

**LISTEN TO YOUR PRIDE: INFORMATIONAL INFLUENCE OF AUTHENTIC PRIDE
ON ACHIEVEMENT SUCCESS**

by

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Abstract

Although the emotion authentic pride is thought to promote achievement, it remains unclear exactly how it facilitates concrete performance outcomes. In five studies, we tested the informational value of authentic pride in achievement contexts. Studies 1-5 showed that authentic pride fluctuates based on achievement outcomes, among individuals who had taken an achievement test—and in some cases had not yet learned their scores—and adults training for long-distance running races. Studies 3-5 demonstrated that individuals who feel low authentic pride change their achievement behaviors (e.g., exam study habits or race training plans) in an effort to attain future success, and Study 4 showed that these changes are beneficial; individuals who had performed poorly on a class exam, and who changed their studying habits in response to low levels of authentic pride, performed better on subsequent exams. Together, these studies demonstrate that authentic pride is a barometer of achievement, and that listening to one's authentic pride facilitates optimal achievement.

Preface

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Chapter 1: Introduction

A wealth of everyday wisdom tells us to use our emotions as a source of information when appraising life circumstances. For example, when we contemplate the future course of a romantic relationship, a friend might counsel us to *follow our heart*, meaning that we should attend to our emotional feelings regarding our potential partner. Similarly, if we are debating about a large potential purchase, or seeking the answer to a difficult exam question, we might be urged to *trust our gut*, meaning that we should attend to our emotional feelings of favorability toward the given product or answer choice. These anecdotes point to the ubiquity with which humans explicitly rely on informational emotion-based cues when making decisions, evaluations, and appraisals regarding themselves and others. In short, when faced with a conundrum, the first question we often ask is “*how do I feel about it*” (Schwarz, 1990).

Psychologists have long recognized the informational value of emotion-based cues in guiding individuals’ appraisals in a variety of domains, such as our knowledge (Hart, 1965), identities (Higgins, 1987), social status (Leary, Tambor, Terdal, & Downs, 1995), and life satisfaction (Schwarz & Clore, 1983). Researchers have proposed distinct but similar mechanisms by which different classes of emotions provide informational value. On one hand, a substantial body of research supports the notion that positive emotions will facilitate functional subsequent behavior. Positive emotions lead to appraisals of one’s environment as safe and conducive to the pursuit of rewards and goal opportunities (Schwarz, 1990), and empirical evidence has shown that positive emotions and the associated approach motivational temperament facilitate appetitive goal pursuit (Carver & White, 1994; Elliot & Thrash, 2002). Similarly, control-process theories of emotion suggest that negative emotion will facilitate functional downstream behavior; negative emotions signal dissatisfactory aspects of one’s

current situation, whether in the form of environmental threats or discrepancies between current and desired goal states, and subsequently promote behavioral strategies oriented toward changing one's situation for the better (Carver & Scheier, 1990; Schwarz, 1990; Simon, 1967).

The aim of the present research was to test the functional downstream consequences of emotion-based appraisals by examining the informational influence of authentic pride on achievement success. Authentic pride, a form of pride resulting from the attribution of success to one's own effort (Tracy & Robins, 2007; Weiner, 1985), is thought to have evolved as a mechanism for promoting achievement and, consequently, social status in humans (Cheng, Tracy, & Henrich, 2010; Tracy, Shariff, & Cheng, 2010)¹. Yet little is known about the process through which authentic pride promotes achievement, and few empirical studies have demonstrated authentic pride's functional downstream effects on achievement. In a series of five studies, we tested whether authentic pride promotes achievement success, across two distinct contexts: academic and athletic. In line with control-process accounts, we predicted that authentic pride would inform individuals of their current level of success, and subsequently promote changes in achievement-oriented behavior. We further predicted that changes in achievement-oriented behavior informed by authentic pride would in turn promote improvements in performance for people who previously performed poorly; specifically, we predicted that low feelings of authentic pride would predict improved future performance, and that this relation would be mediated by changes in achievement-oriented behavior.

¹ Authentic pride is distinct from hubristic pride, a form of pride arising from a grandiose sense of self-importance and superiority over others, which has not been theorized or shown to promote achievement (Cheng et al., 2010; Tracy & Robins, 2007; Tracy et al., 2010). We will therefore primarily discuss authentic pride as a functional mechanism promoting achievement, though in all studies reported we will explicitly examine whether this function is stronger in authentic pride than hubristic pride.

1.1 Emotions, Achievement, and Status: An Evolutionary Perspective

Evolutionary theories contend that psychological mechanisms can be considered adaptations if they are optimally designed to increase an individual's fitness by solving a specific environmental problem (Andrews, Gangestad, & Matthews, 2002). Emotions are viewed as psychological adaptations in that they facilitate goal attainment in fitness-relevant domains; emotions arise in response to environmental signals of opportunities or challenges, and initiate a sequence of coordinated action tendencies, motivations, and behaviors that are meant to either capitalize on the opportunity or solve the specific challenge (Fridja, 1988; Keltner & Gross, 1999; Tooby & Cosmides, 1990). Self-conscious emotions, in particular, are seen as psychological adaptations in that they help individuals solve the environmental challenge of attaining social status and acceptance in the eyes of their social group (Tracy & Robins, 2004). One key route by which individuals attain social status is through engaging in instrumental achievement behavior; individuals who achieve—through demonstration of skills, knowledge, and expertise that provide value to their social group—attain prestige-based social status, as social groups confer prestige-based status largely on the basis of appraisals of others' competence (Anderson & Kilduff, 2009a; Cheng, Tracy, Foulsham, Kingstone, & Henrich, 2013; Henrich & Gil-White, 2001; Littlepage Schmidt, Whisler, & Frost, 1995). Importantly, individual differences in social status are known to have a substantial influence on reproductive success (Barkow, 1975; Beltzig, 1986; Hill, 1984; Hill & Hurtado, 1996), suggesting that emotions that promote prestige-based status attainment should increase human fitness. In sum, by regulating their achievement-oriented behaviors, individuals can increase their group's perceptions of their competence, attain prestige-based status, and thereby increase their fitness.

1.2 How does Achievement Behavior Facilitate Prestige-Based Status?²

Individuals who frequently engage in achievement-oriented behavior attain prestige-based status in multiple domains. High-achieving individuals attain higher-prestige jobs—a marker of competence—than individuals who do not frequently exert achievement behavior (Crockett, 1962); this effect is especially pronounced for individuals who come from low socioeconomic status backgrounds, suggesting that exercising achievement behavior helps individuals ascend the status hierarchy. A large body of evidence has also demonstrated that individuals high in conscientiousness—a personality trait characterized by frequent enactment of achievement behaviors (Roberts, Bogg, Walton, Chernyshenko, & Stark, 2004; Roberts, Chernyshenko, Stark, & Goldberg, 2005)—demonstrate numerous indices of competence. Conscientious individuals tend to achieve higher occupational status (Judge, Higgins, Thoresen, & Barrick, 1999; Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007) and experience greater academic success (Poropat, 2009; Richardson, Abraham, & Bond, 2012). The tendency for high achievers to demonstrate greater competence has been shown in small-scale societies; a survey of peasants from a Colombian farming community who were the heads of their respective households found that high achievers demonstrated more innovative farming practices and a greater desire to expand their production, and in turn garnered higher levels of prestige and a more positive reputation in the eyes of others (Rogers & Neill, 1966). The cross-cultural emergence of the achievement-status link suggests that achievement behavior may represent a universal route by which humans attain status.

² Although the majority of evidence in this section comes from research on dispositional achievement motivation and conscientiousness, current personality theorists argue that traits are no more than labels for frequently enacted states (e.g., an individual high in achievement motivation frequently enacts achievement-related behavior; Cramer et al., 2012; Fleeson, 2001). As a result, the downstream effects of dispositional achievement motivation in a given context—to which much of the reviewed evidence pertains—can be viewed as tantamount to the effects of exercising or regulating multiple discrete achievement-related behaviors.

1.2.1 Mechanisms by which Achievement Promotes Status

Regulating achievement involves exerting motivation and effort in problem-solving and performance contexts, and indices of motivation and effort allow one to create the impression of competence in others' eyes (Anderson & Kilduff, 2009b; Bottger, 1984; Littlepage et al., 1995; Sorrentino & Boutillier, 1975). A substantial amount of research has demonstrated that conscientious individuals exert more effort and persistence in achievement contexts than less conscientious individuals (Corker, Oswald, & Donnellan, 2012; Sansone, Weibe, & Morgan, 1999). Effort and persistence in turn predict success in achievement contexts (Richardson et al., 2012), and research has demonstrated a causal pathway whereby conscientiousness predicts achievement success through its influence on effort expenditure (Corker et al., 2012).

Regulating achievement also involves adopting optimal strategies to maximize problem-solving efficiency; in addition to working hard, high achievers tend to work smart (McClelland, 1961; 1987). High achieving individuals utilize a keen sense of whether or not a context presents an opportunity for success, and will engage or disengage based on their perceived probability of success (Feather, 1961). For example, high achievers will respond to initial perceptions of success with increased effort and persistence, suggesting they have a nose for opportunity (Feather, 1966); in contrast, high achievers will exert low levels of effort if they receive feedback indicating likely failure, indicating a desire to move on to a task that offers a greater likelihood of success (Feather, 1963). Importantly, individuals who are less adept at regulating achievement behavior will tend to persist in the face of unsolvable challenges (Feather, 1963), suggesting a weaker ability to sense when an achievement contexts presents an opportunity to demonstrate competence (Feather, 1961).

Achievement efficiency and effort expenditure are further facilitated by the adoption of certain types of achievement goals. Achievement motivation leads individuals to adopt mastery-approach achievement goals, which are characterized by the pursuit of learning and success judged by one's own internal standards (Elliot & McGregor, 2001). Individuals who adopt mastery-approach achievement goals immerse themselves in learning opportunities, question accepted information, and devote substantial cognitive effort to understanding theories and concepts (Elliot et al., 1999). As a result, adoption of mastery achievement goals are associated with perceiving achievement activities as positive challenges (Elliot & Harackiewicz, 1996), as well as increased intrinsic motivation for learning (Elliot & Church, 1997; Elliot & McGregor, 2001).

Achievement motivation also leads individuals to adopt performance-approach achievement goals characterized by a desire to demonstrate competence in the eyes of others' normative standards (Elliot & McGregor, 1997). Individuals who adopt performance-approach goals attempt to acquire knowledge in an optimally efficient manner (e.g., memorizing facts, ideas, and definitions), with less regard for the depth with which they understand the information (Elliot, McGregor, & Gable, 1999). This strategy of maximizing knowledge acquisition has been shown to lead to excellent performance in evaluative achievement contexts (Elliot & Church, 1997; Elliot & McGregor, 2001), and similarly may better equip individuals to demonstrate knowledge in group contexts in which their competence is being evaluated (Anderson & Kilduff, 2009b; Gintner, & Lindskold, 1975; Sorrentino & Boutillier, 1975). The link between performance-approach goals and achievement efficiency may be due in part to the arousal of high achievers' competitive fire; when achievement opportunities are construed as enjoyable challenges, individuals who adopt performance-approach goals exert more effort and experience

more success due to a strong desire to demonstrate their competence to others (Elliot & Harackiewicz, 1996). Importantly, the relation between achievement behavior and knowledge acquisition has been demonstrated in small-scale societies, again suggesting the universality of the achievement-status link; in one study, farmers in rural Indian villages were exposed to a telecast detailing cutting-edge irrigation methods, and high achievers tended to recall a greater number of facts from the telecast as well as to disseminate more information to others (Sinha & Mehta, 1972).

