included in the description of the task that participants were required to perform (e.g., McConnell, 2001). In a third group of studies, the primer was included in an article-length text passage that participants were asked to read (e.g., Levy et al., 1998). Since the third method appears to be the most widely used method of activating the desired implicit theory, I review research that has used this procedure to examine the causal relationship between implicit theories and achievement goals.

Activation and achievement goals. Priming implicit theories has been shown to impact achievement goals. For example, participants were exposed to a fabricated text that supported either an incremental or entity view of negotiation ability (Kray & Haselhuhn, 2007). They were then told to choose between two potential negotiation tasks: one that emphasized a learning goal where they were offered the opportunity to improve their skills with a risk of making mistakes and looking bad, and one that emphasized a performance goal where the task was easier without risks but also no potential for skill improvement. Individuals who read the incremental text

tended to prefer a learning negotiation task, suggesting they prioritized learning goals, while individuals who read the entity text tended to prefer a performance negotiation task, suggesting they prioritized performance goals. The authors also found that this difference was mediated by participants' implicit negotiation beliefs after reading the text. Similar results have been found within the domain of sports, specifically in children's goal adoption after failure feedback in a golf exercise (Spray, Wang, Biddle, Chatzisarantis, & Warburton, 2006). Before completing a golf exercise, children were exposed to either an entity or incremental manipulation about golf ability through instructions by the experimenter. They then were provided with false feedback that they had performed poorly after which their goals were measured. The incremental group was more likely to adopt a learning goal after failure feedback compared to the entity group, which was more likely to adopt a performance goal. This evidence suggests that holding an entity theory causes individuals to prefer performance goals while holding an incremental theory causes individuals to prefer learning goals.

While past research suggests a connection between implicit theories and achievement goals no research has investigated the impact of implicit theories on personal goals. Personal goals relate to a projection of how individuals envision themselves in the future (Fishbach & Ferguson, 2007). Their goal preferences are then influenced by this imagined future self. If individuals see the self as stable over the long term they might adopt different goals than those who view the self as malleable. In other words, implicit theory of personality may play a key role in influencing personal goal preferences. In order to explore this potential relationship, it is important to examine the research on implicit theories of personality.

Implicit Theories of Personality

In addition to implicit theories of intelligence and ability, individuals hold implicit theories of personality. Individuals with an entity view of personality believe that people are fixed and unchangeable, and what is observed once will always be the case (Dweck & Leggett, 1988). Individuals who hold an entity belief also tend to make quick judgments, so as to know what to expect in the world, and hence do not pursue change. In contrast, individuals with an incremental view of personality believe that people are changeable and can be different in one situation versus another (Dweck & Leggett, 1988). These individuals are also more likely to view behaviour as caused by external factors and are more likely to attempt to fix problems they encounter in their environment.

Individuals who hold an entity theory tend to make global dispositional inferences about others as well as themselves, while those who hold an incremental theory tend to be more flexible in their inferences (Dweck, Hong, & Chiu, 1993). Entity theorists have a stable view of the self and see behaviour as a direct reflection of the self. Further, entity theorists view the behaviour of others as a direct reflection of their underlying traits (Erdley & Dweck, 1993). Therefore, they tend to make extreme judgments based on small samples of behaviour (Levy et al., 1998), dismiss situational or motivational factors, and predict that behaviour will remain stable over time (Dweck et al., 1993). Research has shown that entity theorists make more stable attributions about individuals than incremental theorists (Chiu et al., 1997). Entity theorists believe that an individual's behaviour will persist across situations and knowing a person's traits will allow for accurate predictions of behaviour in different situations. In contrast, incremental theorists tend to use environmental and psychological information in their understanding of a

person and are less likely to make stable attributions about another's behaviour (Chiu et al., 1997).

It also has been found that inducing an implicit theory using priming with a persuasive article can create group differences in dispositional judgments. Individuals who read an article supporting an entity theory of personality made stronger predictions about future behaviour based off a target's traits and made more trait judgments than individuals who had read an article supporting an incremental theory of personality. This phenomenon is also evident in a study by Erdley and Dweck (1993), where children were told a story about the behaviour of a child character. The character began by acting poorly (lying, cheating, etc) but was struggling internally to be liked and to act nicely. Half way through the story, the character's behaviour changed and he became well behaved. When the character's behaviour shifted incremental theorists were able to adapt their impression of him and take into account his internal struggle, rating him more positively. On the other hand, entity theorists kept the initial negative impression they had formed. They were more rigid and generalized in their inferences about the boy, judging him solely on the basis of his initial behaviour and making much stronger inferences about him.

The tendency for entity theorists to make more extreme and stable judgments based on limited behavioural information led researchers to examine entity theorists' use of stereotypes. Levy et al. (1998) found that entity theorists agreed more strongly with commonly held group stereotypes and thought that the stereotypes reflected actual group differences. Individuals who predominately held an entity theory also perceived group members as coherent and groups as possessing high entitativity, perceiving a collection of social targets (e.g., individuals) as possessing unity and coherence (e.g., a group) (Rydell, Hugenberg, Ray, & Mackie, 2007). In

addition, entity theorists paid more attention to information that confirmed their previously held stereotypes rather than disconfirmed them, suggesting that once a stereotype has been formed entity theorists act in ways to maintain it (Plaks, Stroessner, Dweck, & Sherman, 2001).

One reason for the increased use and stability of stereotypes by entity theorists was proposed by McConnell (2001). Participants were primed with either an entity or incremental theory of personality by reading descriptions of two characters' behavioural interactions. Then their judgement formation of the characters was recorded. McConnell (2001) found that participants primed with an entity theory tended to make judgments of characters when they first encountered the description (on-line judgments) while participants primed with an incremental theory tended to form a judgment later when it was required (memory-based judgments) suggesting that implicit theories affect attitude formation.

Similar results were reported in studies that manipulate implicit theories. For example, Levy et al. (1998) found that participants who read an article that suggested personality is fixed more strongly endorsed stereotypes than participants who were lead to think of personality as malleable. Plaks et al. (2001) discovered that individuals primed with an entity theory of personality were more sensitive to stereotype consistent information, while individuals primed with an incremental theory were more sensitive to stereotype inconsistent information. Finally, Rydell et al. (2007) found that individuals in the entity condition perceived groups as more stereotyped than individuals in the incremental condition.

Entity and incremental theorists also have different ways of viewing the self. Entity theorists view the self as "a collection of fixed traits that can be measured and evaluated" while incremental theorists view the self as "a system of malleable qualities that is evolving over time" (Dweck & Leggett, 1988). These different conceptions of self can lead individuals to have

different ways of maintaining self-esteem. Nussbaum and Dweck (2008) found that following exposure to negative feedback as a form of self-esteem threat, individuals with an entity theory focused on making themselves feel better and repaired their self-esteem by conducting downward social comparisons. In contrast, incremental theorists focused on improvement and repaired their self-esteem by conducting upward social comparisons. Nussbaum and Dweck (2008) further explain that for entity theorists, self-esteem comes from validation of fixed competences while incremental theorists' self-esteem comes from assessment of acquired competences.

As I have shown, research has revealed many differences between individuals who hold an entity theory of personality and those who hold an incremental theory of personality in opinions, thoughts, and behaviours. Many of these differences can be induced when implicit theory is experimentally manipulated. However, none of this research addressed the impact that differences in implicit theory of personality may have on personal goals, which is the main focus of the current study. Before I can discuss the potential impact of theory of personality on personal goals, however, it is important to introduce important distinctions with respect to personal goals and to summarize pertinent empirical findings.

Personal Goals

Personal goals can be divided into two general categories: *intrinsic goals* and *extrinsic goals* (Kasser & Ryan, 1996). Extrinsic goals deal with outcomes outside the self, while intrinsic goals are strivings with internal rewards. Kasser and Ryan have identified three major extrinsic goals, *financial success*: a desire to be wealthy and materially successful, *popularity*: to be famous, well-known, and admired, and *image*: a desire to look attractive in terms of body, clothing and fashion. They have also identified four major intrinsic goals, *self-acceptance*: the

desire to achieve psychological growth, autonomy, and self-regard, *affiliation*: the desire to have satisfying relationships with family and friends, *community feeling*: the desire to improve the world through activism or generativity, and *physical fitness*: the desire to feel healthy and free of illness (Kasser & Ryan, 1996). Further, they discovered that extrinsic goals are pursued as a way to get to a desired outcome, either an external reward or the approval of others; they are a means to an end. For individuals to feel that they are successful in attaining an extrinsic goal, they are dependent on the judgment, praise and admiration of others. On the other hand, intrinsic goals are pursued because they are inherently satisfying. Success in intrinsic goals is connected to a sense of well-being, growth, and actualization. More importantly, intrinsic goals allow direct satisfaction of basic psychological needs while extrinsic goals direct individual's energy and attention away from need satisfaction.