Regulating achievement behavior also promotes perceptions of competence by engendering confidence in one's own abilities. High achievers tend to have more confidence in their abilities to succeed in achievement contexts (Elliot & Church, 1997; Elliot & McGregor, 2001), and confidence in turn creates an impression of competence in others' eyes (Anderson & Kilduff, 2009b; Littlepage et al., 1995; Sorrentino & Boutillier, 1975). On one hand, confidence engenders success at achievement tasks; appraisals of the probability that one will succeed on a challenging task are positively related to the extent to which the individual actually succeeds (Feather, 1965). Additionally, however, confidence engenders perceptions of competence in the absence of actual skills or knowledge (Anderson & Kilduff, 2009a). Confidence leads individuals to contribute more information to group problem solving efforts (Anderson & Kilduff, 2009b; Littlepage et al., 1995), and contributions in turn increase others' perceptions of the individual's competence.

In sum, exercising and regulating achievement behavior promotes the attainment of prestige-based status by increasing others' perceptions of an individual's competence. Individuals who are more adept at regulating achievement behaviors obtain better jobs, succeed in academic settings, and produce more in small-scale agricultural societies, and this is

accomplished through exerting effort and persistence, employing efficient learning strategies, adopting achievement goals, and displaying confidence in one's abilities.

1.3 How does Emotion Promote Achievement? Informational Mechanisms

Emotions are thought to promote goal-directed behavior through informational mechanisms. Similar informational accounts have been proposed with respect to both positive and negative emotions. Positive emotions inform individuals that their environment is safe, and thus conducive to goal-directed behavior (Schwarz, 1990). In line with this account, researchers have long viewed positive emotion as forming the emotional core of approach temperament, conceptualized as a neurobiological sensitivity to respond to the presence of rewarding stimuli by engaging in active goal-directed behavior (Carver & White, 1994; Elliot & Thrash, 2002). Under the temperament perspective, positive emotion is theorized to provide information regarding the feasibility and level of reward associated with goal pursuit, and to subsequently exert a motivational push to engage in goal-directed behavior if feasibility and reward are high.

In support of this account, research has demonstrated that positive emotion leads individuals to rely on dominant, easily accessible heuristics (Isbell, Lair, & Rovenpor, 2013), which are sensible strategies to employ when one's environment contains no threats (Schwarz, 1990). Similarly, research has shown that positive emotion leads individuals to adopt salient goals; individuals primed with a goal (e.g., health; affiliation) more frequently engage in behaviors consistent with that goal (e.g., exercising self-control; befriending others) when they are experiencing positive emotion than when they are experiencing negative emotion. (Huntsinger & Sinclair, 2010; Fishbach & Labroo, 2007). Finally, positive emotion has been shown to increase cognitive engagement with salient goals; individuals experiencing positive emotion generate more thoughts and ideas in service of their goals (Murray, Sujan, Hirt, &

Sujan, 1990). When people use their positive emotion as an informational signal that the goal-related task is enjoyable, engaging, and rewarding, increases in goal directed behavior follow (Hirt, Melton, McDonald, & Harackiewicz, 1996; Martin, Ward, Achee, & Wyer, 1993).

Similarly, negative emotions are thought to motivate goal pursuit by signaling a discrepancy between an individual's current and desired state (Leary, Tambor, Terdal, & Downs, 1995; Simon, 1967), or when an individual is not making sufficient progress toward his or her desired state (Carver & Scheier, 1990; Hsee & Abelson, 1991; Larsen, 2000). The specific content of the current and desired state can take different forms, such as a) progress made toward a goal and successful realization of that goal (Carver & Scheier, 1990; Hsee & Abelson, 1991; Simon, 1967); b) a momentary affective feeling and a desired affective feeling (Larsen, 2000; Schwarz & Clore, 1983); and c) a momentary level of inclusionary status and a desired level of inclusionary status (Leary et al., 1995). Regardless of the specific domain in question, individuals who perceive a discrepancy between their current and goal state will experience negative emotional outcomes (e.g., unpleasant affect, low self-esteem), and will subsequently feel a motivational push to increase their pursuit of the given goal state.

In support of this account, individuals who experience negative emotion have been shown to exert effort in trying to understand the causes of their feelings (Schwarz & Clore, 1983), presumably in an effort to identify strategies by which they would down-regulate negative emotions (Larsen, 2000; Schwarz, 1990). Similarly, individuals who perceive unpleasant feelings of low self-esteem as signals that they have been excluded from a social group tend to engage in strategies meant to ameliorate their feelings, such as derogating individuals who excluded them (Leary et al., 1995). Finally, individuals who experience negative emotion regarding their health

habits (e.g., smoking) have been shown to report intentions to change their subsequent health behaviors (e.g., smoke fewer cigarettes; Schwarz, Servay, & Kumpf, 1985).

1.3.1 When Might Negative Emotions Facilitate Goal Pursuit?

Informational theories of emotion and goal pursuit leave open the question of which circumstances might lead either positive or negative emotions to most strongly motivate goal-directed behavior. One important variable appears to be the presence or absence of a direct referent or cause of the emotion. Discrete emotions are thought to arise when feelings are causally attributed to a specific sequence of events, and are thereby assumed to have a direct referent (Ellsworth & Scherer, 2003; Roseman & Smith, 2001; Tracy & Robins, 2007). In contrast, moods and affect are thought to be free-floating, object-less phenomenological states that are not attributed to a specific causal chain of events (Larsen, 2000; Russell, 2003; Russell & Barrett, 1999).

Importantly, much of the evidence demonstrating the informational influence of positive emotion on goal-directed behavior has examined moods and affect (e.g., Fishbach & Labroo, 2007; Hirt et al., 1996; Martin et al., 1993). In these and similar investigations, positive feelings were induced prior to the beginning of the experiment and remained present throughout a series of tasks; as a result, individuals presumably did not attend to the specific causes of their positive feelings while completing subsequent goal-relevant tasks. Informational accounts of emotion suggest that conditions such as these—in which feelings have no clear referent—allow positive emotions to influence appraisals; in the absence of a clear cause of one's feelings, individuals will erroneously infer that these feelings must pertain to currently salient activities (Schwarz, 1990). In contrast, when individuals are cued to attend to the specific causes of their positive

emotions, they will immediately discount their informational value, and as a result these emotions will cease to influence goal-directed behavior (Schwarz, 1990).

Negative emotions, in contrast, are thought to exert informational influences on goal-directed behavior primarily when they have a clear referent. For example, discrete negative emotions such as fear have been shown to prompt compensatory health-related behaviors only when individuals are explicitly aware that the fear arose as a signal conveying a fault in their health habits (Schwarz et al., 1985). Importantly, when individuals were led to believe that fear arose due to a pill, they showed no subsequent compensatory health behaviors. In sum, whereas positive emotions seem most likely to promote goal attainment when they are free-floating, existing evidence suggests the possibility that negative emotions may be most likely to promote goal-directed behavior when they are perceived as arising specifically in response to a present goal failure or shortcoming.

1.4 Informational Mechanism Linking Authentic Pride to Achievement³

Authentic pride has been theorized to represent a psychological adaptation that evolved to promote social status by motivating individuals to engage in socially valued achievement behaviors (see Tracy et al., 2010, for a review). Indeed, chronic experience of authentic pride has been shown to promote attainment of prestige-based status within social groups, in part because individuals prone to experiencing authentic pride tend to show high levels of agentic and prosocial traits such as conscientiousness, agreeableness, and extraversion, and tend to be viewed as competent across numerous social and intellectual domains (Cheng et al., 2010). What

³ Although some of the research cited in this section was conceptually framed as examining the relation between self-esteem and achievement, the measures used to assess self-esteem were very similar to the empirically validated authentic and hubristic pride scale (Tracy & Robins, 2007). For example, McFarland & Ross (1982) operationalized self-esteem with adjectives such as *proud* and *confident* as well as *egotistic* and *boastful*. Similarly, Sigall & Gould (1979) operationalized self-esteem with the single item *confident*. Finally, Heatherton & Polivy (1991) operationalized self-esteem with short phrases representing individuals' current feelings, and these phrases included terms such as *confident* and *smart*.

remains unclear is the mechanism by which authentic pride promotes social status; empirical research has yet to demonstrate authentic pride in action as it influences individuals' status attainment.

Theoretical accounts of the informational influence of emotions on goal attainment suggest a mechanism through which authentic pride could provide an informational influence on achievement. This model, which mirrors the control-process model outlined previously (Carver & Scheier, 1990; Larsen, 2000; Leary et al., 1995; Simon, 1967) involves several steps. First, an individual uses feelings of authentic pride as a barometer to gauge whether he or she succeeded on a prior achievement activity. Second, the individual uses those feelings of authentic pride to guide preparation for subsequent achievement activities; if high authentic pride is experienced, the individual plans to prepare similarly in an effort to maintain success, whereas if low authentic pride is experienced, the individual plans to prepare differently in an effort to improve performance. Third, the individual's subsequent performance is determined by whether he or she carries out the appropriate preparation; if an individual who experiences low authentic pride changes his or her preparations, improved performance is expected, whereas an individual who maintains similar performance in the face of low authentic pride is expected to continue perform poorly. Importantly, poor achievement performance can result from either a) incorrect usage of authentic pride to gauge prior performance, or b) failure to implement the preparation strategies suggested by authentic pride.

Previous research has suggested that pride is an accurate barometer by which individuals determine whether or not they are succeeding in achievement endeavors. Individuals who experience an achievement success and attribute this success to internal forces have been shown to experience high levels of authentic pride, and this effect has been shown both when

individuals are given live feedback on an achievement activity (Heatherton & Polivy, 1991; McFarland & Ross, 1982; Williams & DeSteno, 2008) or when individuals recall emotional reactions to life events (Tracy & Robins, 2007; Weiner et al., 1979). This prior research suffers from two shortcomings, however. First, the majority of these studies have measured pride with unvalidated scales that contain adjectives which are ambiguous as to which facet of the pride experience they represent. Despite theoretical accounts of authentic pride, as opposed to hubristic pride, as arising following actual achievement success (Tracy & Robins, 2007), when employing adjectives such as *proud*, researchers cannot determine whether their research participants are responding based on feelings of authentic pride or hubristic pride, given that the word *proud* falls at the semantic boundary of those two phenomenological feelings (Tracy & Robins, 2007, pp. 510). By introducing such conceptual ambiguity in individuals' responses, the use of unvalidated scales in emotion research renders reported findings somewhat less interpretable (Weidman, Steckler, & Tracy, in prep). Second, many of these studies have examined retrospective reports of pride; for example, individuals might be asked to recall their feelings from the last time they received a good grade on an exam (Weiner, Russell, & Lerman, 1979) or simply to think of the most recent time they experienced pride (Tracy & Robins, 2007). Retrospective reports of emotional experiences often correspond more strongly to beliefs about emotional experiences than actual emotional experiences (Robinson & Clore, 2002), such that individuals sometimes report more intense emotions when simulating an abstract scenario than when thinking about present feelings (Robinson & Clore, 2001). As a result, reports of pride in response to recalled or simulated scenarios may overestimate actual pride experienced in response to success.