Subsequent research conducted by Grouzet et al. (2005) has identified four additional life goals, *conformity*: the desire to fit in with other people, *safety*: the desire to ensure bodily integrity and safety, *hedonism*: the desire to experience sensual pleasure, and *spirituality*: the desire to search for spiritual or religious understanding. They also have proposed a second dimension to the classification of life goals. In addition to the intrinsic-extrinsic dimension, life goals can also be classified along a physical self to self-transcendence dimension. Physical self goals involve strivings for the individual including the fulfillment of personal desires and goals of personal benefit. On the other hand, self-transcendence goals deal with strivings for the collective, pursuing goals outside of the self that involve and benefit other people. The authors examined almost 2000 individuals from 15 different cultures and found that individuals' goals are organized along both the extrinsic to intrinsic axis and physical self to self-transcendence axis in such a way that they form a two-dimensional circumplex. In addition, individuals place

different values on the importance of pursuing each goal. Some individuals hold more intrinsic goals rather than extrinsic goals, while others hold more self-transcendence goals rather than physical self goals.

Implicit Theories and Personal Goals

Previous research (as illustrated below) suggests that individuals' implicit theories of personality may affect the way in which they prioritize their personal goals. More specifically, it seems that entity theorists may place greater priority than incremental theorists on extrinsic goals while incremental theorists would place greater priority than entity theorists on intrinsic goals.

Entity theory. Holding an entity theory has been connected with having a stable view of the self (Dweck et al., 1993). Since holding an entity theory implies having internal qualities that cannot change, I propose that individuals will put energy into qualities they feel they can control such as money, outward appearance, and clothing, that is, their financial success and image. Additionally, holding an entity theory has been linked to engaging in downward social comparisons and demonstrating and validating abilities to enhance self-esteem (Nussbaum & Dweck, 2008). I suggest that this creates an outward orientation where individuals are concerned with demonstrating their worth and leads to the adoption of extrinsic goals such as image, popularity, and financial success.

Additionally, individuals who hold an entity theory believe that people cannot change and, therefore, their actions will not have an effect on the character or situation of others. I propose that entity theorists may not prioritize intrinsic goals such as personal growth, working on relationships, or helping to build and grow a community. Preliminary evidence suggests that entity theorists favour a popularity goal over an affiliation goal (Erdley, Cain, Loomis, Dumas-Hines, & Dweck, 1997). When children were asked whether they would rather develop a

relationship with another child (e.g., “talk honestly about what you like and find out what the other child likes”) or impress them (e.g., “talking about all your friends to try and impress the child with your popularity”), entity theorists would rather impress the other child than develop a relationship (Erdley et al., 1997). Implicit theories are also related to involvement in volunteer activity (Karafantis & Levy, 2004). Children with an entity theory are less likely to volunteer to help disadvantaged children and less likely to enjoy the experience when prompted to volunteer (Karafantis & Levy, 2004). These results suggest that individuals who have an entity theory will place less importance on community and affiliation goals.

Incremental theory. In contrast to entity theory, individuals who have a strong incremental theory believe that the self is composed of malleable qualities. Incremental theorists believe that they can apply effort to improve their skills or change a situation (Dweck et al., 1993). They value personal and psychological growth and change for themselves and others and tend to hold learning goals and want to increase their skills (Dweck & Leggett, 1988). Therefore, I propose that this will lead incremental theorists to value intrinsic goals such as affiliation, self-acceptance, and community where a focus on growth and development is evident. Children with a predominately incremental theory demonstrated a preference to develop relationships rather than impress others (Erdley et al., 1997). Similarly, individuals who held an incremental theory experienced more positive attitudes toward volunteering to help disadvantaged children, perceived greater similarity between themselves and the children, displayed greater enjoyment of the volunteer activity, and evidenced higher levels of past volunteer behaviour (Karafantis & Levy, 2004).

Present Study

The present study will attempt to extend the research on implicit theories by investigating the relationship between implicit theories of personality and personal goals. Most of the research on implicit theories and goals has focused on achievement goals. However, previous research conducted in our lab has shown that holding an entity theory of personality is positively correlated with holding extrinsic goals and negatively correlated with holding intrinsic goals (Abrami & Grouzet, 2010; Grouzet, 2010). I hope to further explore this relationship by examining the impact of activating implicit theories of personality on personal goals to better understand whether the beliefs an individual holds can have an impact on his or her goal choices.

I will examine the question: Does activating different implicit theories of personality cause individuals to endorse different personal goals? An experimental design will be used to examine whether priming individuals with a specific implicit theory impacts their goal prioritization. More specifically, the effect of holding an entity theory vs. an incremental theory on personal goal prioritization will be examined. We hypothesize that individuals primed with an entity theory will place a relative higher importance on extrinsic goals (e.g., popularity, image and financial success) than individuals primed with an incremental theory. We also hypothesize that individuals primed with an incremental theory will place a relative higher importance on intrinsic goals (e.g., community, affiliation, and self-acceptance) than individuals primed with an entity theory.

Method

Participants

Participants were 138 undergraduate students from the University of Victoria who were enrolled in a psychology course and received bonus credit for participating in the study. Eight participants were eliminated from the analysis because they expressed suspicion about the legitimacy of the text or they did not complete the questionnaires. One participant was eliminated because they were an extreme outlier for age. The final sample consisted of 129 participants (39 males, 90 females) for the main analysis. The age of the sample ranged from 17 to 30 years ($M = 18.81$ years, $SD = 1.81$).

Procedure

Participants were seated at individual computer workstations and all components of the study were presented on the computer. Participants were told that the study was designed to evaluate their memory abilities after completing a self-reflection activity and that “self-reflection may facilitate memory formation of information learned close to the activity, even information that is unrelated to the self-reflection.” They were then randomly assigned to either an entity or incremental condition. Males and females were assigned to the conditions independently to ensure equal gender distribution into each group.

The study was presented to participants in six phases. First, participants were asked basic demographic questions. Next, they read an article associated with their experimental condition designed to prime an implicit theory of personality. The article took approximately 10 minutes to read. In the third phase, participants were asked to complete a series of reading comprehension questions: “Please summarize the main theme of the article in one sentence”, “What evidence described by the article to support its main theme did you find most convincing?” and “Please

describe an example from your own experiences that fits with the main theme of the article” (Molden, Plaks, & Dweck, 2006). The answers to these questions were not used for analysis but rather as reinforcement of the priming message and as a component of the cover story. Next, in the self-reflection phase, participants were asked to list their current personal goals in as much detail as possible and were presented with a series of goal prioritization questionnaires (goal ranking, goal rating single-item, goal rating multi-item). In the fifth phase, entitled memory evaluation, participants re-answered the reading comprehension questions from phase three and multiple choice questions about information in the article. For the final phase, they completed a manipulation and suspicion check.

Implicit theory manipulation. Articles were used to prime incremental and entity theories. In past research, these articles have been used successfully in priming an incremental and entity theory of personality (e.g., Chiu et al., 1997; Levy et al., 1998; Molden et al., 2006; Plaks et al., 2001; Rydell et al., 2007). Participants in the Entity condition were presented with an article entitled “Personality, like plaster, is pretty stable over time” which argues that personality is stable. Those in the Incremental condition received an article entitled “Personality is changeable and can be developed” which argues that personality is malleable. Both articles used multiple forms of evidence to support their claims including case studies, longitudinal studies, and intervention programs. For example a paragraph in the Entity article reads:

Similar conclusions were drawn by Dr. Paul Medin, a psychologist at the National Institute on Mental Health. In his speech at the American Psychological Association's annual convention held in Washington, D.C. in August, Dr. Medin argued that ‘in most of us, by the age of ten, our character has set like plaster and will never soften again.’ He

reported numerous large longitudinal studies which show that people age and develop but they do so on the foundation of enduring dispositions.

The same paragraph in the Incremental article reads:

Similar conclusions were drawn by Dr. Paul Medin, a psychologist at the National Institute on Mental Health. In his speech at the American Psychological Association's annual convention held in Washington, D.C. in August, Dr. Medin argued that 'no one's character is hard like a rock that cannot be changed. Only for some, greater effort and determination are needed to effect changes.' He reported numerous large longitudinal studies which show that people 'can mature and can change their character.' He also reported findings showing that people's personality characteristics can be changed even in their late sixties.

Manipulation and suspicion check. The Implicit personality theory questionnaire – other form was adapted from Erdley, Cain, Loomis, Dumas-Hines, and Dweck (1997) and was used as a manipulation check to assess individuals' entity theory of personality. It contains three items: "Do you agree that people have a certain personality, and it is something that they can't do much about?", "Do you agree that people's personality is something about them that they can't change very much?" and "Do you agree that either people have a good personality or they don't and there is really very little they can do about it?". Participants were asked to rate their agreement with each item on a 9-point scale ranging from (1 = very strongly disagree to 9 = very strongly agree).

Participants were also asked several questions about the study as a form of suspicion check: "In your view, how difficult was it to understand the article?" (1=not at all difficult to 9=extremely difficult), "How credible was the article?" (1=not at all credible to 9=extremely

credible) and “How persuasive was the article?” (1=not at all persuasive to 9=extremely persuasive).

Measures of Personal Goal Prioritization

Personal goal prioritization was measured in three ways: a multi-item scale that measured the importance of long term life goals, a single-item scale that measured the importance of present goals, and a goal ranking measure. We included three measures since we were interested in looking at the impact of the priming on both short term and long term goal importance as well as goal ranking.

Goal rating – multi-item. Participants were presented with the 70 item Aspiration Index which measures life goals and has several items assessing each goal (Grouzet et al., 2005; Grouzet & Kasser, 2007). Participants were asked to rate how important each goal was to them using a 9-point scale (1 = not at all important to 9 = extremely important).

Goal rating – single-item. Participants were presented with 13 goal statements one for each goal, adapted from the Aspiration index (e.g., *Affiliation* - To pursue satisfying and authentic relationships with family, friends, colleagues, and significant others; *Community feeling* - To contribute to the community’s well-being; *Self-acceptance* - To have a sense of self-acceptance and achieve personal growth; *Popularity* - To be very popular and well-known among those in your social circle or in the world; *Image* - To achieve and maintain an attractive physical appearance; *Financial Success* - To be financially successful and materially wealthy) (Dohadwala & Grouzet, 2009; Grouzet et al., 2005). After reading the goal statements, participants were asked to rate how important it would be for them to engage in each goal using a 9-point scale (1 = not at all important to 9 = extremely important).

Goal ranking. The same list of 13 goal statements was presented to participants. They were asked to rank order the goals based on how much they would like to pursue each goal (1= most want to pursue, 13= least want to pursue) using each number only once.

***A priori* Sample Size Calculations**

A pilot study was performed before starting the main study. Participants were 28 undergraduate students (5 males, 23 females) from the University of Victoria. The age for the sample ranged from 18 to 27 years ($M = 20.46$ years, $SD = 2.37$). The effectiveness of the experimental manipulation was examined using *t*-tests. Participants in the Entity condition had significantly higher scores on the entity belief scale ($M = 4.83$, $SD = 1.61$) than participants in the Incremental condition ($M = 2.76$, $SD = 1.14$), $t(26) = 3.93$, $p = .001$ ($r = .61$). When individual *t*-tests were performed for each goal, there were no significant differences ($p > .05$) between the conditions. However, participants in the Incremental condition had marginally significantly higher scores on their rating of self-acceptance ($M = 1.73$, $SD = 1.06$) than participants in the Entity condition ($M = 1.62$, $SD = 0.69$), $t(26) = -1.66$, $p = .109$ ($r = .31$). Using the effect size for self-acceptance, post-hoc statistical power was calculated to be 0.60 (Soper, 2011). An a-priori sample size calculation was then performed. To achieve a power level of 0.8, a minimum of 40 participants per condition (80 participants total) were required for the main study.

Results

The results are presented in two main sections. First, the effectiveness of the experimental manipulation will be examined by looking at group differences for the manipulation check. Next, the main hypothesis will be examined by looking at the impact of the experimental condition on each measure of personal goals in turn. Intercorrelations among the goal measures and descriptive statistics are presented in Table 1.

Table 1

Means, Standard Deviations, and Between-Person Intercorrelations of Aspiration Index, Goal Rating and Goal Ranking Scales.

Goal	<i>M</i>	<i>SD</i>	Correlation																	
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Aspiration index																				
1. Affiliation	8.22	0.88	---																	
2. Community Feeling	7.17	1.26	.48	---																
3. Self-acceptance	7.86	0.78	.48	.52	---															
4. Financial Success	5.98	1.56	.15	-.16	.04	---														
5. Popularity	5.13	1.70	.28	.23	.17	.51	---													
6. Image	5.03	1.68	.21	.04	.09	.70	.58	---												
Goal rating																				
7. Affiliation	8.40	1.03	.42	.32	.36	.09	.06	.06	---											
8. Community Feeling	6.73	1.81	.26	.74	.30	-.25	.10	-.17	.27	---										
9. Self-acceptance	7.87	1.47	.32	.32	.59	-.18	-.03	-.10	.28	.31	---									
10. Financial Success	6.25	1.67	-.01	-.19	.02	.75	.31	.48	.03	-.23	-.17	---								
11. Popularity	4.56	1.91	.20	.01	.06	.43	.68	.52	-.06	-.10	-.11	.34	---							
12. Image	5.77	1.66	.21	.02	.05	.56	.36	.76	-.01	-.18	-.05	.39	.45	---						
Goal ranking																				
13. Affiliation	7.88	3.58	.19	.05	.00	.06	.05	.01	.05	.06	.13	.09	.05	-.01	---					
14. Community Feeling	6.83	3.79	-.03	.04	-.15	.04	.04	.03	.05	.07	-.07	.04	-.04	.14	-.06	---				
15. Self-acceptance	7.79	3.67	-.02	-.01	.03	-.01	.08	.00	-.04	.07	-.01	-.13	-.03	-.08	-.20	-.02	---			
16. Financial Success	6.65	3.91	.09	.12	.21	-.07	-.04	-.11	-.01	.14	.21	-.16	.06	.00	-.05	-.11	-.12	---		
17. Popularity	6.41	3.79	.11	.16	.17	.09	.02	.15	.19	.06	.15	.08	.03	.16	.02	-.13	-.20	.04	---	
18. Image	6.66	3.74	.01	.10	.02	-.08	.01	-.06	-.06	.05	.00	-.03	.03	-.08	.10	-.03	-.12	-.07	-.15	---

Note. $N = 126$.

Absolute coefficient higher than .18 is significant at $p < .05$.

Implicit Theory Manipulation Check

The effectiveness of the experimental manipulation was examined using *t*-tests. On average, participants did not find the article difficult to understand ($M_{entity}=1.94$, $M_{incremental}=1.88$), and found it credible ($M_{entity}=6.68$, $M_{incremental}=6.67$), and persuasive ($M_{entity}=7.02$, $M_{incremental}=7.03$) (using a 9-point scale). There were no significant differences ($p > .05$) between the conditions on these measures. Correlations between entity beliefs and each of these indices of article believability were calculated (see Table 2). Participants in the Entity condition had significantly higher scores on the entity belief scale ($M = 5.15$, $SD = 1.68$) than participants in the Incremental condition ($M = 3.53$, $SD = 2.02$), $t(127) = 4.94$, $p < .001$ ($r = .40$).

Table 2

Between-Person Intercorrelations of Entity Beliefs and Article Difficulty, Credibility, and Persuasiveness.

Variable	Female				Male			
	Incremental (N=45)		Entity (N=45)		Incremental (N=21)		Entity (N=18)	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Difficulty of article	.09	.580	.06	.693	.04	.852	-.12	.642
Credibility of article	-.15	.320	.20	.180	.16	.477	-.38	.117
Persuasiveness of article	-.20	.179	.30	.043	.30	.192	-.24	.336

However different results emerged when separate *t*-tests were performed for each gender. On average, female participants had significantly higher scores on the entity belief scale in the Entity condition ($M = 5.28$, $SD = 1.70$) than in the Incremental condition ($M = 3.24$, $SD = 1.78$), $t(88) = 5.58$, $p < .001$ ($r=0.50$). However, male participants did not have significantly higher entity scores in the Entity condition ($M = 4.80$, $SD = 1.64$) than in the Incremental condition ($M = 4.14$, $SD = 2.38$), $t(37) = 0.98$, $p = .334$ ($r=0.16$). This suggests that the experimental

manipulation only worked for females and did not induce the desired implicit theory in males. There were no significant gender differences for ratings of article understanding, credibility or persuasiveness.