Several studies have previously demonstrated that the experience of authentic pride is associated with achievement behaviors, such as increased effort and persistence devoted to

challenging activities (Sigall & Gould, 1977; Williams & DeSteno, 2008), and an increased sense of self-efficacy and goal-congruence when completing achievement tests (Herrald & Tomaka, 2002). Similarly, one study showed an association between pride and a concrete achievement outcome; students who experienced pride early in an academic semester performed better on exams later in the semester (Pekrun et al., 2009). Despite providing preliminary evidence for the link between authentic pride and achievement, these studies also suffer from several limitations. First, the majority of them do not demonstrate an explicit link between pride and concrete achievement outcomes, merely showing that individuals who experience pride tend to engage in behaviors and cognitions theoretically associated with performance. Second, the one study showing an association between pride and a concrete performance outcome (i.e., exam grades; Pekrun et al., 2009), was entirely correlational and did not specify a mechanism as to how pride promoted achievement. These findings leave open the question of whether pride promotes performance by exerting a direct, instrumental effect on engagement with achievement behaviors (e.g., those who experience high levels of pride work harder when studying), or whether pride provides an informational influence on achievement (e.g., those who feel low levels of pride adjust their achievement behaviors based on this feedback). Finally, the majority of these studies also employed unvalidated measures of pride that contained only one or two items, and as a result the content of these measures did not clearly map onto the psychological content of authentic pride (cf., Weidman et al., in prep).

1.5 Authentic Pride, Self-Esteem, and Confidence Judgments: Jangle Fallacy?

One critique that could be levied against the hypotheses we plan to test is that they are not novel; namely, the effects have already been demonstrated, though in research purporting to examine constructs such as *self-esteem*, the degree to which one possesses competencies in

certain personally valued domains (Harter, 1990), or *confidence judgments*, the degree to which one feels confident in his or her knowledge of a piece of information (Hart, 1965), rather than authentic pride. Indeed, many studies have demonstrated a link between achievement and both self-esteem and confidence judgments. Regarding self-esteem, studies have shown that students who experience success in achievement contexts tend to perceive themselves as possessing the requisite skills to succeed in the future (Guay, Marsh, & Boivin, 2003), and research has demonstrated that perceiving oneself as possessing worthwhile abilities in a given domain promotes concurrent intrinsic motivation (Vallerand & Reid, 1984), effort (MacIver, Stipek, & Daniels, 1991), willingness to work on future tasks (Harackiewicz, 1979), and performance (Bouchey & Harter, 2005), as well as academic success across multiple years (Guay et al., 2003). Regarding confidence judgments, research has shown that individuals' ratings of confidence (or *feeling-of-knowing*) fluctuates in response to level of knowledge of performance on an achievement test (Hart, 1965; Keleman et al., 2000; Metcalfe & Weibe, 1987; Nelson et al., 1982; Schachter & Worling, 1985). Additionally, research has shown that feelings of confidence predict which strategies individuals use to prepare for subsequent tests (Dunlosky & Ariel, 1999; Metcalfe, 2009; Thiede, 1999), and that accurate calibration between confidence judgments and actual knowledge can in turn predict improved performance (Hartwig, Was, Isaacson, & Dunlosky, 2011; Mengelkamp, & Bannert, 2010; Nietfeld, Cao, & Osborne, 2006; Thiede, Anderson, & Therriault, 2003).

Despite the similarity between the effects previously demonstrated for self-esteem and confidence judgments and those demonstrated in the present research, we see authentic pride as distinct from both self-esteem and confidence judgments, and do not view the present research as a manifestation of the *Jangle Fallacy*, or the use of two separate words or expressions to refer to

the same construct or entity as though they were actually different (Kelley, 1927, pp. 64). Authentic pride and self-esteem differ principally in the scope of the events that elicit them. Authentic pride, in both prior research and the present research, has been operationalized by measuring individuals' endorsement of certain adjectives with respect to their immediate feelings regarding a specific event. In contrast, self-esteem has generally been operationalized by measuring individuals' overall appraisals of their ability in a given domain (e.g., Bouchev & Herter, 2005; MacIver et al., 1991), or as perceived feelings of ability presumed—rather than measured—to have arisen following an indication that one has performed well (e.g., Harackiewicz, 1979). Of course, as noted previously, there have also been instances in which researchers have conceived of self-esteem as a transient feeling resulting from an appraisal of a specific event, but in these cases self-esteem has been measured similarly to authentic pride (Heatherton & Polivy, 1991; McFarland & Ross, 1982; Sigall & Gould, 1979).

Authentic pride and confidence judgments are more difficult to disentangle, given that confidence judgments are frequently operationalized with a single item *confident*, which is one of the items on the authentic pride scale (Tracy & Robins, 2007). However, we feel that they differ slightly in their referent. Authentic pride, as in the current research, is operationalized as a feeling that follows a discrete event, such as authentic pride arising due to one's performance on an exam. In contrast, confidence judgments are operationalized as appraisals of one's degree of either present (e.g., Hart, 1965; Mengelkamp & Bannert, 2010) or future (e.g., Keleman et al., 2000; Thiede, 1999) knowledge of a given piece of information, and as a result can be viewed as a meta-cognitive appraisal more akin to *certainty* than a phenomenological state akin to authentic pride. Though the possibility exists that cognitive appraisals of certainty and phenomenological

feelings of pride may exert similar informational and motivational effects, we view the two as fundamentally different states.

In sum, existing literature points to a link between the experience of authentic pride—a construct distinct from both self-esteem and confidence judgments—and achievement, but leaves several questions unanswered. First, although individuals appear to experience pride following successful achievements that are attributed to internal causes, it is unclear whether the pride arising following success represents a pure manifestation of authentic pride, and whether these feelings arise following real-life achievements in addition to recalled events. Second, although the experience of pride seems to be associated with behaviors that promote achievement, it is unclear whether the behaviors engendered by pride actually lead to concrete performance outcomes and, if so, what mechanism links pride to success

1.6 Present Research

In the present research, we tested the overarching hypothesis that a) authentic pride is a functional barometer that individuals use to gauge their current level of achievement; b) that individuals will use authentic pride to change their achievement behavior to increase the probability of future success; and c) that authentic pride-driven changes in achievement behavior will lead to improved performance. In Studies 1 and 2, we tested the first part of this hypothesis by assessing individuals' feelings of authentic pride in response to success or failure on a high-stakes achievement test. We predicted that individuals who experienced success on an achievement test would experience more authentic pride than individuals who performed poorly. If authentic pride is a barometer of success, we should expect it to fluctuate in response to performance in real-life achievement contexts.

In Studies 3 and 4, we tested all three components of this hypothesis. We assessed individuals' feelings of authentic pride following success or failure on an achievement test, their subsequent plans regarding preparation for future, similar achievement tests, and their actual performance on those subsequent achievement tests. We predicted that individuals who had performed poorly on the tests would experience low levels of authentic pride, and as a result would change their studying behaviors for subsequent exams. We also predicted that authentic pride-driven changes in preparation would predict improved performance for individuals who had previously performed poorly. If authentic pride is indeed a psychological adaptation meant to promote achievement and status, we should expect it to predict concrete, downstream performance indices.

Finally, in Study 5, we tested the first two components of this hypothesis in the domain of athletic achievement. In a sample of adults training to complete long-distance running events, we assessed individuals' feelings of authentic pride regarding their training progress following a month of preparation, and assessed their plans to change their training habits over the subsequent month. We predicted that individuals who had failed to meet their training goals or had encountered setbacks in their training would experience low levels of authentic pride, and as a result change their training behaviors for the subsequent month. If our model linking authentic pride to achievement is to be seen as a comprehensive theory of emotions and goal pursuit, we should expect it to generalize across multiple achievement domains.

Chapter 2: Study 1

2.1 Method

2.1.1 Participants One-hundred thirty-nine undergraduate students participated in exchange for partial course credit. One participant did not complete all measures, leaving a final sample of 138 (71% female; M age = 20.21; SD = 2.48).

2.1.2 Procedure Participants completed the study in groups of 2 to 8 individuals (M = 6.20; SD = 1.72)⁴, who were seated in a classroom facing an overhead projector screen, and a research assistant who sat at the front of the classroom. Participants were told that the study was being conducted in collaboration with the University of British Columbia admissions office, and that they would be taking an intelligence test as a means of establishing scoring norms against which to compare incoming high school applicants to the university. After taking the test, they were told, the group would go through answers to each question together, so that each participant could evaluate his or her performance against others. Throughout the study, the first author—who was introduced as a co-worker from the admissions office—sat alongside the research assistant, apparently taking notes while monitoring participants as they completed the study. Our cover story, as well as the presence of the first author, constituted an attempt to create an atmosphere in which participants felt that they were partaking in high-stakes achievement testing.

Participants first completed a measure of trait pride, and then an achievement test. Following the intelligence test, the research assistant reviewed the answers to each test item aloud; participants were required to mark their answers as correct or incorrect with red pen, and to publicly raise their hands for each correct answer. These procedures were taken to ensure that

⁴ All reported results were re-analyzed holding group size constant at its mean, and all remained conceptually and statistically identical.

participants' emotional reactions to the task closely mirrored the emotions they would experience in an evaluative context in which their competence was judged. Finally, participants completed a measure of pride with respect to their performance on the intelligence test.

2.1.3 Measures

2.1.3.1 *Pride.* Authentic and hubristic pride were each assessed with 7-item subscales of the Authentic and Hubristic Pride scales (Tracy & Robins, 2007). To measure trait pride, participants reported the extent to which they generally feel each scale adjective ($\alpha = .87$ for both facets). To measure test-specific pride, participants reported the extent to which they felt each scale adjective regarding their performance on the intelligence test ($\alpha = .95$ for authentic pride; $\alpha = .90$ for hubristic pride). Both measurements used a 5-point rating scale (1 = not at all; 5 = extremely).

2.1.3.2 *Achievement test.* A 20-item version of the Raven's Progressive Matrices (RPM; Raven, 1941) was used as our measure of intelligence. For each item, a patterned array of geometrical figures with one figure missing was presented on the overhead projector. Participants' task was to select, out of eight options presented, the single geometrical figure that best completed the pattern. Participants were given 30 seconds to solve each item and mark their answers on an answer sheet, and a running timer was always visible on the projector screen. The Raven's Progressive Matrices, which is known to index intelligence, was used here because performance is not contingent on English language proficiency, and our sample included participants who did not speak English as a first language (Raven, Raven, & Court, 2003).

2.2 Results

2.2.1 Is Authentic Pride a Barometer of Success? Participants tended to perform well on the intelligence test but displayed substantial variability ($M = 13.99$ or 70%; $SD = 3.51$; Range: 1-

19)⁵. To test whether authentic pride functioned as a barometer for participants' performance on the intelligence test, test-specific authentic pride was regressed onto test performance. Trait authentic pride was included as a covariate, given that we were interested in the extent to which fluctuations in authentic pride gauge performance, independent of dispositional levels of authentic pride. As predicted, intelligence test performance positively predicted test-specific authentic pride ($\beta = .40, t(135) = 5.24, p < .001, CI_{95} = [.25 \text{ to } .52]$)⁶, holding trait authentic pride constant at its mean. In contrast, when holding trait hubristic pride constant, intelligence test performance showed a much smaller positive relation with test-specific hubristic pride, and this relation did not reach the traditional level of statistical significance ($\beta = .14, t(135) = 1.70, p = .09$). To more formally test whether authentic pride was a stronger barometer of success than hubristic pride, these two standardized regression coefficients were transformed to semi-partial correlation coefficients, and were compared using Fisher's r to z transformation. The two semi-partial correlation coefficients differed significantly from one another ($z = 2.30, p = .021$), suggesting that authentic pride was a stronger barometer of success than hubristic pride.

2.3 Discussion

In Study 1, we demonstrated the basic pride-as-barometer effect: students who performed well on a high-stakes achievement test experienced greater authentic pride than students who performed poorly, independent of dispositional levels of authentic pride. We showed that the informational influence of pride on achievement is stronger for authentic pride than hubristic

⁵ We relied on participants marking their own answers as correct or incorrect as a way to calculate their scores. However, the first author checked a random sample of 10% of participants' answer sheets and found no evidence of participants lying about their scores (e.g., marking an answer as correct when it was in fact incorrect).

⁶ Unless otherwise noted, all confidence intervals for standardized regression coefficients were calculated using the bias-corrected accelerated bootstrap method with 5,000 resamples. Confidence intervals for indirect effects in Study 4 were calculated using the percentile bootstrap method with 5,000 resamples, given that the percentile method has been shown to perform better when calculating indirect effects (Biesanz, Falk, & Savalei, 2010).

pride, and we demonstrated the informational influence of pride in response to a real-life, high-stakes achievement test.

Study 1 had some limitations, most notably that we used a relatively strong method to elicit authentic pride: students graded their own performance on an achievement test and were given public feedback on that performance, making them fully aware of their actual level of performance, as well as how it was viewed in the eyes of their peers (i.e., other students participating in the study). In Study 2, we attempted to again demonstrate the pride-as-barometer effect, in this case by examining authentic pride arising from a more subtle form of external feedback regarding one's achievement success. Individuals were given feedback from an unknown experimenter, and had no way of verifying the accuracy of their performance report, thereby raising the possibility that individuals would not experience as strong of an emotional reaction to their performance. We nevertheless hypothesized that authentic pride would act as a barometer of success in the face of performance feedback, given that authentic pride is hypothesized to promote social status (Cheng et al., 2010; Tracy et al., 2010), and appearing competent in the eyes of an authority figure who assesses one's performance—regardless of one's actual level of performance—represents a way in which individuals could gain prestige-based status (Littlepage et al., 1995). Varying the manipulation strength from Study 1 to Study 2 also allowed us to test the robustness of the pride-as-barometer effect.

Chapter 3: Study 2

3.1 Method

3.1.1 Participants Two-hundred twenty-eight undergraduate students participated in exchange for partial course credit. One participant did not complete all measures, leaving a final sample of 227 (77% female; M age = 20.75; SD = 3.65).

3.1.2 Procedure Participants completed the study individually, seated at a desktop computer. On an adjacent wall, a leader board reading “O-Span Top Scores” was mounted in full view; the board portrayed rankings of 10 sets of initials (e.g., S.H.W.) each accompanied by a score (e.g., 71.4). The study began with participants completing a measure of trait pride, followed by an achievement test. Participants were told that the achievement test measured cognitive ability, and that individuals who score highly tend to have high college GPAs. Participants were not provided with any indication of their performance as they completed the achievement test, to increase the believability of subsequent performance feedback. As in Study 1, these procedures were undertaken to increase participants’ motivation to perform well on the achievement test.

Immediately following the test, participants were randomly assigned to be given positive feedback ($n = 94$), negative feedback ($n = 38$), or no feedback ($n = 95$) on their test performance⁷. At the conclusion of the achievement test, participants in the positive feedback condition viewed a score report for various components of the test, a total score of 73.1 (which would rank them 4th on the leaderboard), and a ranking that indicated that they had scored in the 95th percentile. The experimenter, after clarifying the meaning of a percentile, enthusiastically

⁷ The negative feedback condition had a considerably smaller sample than the other two conditions because of a logistical constraint on the study; the negative feedback condition was run after the first two conditions, to examine whether the informational value of authentic pride held in the presence of both positive and negative feedback. Unfortunately, we had to prematurely terminate data collection due to other lab projects.

noted that the participant had performed very well on the test. The experimenter then used the aforementioned leaderboard to deliver the second half of the feedback manipulation:

“We’re keeping a leader board here in the lab where students who do really well can write their names and scores from the first task. You definitely did well enough to qualify; looks like your score would put you in 4th place overall. Do you want to put your initials up there?”

Participants then were given the opportunity to have their initials and score placed on the leaderboard, which remained hung on the wall throughout the study.

In the negative feedback condition, after completing the achievement test, participants viewed a score report that provided a score for various components, a total score of 10.8 (which would not rank among the top scores on the leaderboard), and a ranking that indicated that they had scored in the 8th percentile. The experimenter, after clarifying the meaning of a percentile, noted in a matter-of-fact manner that the participant did not seem to have performed very well on the test:

“Oh, look at that score report—it looks like that was a challenging task for you. You scored in the 8th percentile; do you know what a percentile means? This means you scored below 92% of the other students who took the test.”

Finally, participants in the no feedback condition did not view a score report, nor were they given any indication of their performance. After the feedback manipulation, participants completed a measure of test-specific pride.

3.1.3 Measures

3.1.3.1 *Pride.* Authentic and hubristic pride were each assessed with 7-item subscales of the Authentic and Hubristic Pride scale (Tracy & Robins, 2007). To measure trait pride, participants

reported the extent to which they generally feel each scale adjective ($\alpha = .90$). To measure test-specific pride, participants reported the extent to which they felt each scale adjective immediately after completing the O-Span task ($\alpha = .91$). Both measurements used a 5-point rating scale (1 = not at all; 5 = extremely).

3.1.3.2 Achievement test. The Automated Operation Span (O-Span; Unsworth, Heitz, Schrock, & Engle, 2005) was used as an achievement test. The O-Span test takes approximately 15-20 minutes to complete, and requires participants to simultaneously memorize strings of letters and solve simple math problems. Although originally conceived as a test of working memory, the O-Span was employed here as an achievement test, because it is challenging, requires prolonged concentration, and taps into both verbal and math ability.

3.2 Results

3.2.1 Is Authentic Pride a Barometer of Success? To test whether authentic pride functioned as a barometer of perceived success on the O-Span test, we compared test-specific authentic pride between participants who received positive feedback, negative feedback, and no feedback. Trait authentic pride was held constant in all analyses, given that we were interested in the extent to which fluctuations in authentic pride gauge performance, independent of dispositional levels of authentic pride. A one-way ANOVA predicting test-specific authentic pride with condition as a between-subjects factor and trait authentic pride as a covariate yielded a significant effect, $F(3, 223) = 19.15, p < .001, \eta_p^2 = .15$. Post-hoc test using Tukey's HSD confirmed that, as predicted, participants who were given positive feedback tended to feel higher levels of authentic pride regarding their performance ($M = 2.88; SD = .84$)⁸ than participants who were given no feedback

⁸ A small proportion of participants ($n = 17; 18\%$) declined to put their initials on the leaderboard, and these participants felt less test-specific authentic pride ($M = 2.40, SD = .77$) than those who agreed to put their initials on the leaderboard ($M = 2.98, SD = .82; t(92) = 2.65, p = .01, d = .71$). On one hand, this could further implicate pride's function as a barometer of success; participants who viewed the positive performance feedback as more

($M = 2.58$, $SD = .87$; $p = .038$, $d = .35$). Similarly, participants who were given negative feedback tended to feel lower levels of authentic pride regarding their performance ($M = 1.96$; $SD = .69$) than participants who were given no feedback ($p < .001$, $d = .75$). In contrast, a one-way ANOVA predicting test-specific hubristic pride with condition as a between-subjects factor and trait hubristic pride as a covariate yielded no significant effect of condition, $F(2, 224) = .83$, $p = .44$, $\eta_p^2 = .007$.

To more formally test whether authentic pride was a stronger barometer of success than hubristic pride, we created effect size estimates in the form of Cohen's d comparing levels of pride in the positive feedback and negative feedback conditions. The difference between the two conditions was larger for authentic pride ($d = 1.17$, equivalent to $r = .50$) than hubristic pride ($d = .30$, equivalent to $r = .15$). When compared using Fisher's r to z transformation, these two correlation coefficients differed significantly from one another ($z = 3.2$, $p = .001$), suggesting that authentic pride was a stronger barometer of success than hubristic pride.

3.3 Discussion

Study 2 replicated the findings of Study 1, by again demonstrating that pride is a barometer of success: students felt greater authentic pride after receiving feedback indicating successful performance on an achievement test, and less authentic pride after receiving feedback indicating poor performance. Also, as in Study 1, we demonstrated that authentic pride was a stronger barometer of success than hubristic pride. In addition, Study 2 adds to Study 1 by providing evidence that authentic pride functions as an informational signal that responds to external, social cues of achievement success, in addition to actual performance; fluctuations in

credible may have chosen to put their name on the leaderboard and, as a result, felt more test-specific authentic pride. Given that the leaderboard decision was made after the administration of feedback, however, the reverse causal pattern is more likely; the experience of test-specific authentic pride likely influenced the subsequent decision to put one's name on the leaderboard.

authentic pride as a result of performance feedback occurred independent of participants' actual performance. An emotional mechanism that responds to social cues of success, independent of actual success, might play an important role in regulating achievement behavior, given that humans gain prestige-based social status primarily by creating an *impression* of competence in the eyes of others, as much as by demonstrating actual competence (Littlepage et al., 1995).

The results of Studies 1 and 2 provide preliminary evidence that state-level authentic pride fluctuates in concert with current achievement success, but do not address the question of whether authentic pride has functional consequences for subsequent achievement-related behaviors and success. Evidence of functional downstream consequences is held as the gold standard when attempting to cast emotions as adaptive psychological mechanisms (Andrews et al., 2002; Keltner & Gross, 1999; Tooby & Cosmides, 1990); in the current case, to view authentic pride as a psychological adaptation we would need to demonstrate that it actually influences behaviors, such as achievement performance, that have consequences for attainment of social status. In Study 3 we addressed this issue by examining whether individuals change their achievement-related behaviors in response to informational feedback from authentic pride regarding performance; we examined students' authentic pride immediately following a class exam, and assessed whether students intended to study differently for an exam scheduled for one month in the future based on the information provided by their authentic pride. We were also able to test whether these intentions to study differently predicted students' performance on the subsequent exam, though given that studying intentions were assessed weeks in advance of the exam, we did not expect them to predict actual performance.

Chapter 4: Study 3

4.1 Method⁹

4.1.1 Participants One-hundred eighty-eight undergraduate students enrolled in an introductory psychology course participated as part of a class requirement (64% female; M age = 20.05; SD = 2.52).

4.1.2 Procedure The study involved a cycle of three data collection occasions, repeated twice during the course of a semester, yielding six total assessments. First, participants took a class exam (i.e., exam 1 or 2 of the course). Second, immediately after the exam—and before learning their score—participants reported their exam-specific pride and their intentions to study differently for the subsequent class exam. Third, participants took a subsequent class exam 3 to 5 weeks after the original exam (i.e., exam 2 or 3 of the course). No measures were taken after exam 3, as the class had ended for the semester.

4.1.3 Measures

4.1.3.1 Class exams. Three exams, consisting entirely of multiple choice questions, were administered over the course of the semester.

4.1.3.2 Pride. Participants reported their exam-specific pride by completing a single item (“*To what extent do you feel proud about your performance on the exam?*”) on a 7-point scale (1 = not at all; 7 = very much).