A 2 (Incremental vs. Entity) x 2 (male vs. female) ANOVA was conducted to further examine the effects of experimental condition and gender on entity beliefs. The main effect of experimental condition on entity beliefs was significant, $F(1, 125) = 14.50$, $MSE = 49.31$, $p < .001$ ($r = 0.32$). The main effect of gender on entity beliefs was not significant, $F(1, 125) = 0.33$, $MSE = 1.12$, $p = .568$ ($r = 0.05$). The interaction effect between the experimental condition and participant gender on entity beliefs was marginally significant, $F(1, 125) = 3.86$, $MSE = 13.12$, $p = .052$ ($r = 0.17$) (Figure 1). Post-hoc tests were then conducted to evaluate simple effects. The difference between the Entity and Incremental condition on entity beliefs was significant for females, $F(1, 125) = 27.66$, $MSE = 94.04$, $p < 0.001$ ($r = 0.49$), but not for males, $F(1, 125) = 1.22$, $MSE = 4.14$, $p = 0.272$ ($r = 0.18$) (see Table 3 for means). This indicates that males and females were affected differently by the experimental manipulation.

Therefore, gender will be included in the remainder of the analysis and planned comparisons will be conducted between the conditions for each gender. Since the experimental manipulation did not seem to have an impact on male participants, it is necessary to examine the results from female participants separately from male participants. If the results from both genders are considered together the overall F test may not be sensitive enough to yield significance (Keppel, 1991). Although contrasts are normally only performed after a significant interaction (Keppel, 1991; Tybout et al., 2001), it is permissible to disregard the overall F test and perform the contrasts if there is an *a priori* rationale for conducting the comparison (Keppel, 1991; Kirk, 1982; Winer, Brown, & Michels, 1991).

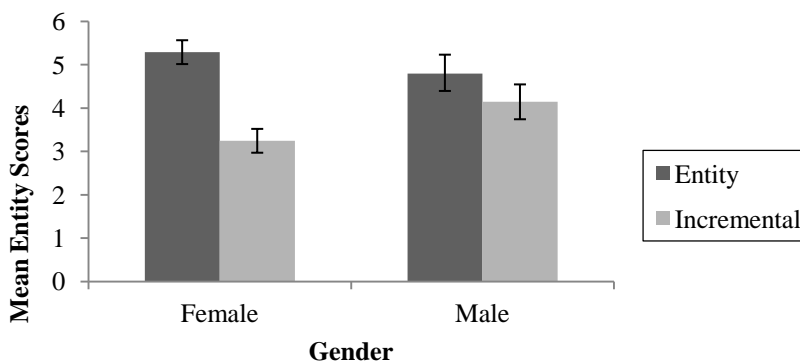


Figure 1. Interaction of gender and implicit theory manipulation on entity beliefs. Error bars represent standard error.

Personal Goal Prioritization

Descriptive statistics. The assumption of a normally distributed sampling distribution was then checked by examining whether the data was normally distributed. The data were split into two groups based on condition and histograms were examined for each goal. Standard tests such as the Shapiro-Wilk test of normality could not be used since this test is designed for continuous variables and goals were measured on a Likert scale. Based on the examination of the histograms it is not evident that the assumption of normality was violated. It is also known that parametric statistical tests are robust to this assumption violation when sample sizes are not small or unequal.

To ensure agreement between the three measures of goal prioritization, correlations were calculated among the measures (see Table 1). The multi-item measure of goal rating and the single-item measure of goal rating were found to be highly correlated (ranging from $r = .42$ to $r = .76$). However, other than the goal of affiliation, the multi-item measure of goal rating and the goal ranking scale were not significantly correlated (ranging from $r = -.07$ to $r = .19$). The single-item measure of goal rating and the goal ranking scale were also not significantly correlated (ranging from $r = -.16$ to $r = .07$).

Goal rating multi-item. In this measure the score for each goal represents the importance an individual places on that goal. However, I am interested in the prioritization of personal goals, so the relative importance of each goal needed to be calculated. This was achieved by transposing the scores into ipsative scores (Grouzet et al., 2005), by subtracting an individual's score for each goal from that participant's average score for the scale. These ipsative scores were used for the rest of the analysis.

The relationships between the intrinsic and extrinsic goals were confirmed by looking at the intercorrelations among the goals (Table 1). The three intrinsic goals (affiliation, community feeling, and self-acceptance) were significantly correlated to each other (ranged from $r = .48$ to $r = .52$) and had a Cronbach alpha coefficient of .72. The three extrinsic goals (popularity, image and financial success) were also significantly related to each other (ranged from $r = .51$ to $r = .70$) and had a Cronbach alpha coefficient of .81.

A 2 (Incremental vs. Entity) x 2 (male vs. female) MANOVA was conducted to examine the differences between the Entity and Incremental conditions when intrinsic goals were considered together and when extrinsic goals were considered together. Since the experimental manipulation affected the genders differently, gender was also included in the MANOVAs. Using Roy's largest root, the main effect of experimental condition on the importance participants placed on the extrinsic goals was not significant, $\Theta = 0.04$, $F(3, 123) = 1.56$, $p = .202$ ($r = 0.11$). The main effect of gender on the extrinsic goals was significant, $\Theta = 0.10$, $F(3, 123) = 3.93$, $p = .010$ ($r = 0.17$). The interaction of experimental condition and gender was not significant, $\Theta = 0.01$, $F(3, 123) = 0.47$, $p = .693$ ($r = 0.06$). A similar pattern was observed for the intrinsic goals. The main effect of experimental condition on the importance participants placed on the intrinsic goals was not significant, $\Theta = 0.02$, $F(3, 123) = 0.60$, $p = .619$ ($r = 0.07$).

The main effect of gender on the intrinsic goals was significant, $\Theta = 0.08$, $F(3, 123) = 3.17$, $p = .027$ ($r = 0.16$). The interaction of experimental condition and gender was not significant, $\Theta = 0.02$, $F(3, 123) = 0.98$, $p = .405$ ($r = 0.09$).

Several 2 (Incremental vs. Entity) x 2 (male vs. female) ANOVAs were performed to further explore the effect of gender and experimental condition on participant's rating of goal importance. The main effect of experimental condition was significant for financial success $F(1, 125) = 4.08$, $MSE = 6.75$, $p = 0.046$ ($r = .18$), but not for the other goals (see Table 3). The main effect of gender was significant for affiliation ($F_{1,125} = 4.95$, $MSE = 3.09$, $p = 0.03$, $r = .19$), community feeling ($F_{1,125} = 5.92$, $MSE = 5.63$, $p = 0.016$, $r = .21$), and financial success ($F_{1,125} = 10.59$, $MSE = 17.55$, $p = 0.001$, $r = .28$), marginally significant for self-acceptance ($F_{1,125} = 3.08$, $MSE = 1.74$, $p = 0.082$, $r = .15$) and popularity ($F_{1,125} = 3.14$, $MSE = 5.35$, $p = 0.079$, $r = .16$) and not significant for image ($F_{1,125} = 2.54$, $MSE = 4.66$, $p = 0.114$, $r = .14$). The interaction between experimental condition and participant gender was not significant ($p > .05$) for any of the goals.

Table 3

Means and standard deviations of entity beliefs and relative goal importance, using the multi-item goal rating measure, for males and females in the incremental and entity condition.

Variable	Female				Male			
	Incremental (N=45)		Entity (N=45)		Incremental (N=21)		Entity (N=18)	
	M	SD	M	SD	M	SD	M	SD
Entity beliefs	3.24	1.78	5.29	1.70	4.14	2.38	4.80	1.64
Affiliation	2.04	0.74	1.91	0.73	1.54	0.98	1.74	0.77
Community feeling	1.18	0.81	0.75	1.08	0.45	1.03	0.57	1.00
Self-acceptance	1.60	0.76	1.60	0.77	1.23	0.70	1.46	0.74
Popularity	-1.41	1.40	-1.33	1.32	-0.81	1.30	-1.04	0.98
Image	-1.63	1.35	-1.29	1.37	-1.19	1.37	-0.90	1.31
Financial success	-1.00	1.30	-0.26	1.31	0.48	1.36	0.31	1.10

Planned comparisons were then conducted to evaluate the impact of condition on each gender. Females rated financial success significantly more important when they were in the Entity condition compared to the Incremental condition ($F_{1,125} = 7.41$, $MSE = 12.28$, $p = 0.007$, $r = .24$), but males did not ($F_{1,125} = 0.39$, $MSE = 0.65$, $p = 0.531$, $r = .06$). Females also rated community feeling significantly less important when they were in the Entity condition compared to the Incremental condition ($F_{1,125} = 4.41$, $MSE = 4.41$, $p = 0.038$, $r = .18$), but males did not ($F_{1,125} = 0.16$, $MSE = 0.16$, $p = 0.686$, $r = .04$). These results illustrate that the significant main effect of experimental condition on financial success that was found using ANOVAs is only evident for female participants but not for male participants. Additionally, in the Incremental condition females rated affiliation ($F_{1,125} = 5.84$, $MSE = 3.84$, $p = 0.017$, $r = .21$), community feeling ($F_{1,125} = 8.14$, $MSE = 7.73$, $p = 0.005$, $r = .25$), and self-acceptance ($F_{1,125} = 3.41$, $MSE = 1.92$, $p = 0.067$, $r = .16$) significantly or marginally significantly more important than males. Females rated financial success ($F_{1,125} = 9.42$, $MSE = 15.62$, $p = 0.003$, $r = .26$) as significantly less important than males and popularity ($F_{1,125} = 3.01$, $MSE = 5.13$, $p = 0.085$, $r = .15$) as marginally significant less important than males. There were no significant differences ($p > .05$) between males and females in the Entity condition.