4.1.3.3 Plans to study differently. Participants reported their plans to study differently for subsequent exams compared to the prior exam by completing two items (e.g., “*My preparation for exam 2 will be different than my preparation for exam 1*” and “*I plan to study for exam 2 differently than I studied for exam 1*”) on a 7-point scale (1 = not at all true of me; 7 = very true

⁹ The data for Study 3 were collected in the context of a multi-study project (Elliot, McGregor, & Gable, 1999, Study 1; Elliot & Thrash, 2002, Study 4; Fryer & Elliot, 2007). None of the results reported in the present research have been reported in prior work.

of me). The two items correlated highly prior to both exam 2 and 3 ($r_s = .77$ and $.86$, respectively), so we created a 2-item composite measure of plans to study differently for each time point.

4.2 Results

We treated each cycle as one unit of analysis. For example, we examined the relations between exam score, exam-specific pride, plans to study differently, and subsequent exam performance separately for both the period from exam 1 to exam 2 and the period from exam 2 to exam 3. As a result, all analyses reported below yielded two statistical results, one from each cycle.

4.2.1 Is Pride a Barometer of Success? To test whether pride functioned as a barometer of success on class exams, we regressed exam-specific pride onto exam score. As predicted, participants who performed better on exam 1 and exam 2 experienced greater exam-specific pride than participants who performed poorly, despite the fact that they had not yet learned their exam score (exam 1: $\beta = .68$, $t(166) = 12.00$, $p < .001$, $CI_{95} = [.60 \text{ to } .74]$; exam2: $\beta = .61$, $t(142) = 9.20$, $p < .001$, $CI_{95} = [.49 \text{ to } .70]$).

4.2.2 Does Authentic Pride Function to Promote Achievement? To test whether pride is a functional barometer of success that in turn promotes subsequent achievement-related behaviors, we examined whether students who felt lower levels of exam-specific pride planned to change their study habits for subsequent exams. We regressed plans to study differently onto exam-specific pride, and included prior exam score as a covariate, to test whether exam-specific pride influenced subsequent study habits above and beyond the knowledge of one's actual prior exam score. As predicted, exam-specific pride on exam 1 and exam 2 negatively predicted plans to study differently for exams 2 and 3, respectively (exam 1: $\beta = -.42$, $t(165) = -4.96$, $p < .001$, CI_{95}

= [-.56 to -.23]; exam 2: $\beta = -.41$, $t(141) = -4.79$, $p < .001$, $CI_{95} = [-.59 \text{ to } -.22]$). Participants who felt less pride regarding exam performance, above and beyond their actual score, reported stronger intentions to adjust their study habits.

If pride is a barometer by which individuals gauge their level of success and adjust their study habits accordingly, do these plans to change study habits in fact influence subsequent exam performance? We examined the effect of pride-driven studying plans on future exam performance by regressing subsequent exam performance (e.g., exam 2 score) onto exam-specific pride (e.g., pride in response to exam 1) and plans to study differently (e.g., for exam 2), while again including prior exam performance (e.g., exam 1 score) as a covariate. We also included the interaction term between prior exam score and plans to study differently; given that only low performing students, but not high performing students, had room to improve their scores for subsequent exams, we predicted that changes in study habits would promote improved exam performance for low-performing students only. However, we did not find support for our predictions; plans to study differently did not predict scores on exam 2 ($\beta = .03$, $p = .60$) or exam 3 ($\beta = .01$, $p = .87$). We also did not find an interaction between prior exam score and plans to study differently for exam 2 ($\beta = -.07$, $p = .15$) or exam 3 ($\beta = -.08$, $p = .27$); that is, an effect of plans to study differently on subsequent exam score did not emerge regardless of individuals' level of performance on prior exams.

4.3 Discussion

Study 3 provided the first evidence that pride is a functional barometer which, in addition to gauging one's current level of achievement, influences downstream achievement-related behaviors. Pride again signaled whether or not individuals had performed well on a class exam; importantly, pride's informational value emerged before students received explicit knowledge of

their actual performance, suggesting that pride functions as an accurate internal gauge of achievement. Pride also influenced individuals' plans for subsequent achievement behaviors in a beneficial manner, such that individuals who felt low pride reported stronger intentions to change their study habits for subsequent exams. Although intentions to change study habits do not necessarily translate into actual changes in study behaviors or improved performance, evidence suggests that making plans to implement goal-directed behavior represents an important first step in the process of actually achieving one's goals (Gollwitzer, 1999). As a result, plans to change study habits would likely be beneficial for these students, given that they performed poorly on the prior exam, as they signal a willingness and likelihood of preparing in a more optimal manner for subsequent exams.

There are several factors that may have contributed to the fact that we did not find evidence that pride-driven changes in achievement behaviors led to subsequent improvements in performance. First, studying plans were assessed directly after the prior exam and 3 to 5 weeks before the subsequent exam; a measure of studying plans taken closer to the subsequent exam may have more strongly predicted subsequent exam performance. As a result of the proximity of the two measures, the correlations between exam-specific pride and plans to study differently might have been inflated because these measures were taken at the same time point (i.e., participants who reported low pride might have been influenced by that self-reporting when rating their likelihood of changing their future study habits). Second, pride was assessed with a single item *proud*, meaning that we were unable to determine whether individuals were gauging their success with authentic or hubristic pride; it is possible that some participants interpreted this item as one form of pride, and some as the other. A single-item measure may also show poor reliability, limiting the extent to which it can predict other variables.

A final limitation of Study 3 is that we included no measure of trait pride, precluding us from examining the informational influence of state pride on achievement independent of dispositional levels of pride. For all of these reasons, we next conducted Study 4, which sought to replicate Study 3 but made three design changes: a) we included both a measure of studying plans taken weeks after the prior exam and much closer to the subsequent exam, b) we included a validated measure of both authentic and hubristic pride, and c) we included a measure of trait pride.

Chapter 5: Study 4

5.1 Method

5.1.1 Participants Three-hundred thirty undergraduate students enrolled in an introductory psychology course participated as part of a course requirement (62% female; M age = 19.38; SD = 1.93).

5.1.2 Procedure The study involved a cycle of four data collection occasions that was repeated twice during the course of a semester, yielding eight total assessments. First, participants took a class exam (i.e., exam 1 or 2 of the course). Second, immediately after the exam—and before learning of their score—participants reported their exam-specific authentic pride and their plans to study differently for the subsequent exam. Third, 2-4 weeks after the exam, participants again reported their intentions to study differently for the subsequent class exam. Fourth, approximately one week later, participants took a subsequent class exam (i.e., exam 2 or 3 of the course).

5.1.3 Measures

5.1.3.1 Class exams. Three exams, consisting of multiple choice, fill-in-the-blank, and short-answer questions were administered over the course of the semester.

5.1.3.2 Pride. Authentic and hubristic pride were each assessed with 7-item subscales of the Authentic and Hubristic Pride scale (Tracy & Robins, 2007). To measure trait pride, participants reported the extent to which they generally feel each scale adjective ($\alpha = .90$ for both facets). To measure exam-specific pride, participants reported the extent to which they felt each scale adjective regarding their performance on class exam 1 ($\alpha = .96$ for authentic pride; $\alpha = .91$ for hubristic pride) and 2 ($\alpha = .96$ for authentic pride; $\alpha = .94$ for hubristic pride). All measurements used a 5-point rating scale (1 = not at all; 5 = extremely).

5.1.3.3 Plans to study differently. Participants reported their plans to study differently for subsequent exams compared to the prior exam by completing two items (e.g., “*My preparation for exam 2 will be different than my preparation for exam 1*” and “*I plan to study for exam 2 differently than I studied for exam 1*”) on a 7-point scale (1 = not at all true of me; 7 = very true of me) both immediately following the prior exam and 2-4 weeks later. The four items formed reliable composites prior to both exam 2 and 3 (α s = .93 and .91, respectively), and we thus created one index of plans to study differently for each exam.

5.2 Results

We again treated each cycle as a single unit of analysis. For example, we examined the relations between exam score, exam-specific authentic pride, plans to study differently, and subsequent exam performance for both the period from exam 1 to exam 2 and the period from exam 2 to exam 3. As a result, all analyses yielded two statistical results, one from each cycle. Additionally, all analyses held the corresponding facet of trait pride constant at its mean (e.g., trait authentic pride was held constant for analyses involving exam-specific authentic pride), given that we were interested in the effects of exam-specific pride not due to shared variance with dispositional pride.

5.2.1 Is Pride a Barometer of Success? To test whether authentic pride functioned as a barometer of success, we regressed exam-specific authentic pride onto exam score. As predicted, participants who performed better on exam 1 and exam 2 felt more exam-specific authentic pride than participants who performed poorly, despite the fact that they had not learned their exam score at the time of reporting their exam-specific authentic pride (exam 1: $\beta = .55$, $t(290) = 12.34$, $p < .001$, $CI_{95} = [.45 \text{ to } .63]$; exam 2: $\beta = .59$, $t(293) = 13.40$, $p < .001$, $CI_{95} = [.51 \text{ to } .66]$).

.65]). In contrast, neither participants who performed better on exam 1 ($\beta = .07, p = .15$) nor exam 2 ($\beta = .09, p = .12$), felt higher levels of exam-specific hubristic pride.

To more formally test whether authentic pride was a stronger barometer of success than hubristic pride, these four standardized regression coefficients were transformed to semi-partial correlation coefficients, and were compared using Fisher's r to z transformation. For both exams, the semi-partial correlation coefficients indexing authentic and hubristic pride in response to performance differed significantly from one another (exam 1: $z = 6.57, p < .001$; exam 2: $z = 7.07, p < .001$), suggesting that authentic pride was a stronger barometer of success than hubristic pride.

5.2.2 Does Authentic Pride Function to Promote Achievement? To test whether pride is a functional barometer of success that promotes subsequent achievement, we next examined whether students who felt lower levels of exam-specific authentic pride planned to change their study habits for subsequent exams. We regressed plans to study differently onto exam-specific authentic pride, again including prior exam score as a covariate, to test whether exam-specific authentic pride influenced subsequent study habits above and beyond knowledge of one's actual exam score. As predicted, exam-specific authentic pride in response to exam 1 and exam 2 negatively predicted plans to study differently for exams 2 and 3, respectively (exam 1: $\beta = -.33, t(289) = -5.63, p < .001, CI_{95} = [-.45 \text{ to } -.20]$; exam 2: $\beta = -.38, t(292) = -6.40, p < .001, CI_{95} = [-.50 \text{ to } -.25]$). Participants who felt less authentic pride regarding exam performance, above and beyond their actual score, reported stronger intentions to adjust their future study habits. In contrast, neither exam-specific hubristic pride on exam 1 ($\beta = -.06, p = .23$) nor exam 2 ($\beta = -.09, p = .10$) predicted plans to study differently for subsequent exams.

To more formally test whether authentic pride exerted a stronger effect on achievement behaviors than hubristic pride, these four standardized regression coefficients were transformed to semi-partial correlation coefficients, and were compared using Fisher's r to z transformation. For both exams, the semi-partial correlation coefficients indexing changes in study habits in response to authentic and hubristic pride differed significantly from one another (exam 1: $z = 3.38, p < .001$; exam 2: $z = 3.72, p < .001$), suggesting that authentic pride more strongly influenced achievement behaviors than hubristic pride.

If authentic pride is a barometer by which individuals gauge their success and adjust their study habits accordingly, do these plans to change study habits influence subsequent achievement outcomes? We examined the effect of authentic pride-influenced study plans on prospective exam performance by regressing subsequent exam performance (e.g., exam 2 score) onto exam-specific authentic pride (e.g., for exam 1) and plans to study differently (e.g., for exam 2), again including prior exam performance (e.g., exam 1 score) as a covariate. We also included the interaction term between prior exam score and plans to study differently, given that low-performing students, compared to high-performing students, stand to gain the most performance benefit from adjusting their study habits following poor performance.