Goal rating single-item. Similar to the multi-item goal rating measure, an ipsative transformation was performed on ratings of goal importance and ipsative scores were used for the analysis. Several 2 (Incremental vs. Entity) x 2 (male vs. female) factorial ANOVAs were performed to explore the effect of gender and experimental condition on participants' rating of goal importance. The main effect of experimental condition was not significant for any of the goals (see Table 4). The main effect of gender was significant for community feeling ($F_{1,124} = 5.98$, $MSE = 16.04$, $p = 0.016$, $r = .21$), self-acceptance ($F_{1,124} = 12.08$, $MSE = 19.99$, $p = 0.001$,

$r = .30$), popularity ($F_{1,124} = 4.66$, $MSE = 13.05$, $p = 0.033$, $r = .19$) and financial success ($F_{1,124} = 7.88$, $MSE = 18.08$, $p = 0.006$, $r = .24$). The interaction between experimental condition and participant gender was not significant ($p > .05$) for any of the goals (see Figure 3).

Planned comparisons were then conducted to evaluate the impact of condition on each gender. Females rated financial success marginally significantly more important when they were in the Entity condition compared to the Incremental condition ($F_{1,124} = 3.68$, $MSE = 8.45$, $p = 0.057$, $r = .17$), but males did not ($F_{1,124} = 0.14$, $MSE = 0.33$, $p = 0.707$, $r = .03$). Additionally, in the Incremental condition females rated affiliation ($F_{1,124} = 4.21$, $MSE = 4.52$, $p = 0.042$, $r = .18$), community feeling ($F_{1,124} = 6.80$, $MSE = 18.21$, $p = 0.010$, $r = .23$), and self-acceptance ($F_{1,124} = 12.38$, $MSE = 20.47$, $p = 0.001$, $r = .30$) significantly more important than males. Females rated financial success ($F_{1,124} = 6.63$, $MSE = 15.22$, $p = 0.011$, $r = .22$) as significantly less important than males and popularity ($F_{1,124} = 3.25$, $MSE = 9.10$, $p = 0.074$, $r = .16$) as marginally significantly less important than males. There were no significant differences ($p > .05$) between males and females in the Entity condition.

Table 4

Means and standard deviations of relative goal importance, using the single-item goal rating measure, for males and females in the incremental and entity condition.

Personal goal	Female				Male			
	Incremental (N=44)		Entity (N=45)		Incremental (N=21)		Entity (N=18)	
	M	SD	M	SD	M	SD	M	SD
Affiliation	2.43	0.78	2.23	0.83	1.87	1.84	2.22	0.72
Community feeling	1.00	1.49	0.63	1.58	-0.13	1.73	0.22	1.98
Self-acceptance	2.07	1.14	1.85	1.10	0.87	1.74	1.33	1.44
Popularity	-1.93	1.64	-1.71	1.66	-1.13	1.57	-1.12	1.89
Image	-0.70	1.57	-0.35	1.30	-0.13	1.59	-0.23	1.48
Financial success	-0.50	1.61	0.12	1.50	0.53	1.55	0.72	1.24

Goal ranking. For the goal ranking scale, participants were asked to prioritize goals in order of importance. The Kruskal-Wallis test, a non-parametric alternative to the ANOVA, was performed to analyse the data. On average, individuals in the Incremental condition ($M = 5.95$, $SD = 3.83$) ranked financial success marginally more important than individuals in the Entity condition ($M = 7.29$, $SD = 3.94$), $H(1) = 3.48$, $p=0.062$. There were no other statistically significant differences ($p>.05$) between the conditions for the ranking of the goals. Separate Kruskal-Wallis tests were then performed for each gender. Males in the Incremental condition ranked popularity ($H_1 = 5.35$, $p=0.021$) and financial success ($H_1 = 4.94$, $p=0.026$) significantly more important than males in the Entity condition (see Table 5). There were no significant differences ($p>.05$) between the ranking of goals in the Entity and Incremental condition for females. The pattern of results was opposite to what we expected and did not match with what was found for the other scales.

Table 5

Mean and standard deviation of goal ranking for males and females in the incremental and entity condition.

Personal goal	Female				Male			
	Incremental (N=45)		Entity (N=45)		Incremental (N=20)		Entity (N=17)	
	M	SD	M	SD	M	SD	M	SD
Affiliation	7.93	3.70	7.98	3.43	7.10	3.70	8.47	3.54
Community feeling	7.07	3.91	6.40	3.67	6.95	3.82	7.24	3.88
Self-acceptance	8.38	6.68	7.20	3.46	8.05	3.56	7.71	4.31
Popularity	7.20	3.67	5.76	3.82	5.05	3.56	7.88	3.62
Image	6.47	3.63	7.16	3.49	7.00	4.33	5.29	3.82
Financial success	6.53	3.72	7.24	4.10	4.65	3.84	7.41	3.61

Note. Lower scores indicate greater importance.

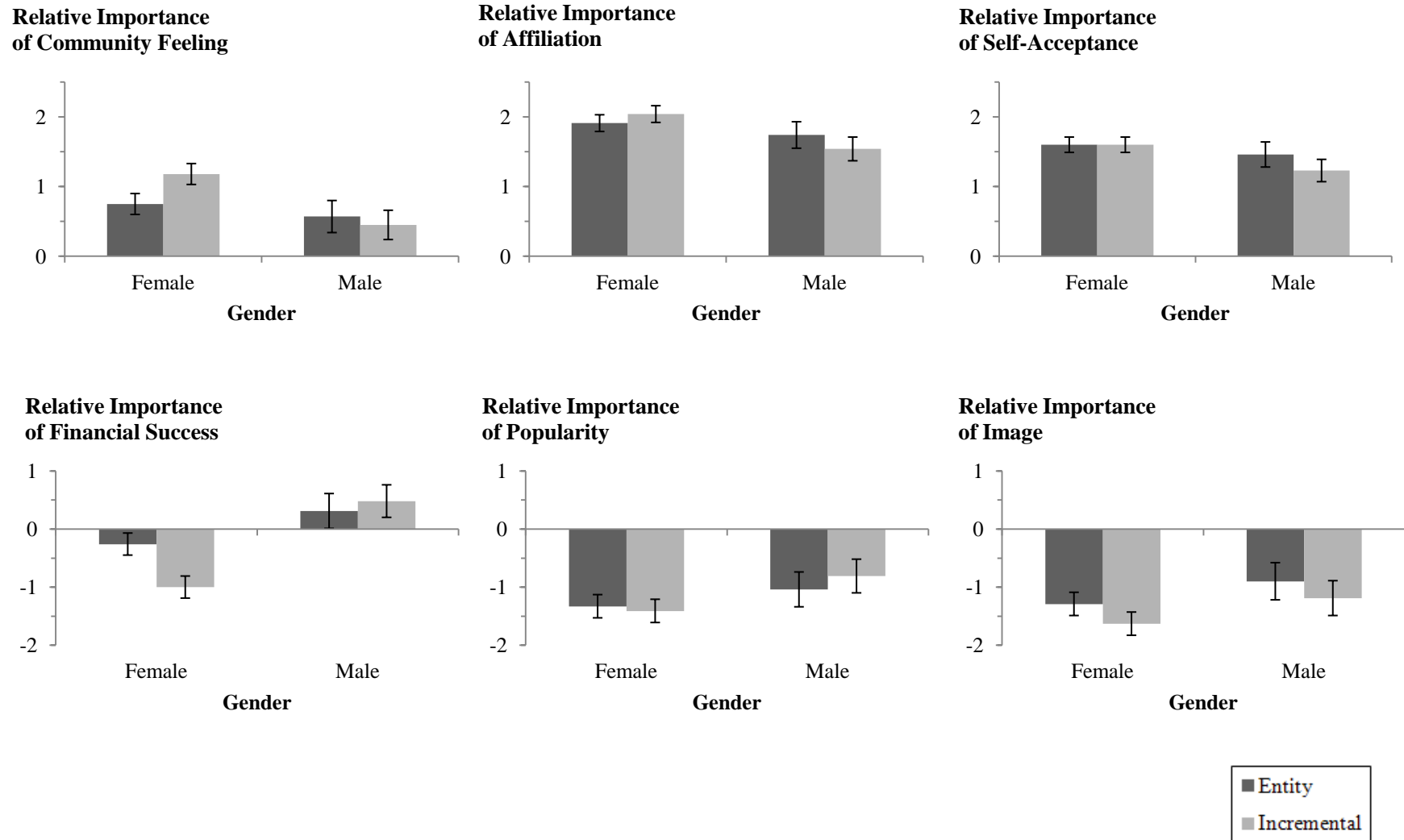


Figure 2. Interaction of gender and experimental condition on relative importance of goals (using the multi-item goal rating measure).