When predicting exam 2 performance, we found an interaction between exam 1 score and plans to study differently for exam 2, $\beta = -.12, t(287) = -2.18, p = .03, CI_{95} = [-.23, .00]$ ¹⁰. To understand the nature of this interaction, we conducted a simple slopes analysis, examining the relation between plans to study differently and subsequent exam score for students one standard

¹⁰ Here, as well as in a few other instances throughout the paper, the p -value associated with a standardized regression coefficient will fall below the .05 threshold, whereas the 95% confidence interval calculated using bootstrapping will cross zero. This does not indicate an error in either calculation. Significance tests used to obtain p -values are conducted using the t -distribution, which becomes increasingly normal as sample size increases. In contrast, bootstrapping used to obtain confidence intervals is an empirical method involving re-estimating a single parameter thousands of times and simply noting the interval between the 2.5th and 97.5th percentile of the resulting distribution. The empirical distribution yielded by bootstrapping need not be normal, and as a result inferences based upon it will sometimes differ from those based on significance tests using the t -distribution.

deviation above and below the mean (Cohen, Cohen, Aiken, & West, 2003). Plans to study differently for exam 2 positively predicted exam 2 performance for students who performed poorly on exam 1 ($\beta = .19, t(287) = 2.01, p = .04, CI_{95} = [-.03 \text{ to } .41]$) but not for students who performed well on exam 1 ($\beta = -.04, p = .55$). For individuals who performed poorly on exam 1, the indirect effect of exam-specific authentic pride on subsequent exam score, through its influence on plans to change study habits, was $-.06$ ($CI_{95} = [-.14 \text{ to } .01]$); a one-unit decrease in exam-specific authentic pride predicted a $.06$ -unit increase in subsequent exam score for low achieving students, corresponding to an average increase of $.82$ percentage points (see Figure 1).

When predicting exam 3 performance, we again found an interaction between exam 2 score and plans to study differently for exam 3, $\beta = -.16, t(290) = -3.19, p = .002, CI_{95} = [-.28 \text{ to } -.05]$. Simple slopes analysis revealed that plans to study differently for exam 3 positively predicted exam 3 performance for students who performed poorly on exam 2 ($\beta = .34, t(290) = 4.41, p < .001, CI_{95} = [.15 \text{ to } .55]$) but not for students who performed well on exam 2 ($\beta = .03, p = .71$). For individuals who performed poorly on exam 2, the indirect effect of exam-specific authentic pride on subsequent exam score, through its influence on plans to change study habits, was $-.13$ ($CI_{95} = [-.23, -.06]$); a one-unit decrease in exam-specific authentic pride predicted a $.13$ -unit increase in subsequent exam score for low achieving students, corresponding to an average increase of 1.44 percentage points (see Figure 2).

5.3 Discussion

Study 4 built upon Study 3 by providing the first evidence that pride is a functional barometer that, in addition to gauging current success and influencing subsequent achievement behaviors, promotes subsequent performance outcomes. As in Study 3, authentic pride signaled to individuals whether they had performed well on a class exam, before they had explicit

knowledge of their score, and authentic pride influenced individuals' plans for subsequent achievement behaviors in an adaptive manner, such that individuals who felt low authentic pride reported stronger intentions to change their study habits for subsequent exams. In contrast to Study 3, in Study 4 pride-driven plans to change study habits predicted improved future exam performance for low achieving students; students who listened to the feedback provided by their authentic pride (i.e., adjusted their studying habits following poor performance), achieved greater success on subsequent exams than students who did not listen to their pride.

Several factors may explain why authentic pride predicted concrete achievement performance in Study 4 but not Study 3. First, we included a measure of study plans taken 2 to 4 weeks after the prior exam, and 1 week prior to the subsequent exam. As a result, individuals' reports of their intention to change their study habits likely corresponded more closely to their actual studying behaviors than in Study 3, when studying plans were assessed immediately after the prior exam and 3 to 5 weeks prior to the subsequent exam. As a result, plans to change study habits likely translated more frequently into actual preparation strategies, thereby leading to improved performance. Second, we included a validated measure of authentic pride; this measure, in addition to likely demonstrating higher reliability than the measure used in Study 3, helped us ensure that individuals were reporting purely authentic pride following their exams, rather than a combination of authentic and hubristic pride. Given the theoretical link between authentic pride and achievement, it would not be surprising if a measure indexing authentic pride more strongly predicted studying behaviors than a measure indexing both facets of pride. Study 4 also improved upon Study 3 in two other areas. First, including of a validated measure of authentic pride also allowed us to establish that the informational influence of authentic pride is substantially stronger than that of hubristic pride. Second, including a measure of trait authentic

pride as a covariate in all analyses allowed us to demonstrate that the informational influence state authentic pride on achievement is independent of the dispositional tendency to experience pride.

Although Studies 1-4 have provided a strong body of evidence regarding the informational value of pride in gauging and promoting achievement behavior, all of these studies were conducted in the domain of academic achievement and employed samples of undergraduate students. Both of these factors limit our ability to draw general conclusions regarding the evolutionary functionality of authentic pride when discussing our findings. In Study 5, we addressed this issue by examining whether authentic pride gauges and influences achievement in an entirely different context: athletics. Specifically, we examined the degree to which feelings of authentic pride gauged training progress among a group of adults preparing to complete long-distance running races (e.g., marathons), and whether feelings of authentic pride in turn influenced runners' future training plans. We predicted that individuals experiencing high levels of training success would experience high levels of authentic pride regarding their training, and that individuals experiencing low levels of training success—and attendant low levels of authentic pride—would report plans to change their future training habits, which would be driven by their low authentic pride.

Chapter 6: Study 5

6.1 Method

6.1.1 Participants Participants were 126 adults from the greater Vancouver, B.C. community (73% female; M age = 34.77; SD = 8.72; Range = 20 to 60), enrolled in 2 to 4-month long clinics conducted through the Running Room (a national Canadian chain of running stores). Clinics were prepared participants to complete a race of a specific length, and involved multiple weekly meetings in which participants went on group runs, were exposed to motivational and educational speakers (e.g., physical therapists, nutritionists, psychologists), and were provided with personalized training guidance by a clinic instructor. The majority of participants were aiming to complete a marathon ($n = 56$) or half-marathon ($n = 65$), although a few participants were aiming to complete a 10km or 5km race ($n = 4$).

6.1.2 Procedure The first author received permission from store managers and clinic directors at four Running Room locations throughout Vancouver to attend sessions near the beginning of each clinic and recruit participants. At clinic meetings, the first author gave a brief overview of study goals and procedures to clinic attendants, before offering them an opportunity to sign a consent form if they wished to participate. Those who volunteered to participate were contacted via email for all subsequent assessments. All participants were entered into a draw to win one of six \$100 gift cards to the Running Room.

One to two days after recruitment, participants were contacted via email and given a link to complete the initial assessment; this involved reporting on their prior running experiences, and completing measures of dispositional pride. Approximately one month after the initial assessment, participants were contacted again to complete the first follow-up assessment; this

involved reporting their training progress over the past month, their training-specific pride, and their training goals for the subsequent month.

6.2.3 Measures

6.1.3.1 Prior running experience. Participants reported a wide range of goals and prior running experiences; they had previously completed between 0 to 12 marathons ($M = .93$; $SD = 1.94$; Median = 0), 0 to 30 half-marathons ($M = 3.01$; $SD = 4.88$; Median = 2), and 0 to 31 10km races ($M = 3.93$; $SD = 5.27$; Median = 2). Participants also reported a wide range of experience in running long distances in training; the greatest number of kilometers participants had ever run in a week of training ranged from 5 to 120 ($M = 43.67$; $SD = 21.26$; Median = 40). Finally, participants came into the running clinics with varying degrees of running fitness; the average number of kilometers participants had run in the four weeks prior to the clinic ranged from 0 to 50 ($M = 16.12$; $SD = 11.66$; Median = 15).

6.1.3.2 Training progress. Participants completed two items measuring their training progress in the month between the initial assessment and the first follow-up assessment (“*To what extent have you followed your training plan over the past month?*”; “*To what extent have you met your training goals over the past month?*”). These two items were highly correlated ($r = .75$), so were averaged to create a composite measure of perceived training progress ($\alpha = .85$). These measurements used a 5-point scale (1 = not at all; 5 = very much).

6.1.3.3 Training intensity. Participants completed one item (“*How intense has your training been over the past month?*”) on a 5-point scale (1 = not at all; 5 = very much). Given that the goal of running clinics is to help build up participants’ running fitness with a combination of increased running distance and hard running effort, training intensity can be seen as an indirect index of training progress.

6.1.3.4 *Pride.* Authentic and hubristic pride were each assessed with 7-item subscales of the Authentic and Hubristic Pride scale (Tracy & Robins, 2007). To measure trait pride, participants reported the extent to which they generally feel each scale adjective ($\alpha = .88$ for authentic pride; $\alpha = .79$ for hubristic pride). To measure training-specific pride, participants reported the extent to which they felt each scale adjective regarding their training over the past month ($\alpha = .95$ for authentic pride; $\alpha = .88$ for hubristic pride). All measurements used a 5-point rating scale (1 = not at all; 5 = very much).

6.1.3.5 *Training plans.* Participants reported their plans to change their training habits over the upcoming month by completing two items (“To what extent do you plan to change your training habits over the next month compared to the past month?”; “To what extent do you plan to train the same over the next month as you did over the past month?” [reversed]). These two items were moderately correlated ($r = -.34$) and were thus combined into a composite measure of plans to change training plans ($\alpha = .51$)¹¹.

6.2 Results

In contrast to Studies 3 and 4, Study 5 had only one analysis cycle, in which participants’ reports of their training success and pride responses over the first month of the clinic were used to predict plans for training over the following month. All analyses held the corresponding facet of trait pride constant at its mean (e.g., trait authentic pride was held constant in analyses

¹¹ One might question whether the creation of a composite measure of plans to change training is warranted when the two items forming the composite show only a modest correlation ($r = -.34$). We argue that the creation of a composite is justified, as such modest inter-item correlations frequently characterize longer scales that are routinely employed and show excellent internal consistency. For example, in the current study, dispositional authentic pride ($\alpha = .88$) and dispositional hubristic pride ($\alpha = .79$) show good internal consistency, yet show average inter-item correlations similar to the correlation between the two items in the change training habits composite (authentic pride: $M = .49$; hubristic pride: $M = .36$). On average, pairs of items on highly internally consistent scales are equally or only marginally more strongly correlated than the two items forming our composite. Nevertheless, all analyses involving this composite measure were re-run using both of the individual items used to create the composite; all results were conceptually and statistically identical.

involving training-specific authentic pride), given that we were interested in the effects of training-specific pride independent of dispositional pride.

6.2.1 Is Pride a Barometer of Success? To test whether authentic pride functioned as a barometer of training success, we regressed exam-specific authentic pride onto our two indices of training progress. As predicted, participants who believed they had achieved greater training success over the prior month felt greater training-specific authentic pride than participants who believed they had achieved less training success, $\beta = .66$, $t(95) = 9.26$, $p < .001$, $CI_{95} = [.50 \text{ to } .77]$). Similarly, participants who had trained more intensely over the prior month felt greater training-specific authentic pride than participants who had trained less intensely ($\beta = .46$, $t(95) = 5.47$, $p < .001$, $CI_{95} = [.30 \text{ to } .63]$). In contrast, participants who achieved greater training success and trained more intensely over the prior month did not experience higher levels of training-specific hubristic pride (success: $\beta = .05$, $p = .61$; intensity: $\beta = .07$, $p = .50$).