Error bars represent standard error.

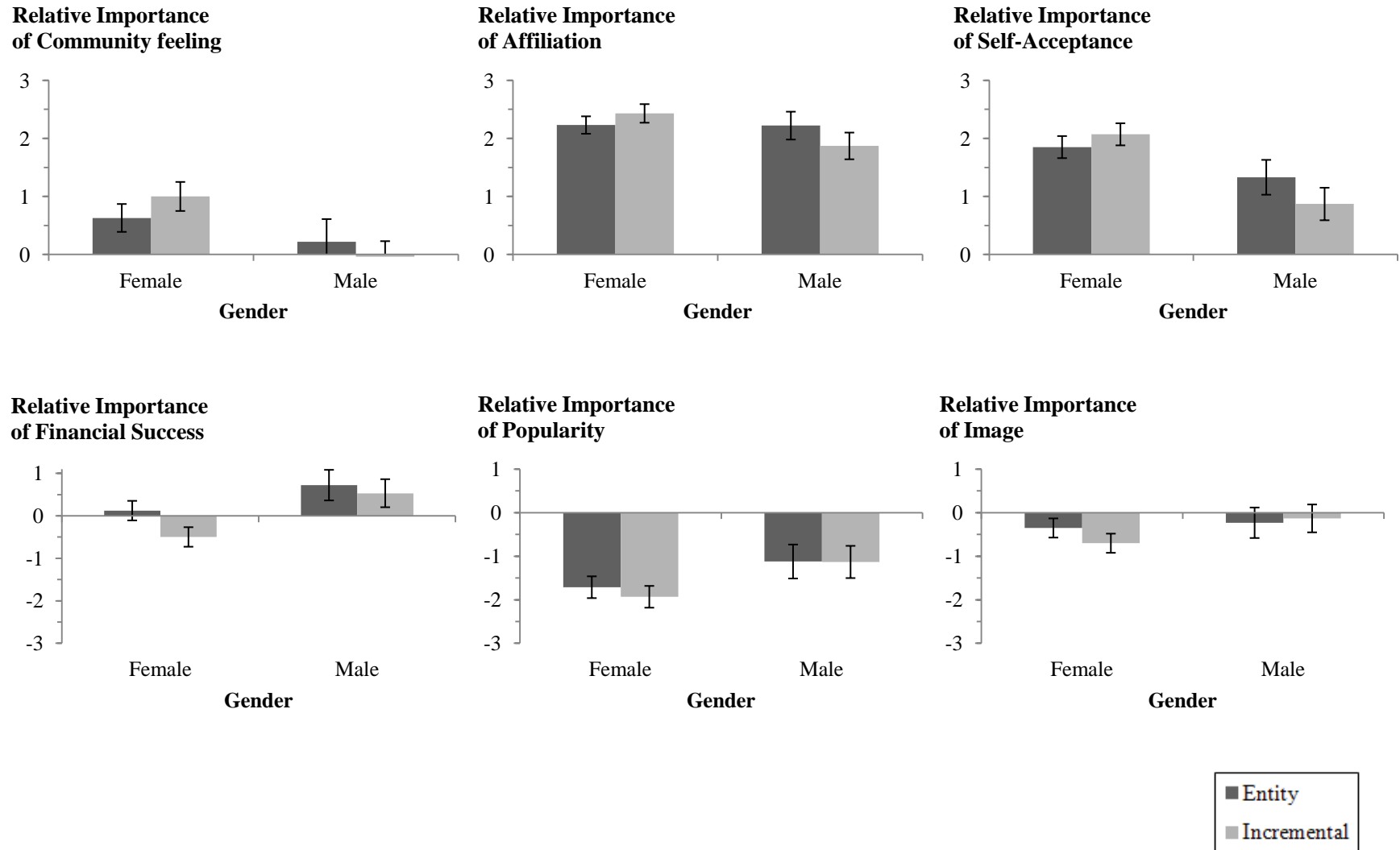


Figure 3. Interaction of gender and experimental condition on relative importance of goals (using the single-item goal rating measure).

Error bars represent standard error.

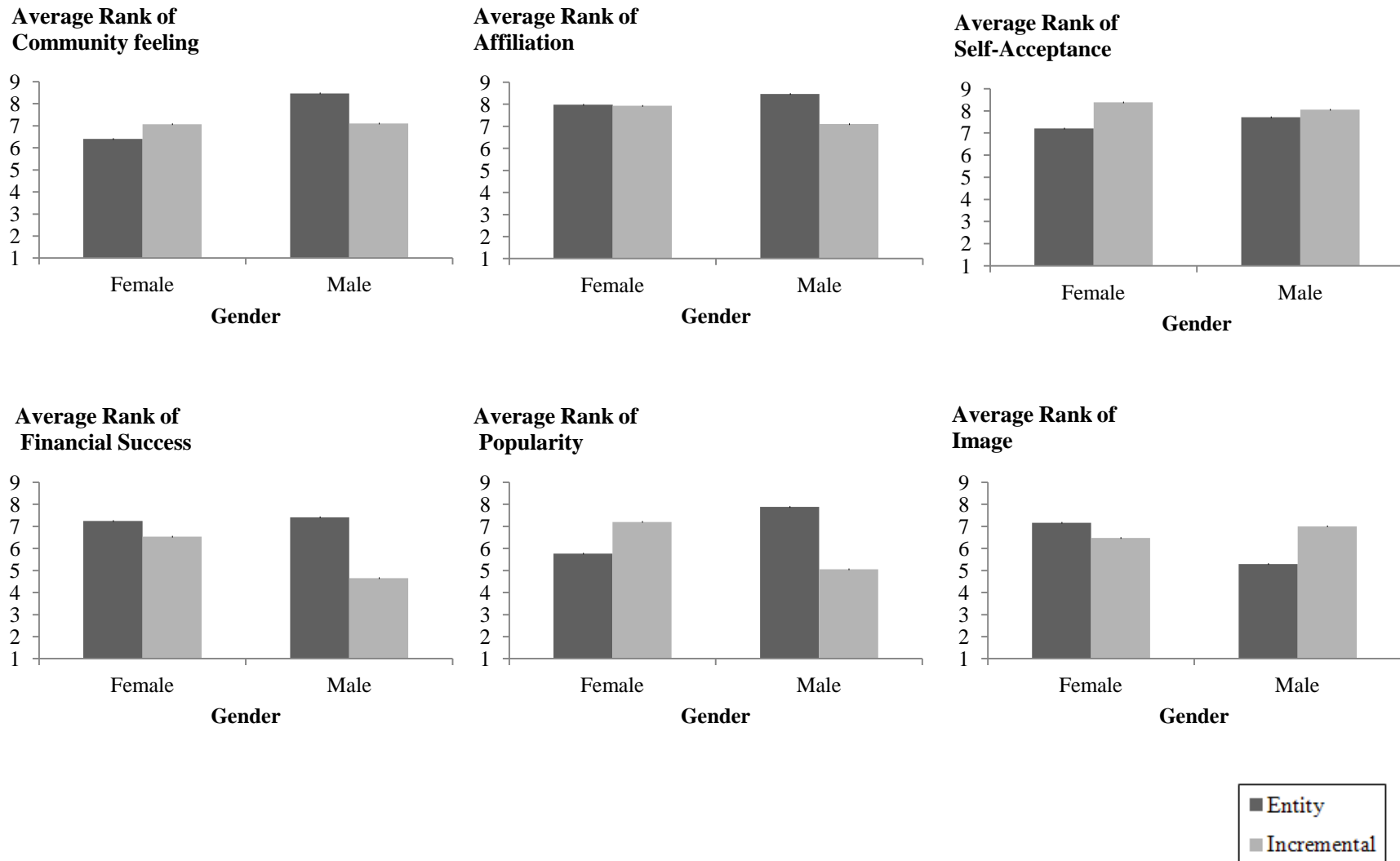


Figure 4. Means of goal ranking for males and females in the incremental and entity condition. Note. Lower scores indicate a greater priority, with 1 indicating the most important goal and 13 indicating the least important goal.

Discussion

The primary goal of the current study was to extend the research on implicit theories by investigating the relationship between implicit theories of personality and personal goals. An experimental design was used to examine whether priming individuals with a specific implicit theory may have impacted their goal prioritization. More specifically, an attempt was made to differentiate the effect of holding an entity theory vs. an incremental theory on personal goal prioritization. It was hypothesized that individuals primed with an entity theory would endorse extrinsic goals (e.g., popularity, image, and financial success) more strongly than individuals primed with an incremental theory, and that individuals primed with an incremental theory would endorse intrinsic goals (e.g., community, affiliation, and self-acceptance) more strongly than individuals primed with an entity theory. The results only partially supported this hypothesis but they provide a promising direction for future research. Although no firm conclusions can be drawn, some interesting results were observed, namely: (1) financial success was prioritized significantly higher by females in the Entity condition compared to those in the Incremental condition and community feeling was prioritized significantly higher by females in the Incremental condition compared to those in the Entity condition; (2) the experimental manipulation only induced significant changes in entity beliefs in females but not in males; (3) significant gender differences were observed in the prioritization of a number of goals; and (4) the three goal prioritization scales did not cohere with each other. These findings will be discussed below.

Goal Prioritization

We hypothesized that individuals in the Incremental condition would place greater priority on intrinsic goals than individuals in the Entity condition and that individuals in the

Entity condition would place greater priority on extrinsic goals than individuals in the Incremental condition. There were no significant differences in goal rating across conditions for male participants. However, these findings can be explained by the fact that the experimental manipulation did not seem to have an effect on males since their responses on the manipulation check did not differ across conditions.

In contrast, there were significant differences in goal rating across conditions for female participants. When using the multi-item goal rating scale, female participants rated the importance of financial success significantly higher in the Entity condition compared to the Incremental condition and rated the importance of community feeling significantly higher in the Incremental condition compared to the Entity condition. Additionally, even though the results were non-significant, the pattern of results for the other goals was in the expected direction for females. The intrinsic goals were judged more important in the Incremental condition compared to the Entity condition and the extrinsic goals were judged more important in the Entity condition compared to the Incremental condition (see Figure 2).

In other words, when primed with an entity theory of personality, females placed a greater priority on financial success. Activating an entity theory made salient the idea that personal characteristics and internal qualities cannot change, so they cannot be improved or enhanced. Therefore, female participants may desire to demonstrate their objective value to society by placing greater importance on external markers of success and focus on proving their worth rather than attempting to improve it. Financial success may have increased in priority in the Entity condition because it is seen by society as a marker of achievement, so female participants may want to pursue it to demonstrate their value and worth. Conversely, when an incremental theory of personality was activated, financial success was not as highly prioritized

since the idea that personality can change was made salient. In the Incremental condition, female participants did not need to demonstrate their objective worth. They could take comfort in the knowledge that they can put effort into changing their personality if they want to increase their value to society.

Instead, they placed greater importance on community feeling. This may have made them more willing to fix the problems that they encounter and work toward making their community a better place because they feel they can help make change happen. On the other hand, when an entity theory is activated, female participants are less likely to prioritize the goal of community feeling and so they may not direct their actions towards fixing problems they encounter or helping their community. These results are consistent with previous research (Karafantis & Levy, 2004) on implicit theories which found that children with an entity theory are less likely to volunteer and less likely to enjoy the experience when prompted to volunteer than children with an incremental theory. These findings provide partial support for the view that individuals are more willing to help others change when they adopt an incremental theory than when they adopt an entity theory.

The present results also provide encouraging but incomplete evidence that a relationship exists between an implicit theory of personality and personal goal prioritization. Directionality of this relationship was determined through an experimental framework. Specifically, results revealed that activating a particular theory caused changes in the way individuals prioritize their goals.

Gender Differences in Experimental Manipulation

In the present study, participants read an article supporting either a malleable or fixed view of personality in order to prime an incremental or entity theory. To ensure that the desired

implicit theory was successfully primed, participants completed a manipulation check at the end of the study that measured how much they agreed with statements that expressed an entity theory of personality. It was expected that participants in the Entity condition would agree more strongly with the statements than participants in the Incremental condition, and this was what was found for female participants. However, there was no significant difference between the conditions for male participants. In fact, the average scores for male participants in both conditions were in between the average female score for the Entity and Incremental condition (see Table 1). Additionally, for males, there were no significant differences between the conditions on the relative importance of any of the goals. Therefore, it appears that the priming did not work for male participants. This result is puzzling as it seems that males did not find the articles less believable or harder to understand than females, evidenced by the lack of significant differences between genders or condition on article understanding, credibility, or persuasiveness.

However, when examining the correlations between entity beliefs and article credibility and persuasiveness, it seems males may have a different reaction to the articles than females. In the entity condition females' endorsement of entity beliefs was positively correlated with the perceived credibility and persuasiveness of the article, while in the incremental condition they were negatively correlated. In other words the more credible and persuasive females found the article the more they endorse beliefs that corresponds to it. With male participants the opposite pattern of results was found. The endorsement of entity beliefs was negatively correlated with the perceived credibility and persuasiveness of the article in the entity condition but positively correlated in the incremental condition. The more credible and persuasive male participants found the article the less they agreed with the belief it advocated. These results suggest that male

participants seem to exhibit reactance against the evidence and conclusions that were proposed in the article.

A review of the literature does not reveal any gender differences for implicit theories. When gender was examined in relation to implicit theory, there were no significant differences between males and females on intelligence (e.g., Ahmavaara & Houston, 2007), ability (e.g., Li, Harrison & Solmon, 2004), or personality (e.g., Karafantis & Levy, 2004). There were also no significant effects involving gender in studies that primed an entity and incremental theory of intelligence (Da Fonseca et al., 2008; Nussbaum & Dweck, 2008; Plaks & Stecher, 2007), ability (Cury et al., 2008; Spray et al., 2006), or personality (Chiu et al., 1997). It does not seem that there is a substantive theoretical reason for the failure to obtain significant effects for males. More likely, the unusual results are methodological in nature.

The non-significant results for males may be a statistical artefact of the study related to power, as there were only 39 male participants compared to 90 female participants. Perhaps some of the males were outliers on a characteristic that was not measured. Another possibility is that there was something about the way in which the instructions of the study were framed or presented that caused male participants to be less affected by what they were reading than female participants. It is also possible that priming by written instruction is just not sufficient in all circumstances to elicit changes in goal preferences. A further possibility is that for some of the males (those who found the articles particularly convincing) the opposite theory was activated by the article. In order to determine whether an actual gender difference exists, the study would need to be replicated with a larger male sample, variations in instructions, and variations in measures.

Gender Differences in Goal Prioritization

The analysis of the manipulation check revealed that males and females responded differently to the priming procedure. Regardless of experimental condition, notable gender differences were found for goal prioritization, with females rating the intrinsic goals significantly more important and the extrinsic goals significantly less important than males. These results are consistent with previous research as numerous studies have found that females rate the importance of intrinsic goals higher than males, while males rate the importance of extrinsic goals higher than females (e.g., Kasser & Ryan, 1993, 1996; Romero, Gomez-Fraguela, & Villar, 2011; Vansteenkiste, Duriez, Simons, & Soenens, 2006).

When experimental condition was taken into account, a different pattern of results emerged. In the Incremental condition, females rated the intrinsic goals significantly more important and extrinsic goals significantly less important than males. In the Entity condition, there were no significant gender differences. This pattern was observed for both single and multi-item goal rating scales. These results make sense when we consider that males had lower ratings for intrinsic goals and higher ratings for extrinsic goals than females, and that males did not seem to respond to the priming procedure. In the Incremental condition, males did not change their rating of goals across goal type. Females, on the other hand, increased their rating of intrinsic goals and decreased their rating of extrinsic goals. These differences explain the goal rating differences between genders in the Incremental condition.