To more formally test whether authentic pride was a stronger barometer of success than hubristic pride, these four standardized regression coefficients were transformed to semi-partial correlation coefficients, and were compared using Fisher's r to z transformation. For both training success and training intensity, the semi-partial correlation coefficients indexing authentic and hubristic pride in response to these variables differed significantly from one another (success: $z = 5.04$, $p < .001$; intensity: $z = 2.90$, $p = .004$), suggesting that authentic pride was a stronger barometer of success than hubristic pride.

6.2.2 Does Authentic Pride Function to Promote Achievement? To test whether pride is a functional barometer of success that promotes subsequent achievement behaviors, we examined whether participants who felt lower levels of training-specific authentic pride planned to change their training habits over the subsequent month. Training-specific authentic pride negatively

predicted plans to train differently over the subsequent month ($\beta = -.30$, $t(95) = -2.94$, $p = .004$, $CI_{95} = [-.51 \text{ to } -.07]$). Participants who felt less authentic pride regarding their training progress reported stronger intentions to adjust their training habits over the subsequent month. In contrast, training-specific hubristic pride did not predict plans to change training habits ($\beta = -.09$, $p = .40$). To more formally test whether authentic pride more strongly predicted changes in training habits than hubristic pride, these two standardized regression coefficients were transformed to semi-partial correlation coefficients, and were compared using Fisher's r to z transformation. The semi-partial correlation coefficient indexing training changes in response to authentic pride was greater than that indexing responses to hubristic pride, though the two effects did not differ beyond the traditional level of statistical significance ($z = 1.49$, $p = .14$). These results suggest that authentic pride was a marginally stronger predictor of achievement behavior than hubristic pride.

6.3 Discussion

Study 5 provides the first evidence that the informational influence of authentic pride on achievement generalizes to the athletic domain. Authentic pride signaled whether runners preparing for long-distance races were meeting their training goals and following their training plans, as well as whether they were training at a high intensity, all of which are key markers that a runner is making successful progress toward his or her goal of completing the race. Training-specific authentic pride, in turn, influenced runners' subsequent achievement behavior; runners who felt low levels of authentic pride—signaling lack of training progress—reported stronger intentions to adjust their subsequent training habits, presumably in an effort to increase their likelihood of making progress toward their goal of completing the race. Importantly, these

effects emerged when holding constant individuals' dispositional tendency to experience authentic pride.

One limitation of Study 5 was that training success, training-specific authentic pride, and future training plans were all assessed simultaneously; as a result, reports of future training plans might have been influenced by the saliency of self-reported authentic pride. In addition, we did not include a measure of future training behavior, thus limiting our ability to test whether authentic pride has a functional downstream effect on achievement. To rectify these issues, future studies are needed to directly assess the degree to which individuals' adjust their training habits from month-to-month in response to authentic pride. We should note, however, that research has shown that creating plans by which to implement ones goals greatly increases the chance that individuals actually enact goal-directed behavior (Gollwitzer, 1999); in the context of the current research, this research on implementation intentions suggests that runners who commit themselves to adjusting their training habits in response to lack of success are likely to actually change their training behavior.

Chapter 7: Conclusion

The present set of five studies provided the first empirical demonstration that authentic pride is a functional barometer that exerts an informational influence on concrete, downstream, achievement behaviors and performance. We found that individuals experience high levels of authentic pride in response to academic and athletic achievement success, and low levels of authentic pride in response to academic and athletic failure. These fluctuations in authentic pride were shown to influence subsequent achievement behaviors; individuals who felt low levels of authentic pride planned to change their behaviors to ensure success in future achievement contexts whereas those who experienced high levels of authentic pride planned to maintain similar behaviors in future achievement contexts. Most importantly, pride-informed changes in achievement behavior were shown to have functional consequences; in Study 4, individuals who changed their achievement behaviors following poor performance indicated by low authentic pride performed better in subsequent achievement settings than those who did not change their achievement behaviors. In sum, the present research demonstrated the importance of listening to and heeding the information provided by authentic pride in achievement settings.

7.1 Authentic Pride is a Functional Barometer Promoting Achievement

Our research had several strengths that represent an advance on prior research suggesting that authentic pride is a psychological adaptation meant to promote achievement and social status (Cheng et al., 2010; Tracy & Robins, 2007; Tracy et al., 2010). First, we demonstrated the functional downstream consequences of the informational influence of authentic pride on outcomes relevant to the lives of the individuals who participated in our studies. Studies 1-4 examined emotional responses to achievement and intelligence tests among students at an elite, national university, a population which likely bases their self-worth largely on their academic

and intellectual competence. Study 5 examined emotional responses to training progress among adults training for long-distance running races, an endeavor that requires months of planning, diligence, and often overcoming physical and mental discomfort, not to mention a substantial fee to participate in a clinic. As a result, individuals training for marathons are likely to show tremendous care and concern over their running progress.

Second, in Study 4, we demonstrated that authentic pride influences actual performance on a concrete achievement activity. In contrast, prior studies have suggested that pride influences achievement by increasing the effort and persistence individuals devote to challenging activities (Sigall & Gould, 1979; Williams & DeSteno, 2008), and by increasing individuals' sense of self-efficacy and goal-congruence when completing achievement tests (Herrald & Tomaka, 2002), but have stopped short of demonstrating whether such changes in motivation or cognition actually impact performance. Importantly, performance in achievement domains is the primary route by which individuals increase others' perceptions of their competence, and perceived competence in turn leads to the conferral of prestige-based status (Anderson & Kilduff, 2009a; Cheng et al., 2013; Henrich & Gil-White, 2001; Littlepage et al., 1995). Given the ultimate importance of achievement for status attainment, demonstrating that authentic pride affects concrete performance indices in achievement settings is crucial to supporting claims that it is indeed functional.

Third, Studies 3, 4, and 5, elucidated a mechanism by which authentic pride promotes achievement, such that one's level of authentic pride informs that individual of how he or she is performing in an achievement context, and thereby leads him or her to appropriately tailor preparations for subsequent achievement contexts. In contrast, one prior study that demonstrated an association between pride felt regarding one's achievement performance and subsequent

levels of performance did not without examine the mechanism by which pride promotes achievement (Pekrun et al., 2009). The manner in which authentic pride was found to promote achievement, here, is consistent with control-process theories of emotion, which specify that unpleasant feelings motivate goal-directed behavior by signaling a lack of progress toward one's goal (Carver & Scheier, 1990; Hsee & Abelson, 1991; Larsen, 2000; Leary et al., 1995; Simon, 1967). Low levels of authentic pride led to improved academic and athletic performance by signaling poor performance and thereby leading individuals to change their study habits. Our findings also suggest that emotion must be experienced as directly relevant to a goal-relevant event for it to influence subsequent goal-directed behavior in a control-process manner (cf., Schwarz, 1990). Participants in Studies 3, 4, and 5 reported their feelings of authentic pride specifically regarding an achievement performance, and in turn low levels of authentic pride motivated changes in goal-directed behavior.

Fourth, in all five studies, we demonstrated the informational influence of pride in real-time settings following actual achievement-related events; in contrast, much prior research linking success and achievement to pride has employed recalled scenarios, a procedure that may exaggerate individuals' reports of emotional reactions to events (Robinson & Clore, 2001; 2002). Fifth, in four of five reported studies, we used a validated measure of self-report emotion to assess pride, therefore ensuring that the emotional experiences we captures corresponded directly to authentic pride, and did not represent a combination of authentic and hubristic pride (Weidman et al., in prep). Combined with the fact that, in all five studies, Fisher's z tests consistently showed that authentic pride was a stronger barometer of success and a stronger predictor of achievement behavior than hubristic pride¹², we were able to pinpoint authentic

¹² The one exception to this statement was the relation between pride and changes in training habits in Study 5; the effect for authentic pride was only marginally significantly greater than that for hubristic pride. However, given that

pride as the facet providing a functional influence on achievement. Finally, all five studies had large samples and adequate power to detect the moderate effect sizes reported (Cohen, 1992).¹³ By recruiting large samples, and replicating the majority of findings across multiple studies, we can be confident in the robustness of these effects.

7.2 Authentic Pride as a Route to Self-Knowledge

In the present research, authentic pride consistently emerged as a barometer of success, despite differences between studies in the amount and type of information available regarding performance. Authentic pride indexed success when a) individuals knew their actual performance level and were given social feedback regarding their performance (Study 1); b) when individuals knew their actual performance but were not given social feedback (Study 5); c) when individuals did not know their actual performance but were given social feedback (Study 2); and d) when individuals did not know their actual performance and were not given social feedback (Studies 3 and 4). These findings suggest that authentic pride is a barometer that responds to a number of different cues indicating success, including explicit knowledge of one's performance, others' perceptions of one's performance, and social feedback regarding one's performance.

Importantly, to the extent that authentic pride is a functional barometer, it should respond to each of these types of inputs. First, indexing explicit feedback appears to be a bare minimum criterion required of any functional barometer; for example, an odometer that does not budge when one slams the gas pedal would not be very useful. Second, indexing feedback from others,

the difference was still in the predicted direction, and the large differences that emerged in all other tests, we feel confident in asserting that authentic pride is a stronger barometer and promoter of achievement than hubristic pride.

¹³ The one exception to this statement is the effect size for the indirect effect of authentic pride on exam performance reported in Study 4; those effects would have been considered small by Cohen's (1992) criteria. Such is often the case with indirect effects in regression, which are calculated by multiplying together two standardized regression coefficients each representing a direct effect; unless both direct effects are extremely large, the indirect effect will necessarily be small.

even if that feedback does not correspond to one's actual performance, appears to be a key step to increasing others' perceptions of one's competence, and in turn attaining prestige-based status (Anderson & Kilduff, 2009a; Cheng et al., 2013; Henrich & Gil-White, 2001; Littlepage et al., 1995).

Third, indexing feedback in the form of a gut feeling would appear to be beneficial, given that many instances exist in which individuals lack the ability to achieve explicit metacognitive insight into their performance (Dunlosky & Lipko, 2007; Keleman et al., 2000; Kruger & Dunning, 1999). In Studies 3 and 4, authentic pride was shown to be a relatively accurate gauge of the extent to which an individual was performing well on an achievement test, despite the fact that individuals evaluated their performance before receiving their actual scores; standardized regression coefficients predicting test-specific authentic pride from test performance, holding dispositional pride constant, ranged from .55 to .68 across four exams. The informational value of authentic pride may point more broadly to the importance of relying on affective cues to gauge one's performance in achievement contexts. Cognitive psychologists have long recognized that affect can provide an initial clue to whether or not one possesses some degree of knowledge in a given domain (i.e., a *feeling of knowing*; Hart, 1965), and indeed have shown that feelings operationalized in a similar manner as authentic pride (i.e., with a confidence rating) provide an accurate gauge of whether or not an individual has correctly answered a question (Nelson et al., 1982; Metcalfe & Weibe, 1987; Schachter & Worling, 1985; Shaughnessy, 1979; Sinkavich, 1995). Findings such as these raise the possibility that feelings of authentic pride may communicate to an individual that he or she possesses relevant knowledge in an achievement domain, thereby calibrating the individual's self-assessments of performance. Accurate self-

assessments of performance may in turn help individuals appropriately tailor preparations for subsequent achievement challenges.