In the Entity condition, males again did not change their goal ratings. However, females increased the importance they placed on extrinsic goals and decreased the importance they placed on intrinsic goals. This decreased the difference in goal rating between the genders and

put women's ratings of intrinsic and extrinsic goals at about par with men's ratings, resulting in the finding of a non-significant difference between the genders.

It seems that activating an implicit theory of personality in females is causing them to rate goals in a similar fashion to males who do not respond to theory activation. It is possible that males normally have beliefs that orient them to extrinsic goals, potentially in the form of male stereotypes or gender roles. However, it is only an assumption, based on a lack of a significant difference between conditions on the manipulation check, that males were responding as they would if they had not been exposed to a priming message. Therefore, one cannot draw any strong conclusions from these data since there is no male control group that was not exposed to a priming message. However, this could be an interesting area for future research.

Inconsistencies among Goal Prioritization Measures

Three measures of goal prioritization were used in this study, two rating measures and one ranking measure. The goal ranking measure was not correlated with either of the two goal rating measures. In past research on personal goals, when both a goal ranking and a goal rating scale were used, there was much better agreement between the scales (intrinsic goals $r=.68$, extrinsic goals $r=.65$.) than in the current study (Kasser & Ryan, 1996). With the goal ranking scale, very different results were found than with the two rating scales. It was found that males ranked popularity and financial success significantly more important when they were in the Incremental condition compared to the Entity condition. In contrast, females did not significantly differ in their ranking of goals across the Entity and Incremental conditions. The pattern of results was opposite to what was expected and did not match with the results of the other scales. Additionally, affiliation was given the least important rank of the six goals, with financial success and popularity rated near the top. This is completely contrary to what was found with the

rating scale, where the intrinsic goals were always rated higher than the extrinsic goals. It seems strange that affiliation would be consistently rated above average by participants and yet be at the bottom of the average goal rank. Regardless of condition, all the goals had an average rank around the middle of the range. There were 13 goals in the ranking scale and most of the ranks averaged around 6 or 7 (range of 4.65 to 8.47). In previous research a much greater range of average ranks (2.83 to 12.82) was found and affiliation was consistently ranked as the most important goal (Ryan, Chirkov, Little, Sheldon, Timoshina, & Deci, 1999). In the current study it seems that participants expressed no clear ranking preferences, nor were there ranking patterns emerging among the goals. All goals seemed to have ranking averages in the middle of the range. This caused a restriction of range problem attenuating intercorrelations and potentially reducing treatment effects. Perhaps the participants were confused by the instructions, some of them ranking the goals in the opposite order, or perhaps they were unable to differentiate between the goals and ranked them without thought. Another possibility is that the instructions downplayed the importance of the self-reflection task because it stated that its purpose was to facilitate memory formation. As a result, participants might have thought that their answers to the questionnaires were unimportant.

Limitations

As with any psychology experiment, this study has a number of limitations. One of the largest limitations pertains to the experimental manipulation. It is concerning that the priming did not work as expected on male participants. I have no definitive explanation as to why the priming seems to have been ineffective, since there is no evidence of gender differences in the literature. Additionally, since implicit theories were not measured before participants read the article; it is not known whether an individual's prior implicit theory had an impact on the

strength of the experimental activation. It is possible that the activation was only successful for individuals who already held a dominant theory that agreed with the article and did not function as effectively for individuals who held a theory opposite to the article.

Another potential limitation of the study is the lack of statistical power. It is possible that the sample size was not large enough to observe significant priming effects. Sample size for the study was calculated based on the results of a power calculation from the pilot study. In the pilot study, the largest effect size was found for self-acceptance ($r = .31$), and this effect was used to determine the sample size necessary to have a power of .8 for the main study. However, in the main study there was no significant difference in self-acceptance, so the estimation of effect size may have been in error. For the significant results that were obtained, power ranged from .41 (community feeling) to .65 (financial success), which was much lower than the .8 I had hoped to achieve. In addition, there were not a sufficient number of males to make appropriate comparisons between males and females.

The lack of generalizability of the study is a further limitation. A student population was used for convenience, and was fairly homogenous in age ($M_{\text{age}} = 18.81$ years, $SD = 1.81$). Previous research has found that age can have a significant impact on goal prioritization, with a tendency toward intrinsic goals increasing with age (Sheldon, Houser-Marko, & Kasser, 2006). Thus, different results might have been found if a younger or older population was used. Additionally, the participants were all fairly well educated (having completed some university) and were likely to be high in socio-economic status (SES). It was suggested earlier that participants in the entity condition may desire to demonstrate their objective value to society by placing greater importance on external markers of success and focusing on proving their worth so they may place greater priority on extrinsic goals. However, it is possible that individuals with

low SES believe they do not have objective success that they can demonstrate. Additionally, if their basic needs for food and shelter are not met these goals may become a greater priority than any of the other. It is therefore possible that implicit theory activation would have a different impact on goal prioritization with a different sample containing less educated or lower SES individuals.

A further limitation is the lack of a control group. In the literature, many studies have employed a priming procedure to successfully activate implicit theories. The majority of the studies, at least 40, used an entity group and an incremental group with no control group. (e.g., Hong et al., 2004; Plaks & Stecher, 2007; Poon & Koehler, 2006). I wanted to use the same procedure as had been effectively used in past studies. However, due to the lack of a control group, it is unknown whether financial success increased in priority when participants were in the Entity condition or whether it decreased in priority when participants were in the Incremental condition. Additionally with a control group it could have been determined whether the manipulation had any impact on male participants by comparing their responses on the manipulation check to a condition that received no manipulation.

Future Directions

While the current investigation established several links between implicit theories and personal goals, there is still much research that needs to be done. Future research should take some of the limitations of the current study into account. To begin with, this study should be replicated with a larger sample to increase the power with an equal number of males and females so that gender effects can be better examined. Additionally, a control group should be added to measure whether goals are increasing or decreasing in priority depending on implicit theory activation. Perhaps individuals' implicit theory should be measured in an earlier session so that

we can ascertain whether the strength of previous beliefs has an impact on the activation of implicit theory.

Theoretical constructs always have numerous operationalizations. Therefore, it is important to examine a variety of methods for priming or otherwise eliciting entity or incremental beliefs, such as the use of oral instructions, video clips, or subliminal priming. Similarly, personal goals may take many forms, and their expression and measurement should be undertaken with a variety of assessment practices, including hypothetical scenarios and behavioural measures. Finally, the notion of external validity or generalizability across persons and settings is important to consider in future studies. Research could be conducted using a community sample so as to include a wider range of SES, education, age or more generally experience, and cultural context. An intervention program could be developed which, instead of temporarily activating a theory, would attempt to more permanently alter an individual's implicit theory to be more incremental and hopefully lead to a long term increase in the prioritization of intrinsic goals.

Future studies could also examine potential mediators between implicit theories and goals. Holding an entity theory may lead to an outward orientation where extrinsic goals are adopted in order to demonstrate objective social value. This connection has not yet been investigated. Similarly, holding an incremental theory may lead people to think they can help bring about change in others, which leads them to adopt the intrinsic goal of community feeling. This mediation pathway could also be tested in future studies. Finally, holding an incremental theory of personality may lead an individual to prioritize intrinsic goals which in turn may lead to greater wellbeing. Researchers have discovered that intrinsic goals allow direct satisfaction of the basic psychological needs that are necessary for optimal growth and enhanced wellbeing,

while extrinsic goals direct energy and attention away from need satisfaction and lead to lower wellbeing (Kasser & Ryan, 1996; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004). A future study could examine the relationship between implicit theory and wellbeing directly, with intrinsic goal endorsement and psychological need satisfaction as mediators.

Conclusion

The current study was a first step in examining the impact that activation of entity and incremental theories of personality has on the prioritization of personal goals. The results show that a relationship exists between implicit theory of personality and personal goal preferences, and that activating a particular theory causes changes in the way individuals prioritize goals. More specifically, activating an entity theory of personality caused an extrinsic goal, financial success, to increase in priority and activating an incremental theory of personality caused an intrinsic goal, community feeling, to increase in priority. In addition, the current study established a link between implicit theories and the determinants of personal goals. Knowing the determinants of personal goals may allow us to influence the goals that individuals hold, leading them towards more intrinsic goals, and thus greater wellbeing. There are clearly many exciting avenues of research that can be derived from the results of this research. The current study is an exciting first step into a new line of research linking implicit theories of personality to the prioritization of personal goals. When fully mapped out and explored, this line of research has the potential to have positive applications in interventions and be a rich source for theory.

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