Indirectly supporting the proposition that authentic pride may help individuals calibrate their self-assessments of performance, a substantial body of research has demonstrated that individuals often lack the ability to accurately evaluate their level of achievement through explicit cognitive processes. One meta-analysis found an average correlation of .29 between self-estimates of performance and objective performance criteria across a range of life domains (e.g., academic, athletic, interpersonal), with twelve percent of these correlations falling below zero, suggesting that explicit performance evaluations are marginally accurate at best and often quite inaccurate (Mabe & West, 1982). Studies have further demonstrated that cognitive shortcomings, such as the inability to estimate and utilize a comparison standard, lack of ability to articulate performance criterion, or a lack of prior experience making performance judgments, hamper accuracy in self-assessments of performance (Kruger & Dunning, 1999; Mabe & West, 1982; Moreland, Miller, & Laucka, 1981), and that individuals who undergo training regarding how to assess their performance make more accurate self-assessments (Kruger & Dunning, 1999). In contrast to individuals who attempt to explicitly gauge their achievement performance, those who rely on affective heuristics would likely bypass the cognitive shortcomings that often hamper accurate self-assessments, a process that might explain how affective cues such as authentic pride could be optimal gauges of achievement.

7.3 Distinguishing Authentic Pride from Similar Gauges

We have presented a series of studies demonstrating the informational influence of authentic pride on achievement success; low levels of authentic pride signal poor achievement, and thereby cause individuals to adjust their achievement behaviors in an effort to achieve future

success. At a broad level, our mechanistic account mirrors prior accounts of emotion and goal pursuit (Carver & Scheier, 1990; Hsee & Abelson, 1991; Larsen, 2000; Leary et al., 1995; Schwarz, 1990; Simon, 1967), yet it is important to note the ways in which our account diverges from past accounts. First, our theory emphasizes absolute level of achievement. Control-process theorists have argued that positive and negative affect arise largely due to the speed at which one is progressing toward a goal independent of absolute level of achievement (Carver & Scheier, 1990; Hsee & Abelson, 1991); for example, an individual who performs poorly on a test but whose score represents a large improvement over a prior test (i.e., an individual who receives a D after previously experiencing an F) would be expected to experience positive emotions indicating sufficient progress toward his or her goal. In contrast, we would predict that this same student would experience unpleasant feelings of low authentic pride independently of whether or not that poor performance represents an improvement or drop compared to a prior performance; evidence in Studies 3 and 4 support this assertion, such that individuals who received low grades on an exam experienced low levels of authentic pride, despite the almost certain presence of variability in these students' prior exam grades and performance expectations. Second, our theory predicts maintenance of effort following success. Control process theorists have argued that an individual who experiences pleasant emotion upon perceiving satisfactory progress toward a goal will subsequently reallocate effort expenditure to a different goal in order to optimize goal attainment across domains (Carver & Scheier, 1990; Simon, 1967). We found no evidence of such coasting or satisficing; students who had performed well on an exam reported intentions to study the same for subsequent exams, whereas the coasting account would predict that these students would report intentions to study differently (i.e., put less effort into studying).

Coasting here would likely have been maladaptive; high performing students would be misguided to alter the study habits that led to the high exam score in the first place.

Third, our theory defines goal-directed behavior as behavior meant to improve subsequent achievement success. In contrast, many prior theories assume that emotion guides goal-directed behavior with the aim of attaining an affective outcome. For example, emotion theorists have proposed that individuals respond to negative emotions by attempting to alleviate those negative emotions (Larsen, 2000), which often involves an attempt to understand the causes of their negative feelings (Schwarz, 1990). Under these models, emotion regulation is viewed as an attempt to change one's behavior or situation with the goal of attaining pleasant feelings, which are viewed as universally desirable (Larsen, 2000). These accounts, though useful in explaining the proximal operation of emotion regulation, offer little in terms of an ultimate explanation for the instrumentality of emotions; the answer to the question of why people seek to alleviate negative emotions cannot, in an ultimate sense, be that people want to feel positive emotions, because pleasant feelings do not have an ultimate functional value (cf., Nesse, 1990). Our account emphasizes the functional consequences for achievement that arise when individuals attempt to change *both* their behaviors and their feelings; even if pleasant feelings, such as authentic pride, are a proximal goal of emotion regulation, striving to experience authentic pride must be accompanied by instrumental behaviors meant to improve achievement, or else the emotion regulation effort will have no ultimate payoff.

7.3.1 Authentic Pride vs. the Sociometer.

One theory of emotion and goal pursuit that shares a good deal of common ground with our theory of authentic pride and achievement is Leary and colleagues' (1995) sociometer theory. The sociometer is thought to be an internal monitoring system that tracks an individuals'

inclusionary status and emits affective reactions in concordance with status fluctuations, and there are several similarities between the two theories. First, both authentic pride and the sociometer are thought to function to help individuals meet a fundamental human need whose fulfillment confers fitness benefits; authentic pride fulfills the need to achieve and to feel competent (McClelland, 1961; 1987; Ryan & Deci, 2000), whereas the sociometer fulfills the need to belong and to affiliate with others (Baumeister & Leary, 1995; Ryan & Deci, 2000). Second, both gauges emit a pleasant emotional signal when the corresponding need is being met, and low levels of that emotional experience serve as an unpleasant warning that the need is not being met. Third, low levels of the emotional experience are thought to motivate compensatory behaviors to change the situational forces that gave rise to the warning signal; low authentic pride motivates adjustments in achievement behavior, whereas low self-esteem motivates a tendency to either derogate a group from which one has been excluded (i.e., to lessen the appearance of one's low status) or to reintegrate with the group.

Fourth, and in contrast to emotion regulation theories reviewed above (Larsen, 2000; Schwarz, 1990), both of these models explicitly state that attainment of the pleasant emotional feeling is a means to an end rather than the end goal itself. The ultimate reason why individuals regulate their achievement behavior or attempt to ingratiate themselves with a social group is to increase achievement or attain inclusionary status. In contrast, although individuals may pursue achievement or inclusionary status due to the perceived affective payoffs (e.g., feeling authentic pride or high self-esteem), these pursuits are viewed merely as proximal forces in both theories; authentic pride and high self-esteem are, from an evolutionary sense, merely byproducts that arise when individuals change their achievement behavior to ensure future success or when individuals respond to exclusion by regaining a measure of social status.

Despite the numerous similarities between the two theories, however, and the tremendously generative influence that Leary and colleagues' (1995) theory has had on our thinking during this research program, the two theories differ in the accumulated evidence for the functionality of each, thus far. In Studies 3, 4, and 5 of the present research, we demonstrated that authentic pride affected both planned and actual downstream behaviors (i.e., changes in study habits, changes in training plans) and concrete achievement outcomes (i.e., exam grades), and, across all studies, we demonstrated that authentic pride gauged success on actual, high-stakes achievement tests and actual progress in one's running. In contrast, three of the five studies presented in Leary and colleagues' (1995) sociometer paper showed correlations between feelings of inclusionary status and feelings of low self-esteem, either at a dispositional level or within a hypothetical scenario about which individuals were asked to write, and a fourth study demonstrated that feelings of self-esteem fluctuated in accordance with perceived social exclusion from an experimental confederate.

In only one study did Leary and colleagues' (1995) begin to address the functional consequences of the sociometer; participants who had been excluded from a social group formed for the purpose of the study reported less positive evaluations of their group members and weaker motivation to be a part of that group. Although this evidence is theoretically consistent with the prediction that low self-esteem should motivate behaviors to lessen the perceived scorn of social exclusion, the reliance on self-report ratings of hypothetical feelings and motivations does not provide as strong a link with concrete outcomes as do the reports of studying or training behaviors and actual exam grades reported in our Studies 3, 4, and 5. In sum, authentic pride and the sociometer, although similar in many respects, differ in the degree to which they are supported by evidence of concrete behavioral outcomes, an evidentiary standard increasingly

seen as a crucial step in supporting broad social psychological theories (cf., Baumeister et al., 2007).

7.4 Future Directions

In an effort to better understand the mechanisms by which authentic pride exerts an informational influence on achievement success, we foresee several compelling future avenues for research. One key question that merits attention is whether differences in self-standards, cognitive attributions, or performance expectancies influence the degree to which authentic pride is activated in response to achievement success or failure, and in turn whether these differences affect the nature of authentic pride's downstream consequences. Given that individuals vary in their ideal and ought self concepts (i.e., the characteristics one feels as if he or she should embody; Higgins, 1987), and given that self-conscious emotions are generally thought to arise in response to events that carry strong implications for one's self-evaluation (Fridja, 1988; Tracy & Robins, 2004), one might predict that authentic pride would respond to poor achievement performance most strongly for individuals whose ideal self-concept involves taking on the role of an exemplary student or athlete, whereas authentic pride would not act as a strong signal of achievement performance among individuals who place little importance on achievement. Indeed, indirect evidence suggests that self-standards may compete with authentic pride when informing individuals as to their level of achievement success; individuals asked to evaluate their performance on an achievement test tend to rely on their chronic perceptions of their abilities (i.e., how smart they believe they are) independent of their actual test performance, even when those self-perceptions are transiently induced (Ehrlinger & Dunning, 2003).

A second potential moderator of the informational influence of authentic pride is the attributions for the event that gives rise to an achievement success or failure. A substantial body

of research has demonstrated that pride arises when individuals attribute achievement success to internal, controllable, causes (e.g., effort, preparation; McFarland & Ross, 1982; Tracy & Robins, 2007; Weiner et al., 1979), and that individuals who attribute success to internal causes feel a greater expectation that they will succeed in future achievement contexts (Weiner, 1985). As a result one might predict that authentic pride may not act as a strong signal in the event that achievement success or failure is attributed to an external or uncontrollable cause (e.g., luck, test difficulty), because the performance outcome does not reflect upon the individual's competence. Similarly, one might predict that external and uncontrollable attributions for failure might decrease the extent to which authentic pride influences changes in preparation habits, given that these attribution patterns make future success seem unlikely. Future research should examine whether individual differences in conscientiousness or need for achievement, as well as differences in causal attribution patterns, interfere with or otherwise moderate the informational influence of authentic pride on achievement. In more concrete terms, does authentic pride function equally for all people or does it preferentially function for those who are highly invested in their achievement performance and those who feel self-efficacy regarding their future performance?

A second key question for future research is whether or not authentic pride functions similarly in non-achievement domains. We have argued that authentic pride is a mechanism that gauges and promotes achievement for the purpose of promoting prestige-based status, and have tested this theory in domains highly relevant to Western individuals' sense of achievement (i.e., academics, athletics). However, self-conscious emotions are thought to have evolved as functional mechanisms that serve broader social goals (Tracy & Robins, 2004), and some researchers have suggested that authentic pride may function as a barometer of success in a wide

range of endeavors that signal one's value to the social group (M. R. Leary, personal communication, January 19, 2013). For example, authentic pride might arise when an individual donates to charity, teaches a life lesson to a child, or cleans up a mess in the kitchen. These and many other behaviors, while not representing conventional indices of achievement (McClelland, 1987), all constitute a demonstration of one's value to a social group to which one belongs, whether it be a larger collective (e.g., a community foodbank) or a specific interpersonal relationship (e.g., with one's child; cf., Brewer & Gardner, 1996). Indeed, definitions of achievement and value to the social group may vary across cultures; research has shown that individuals in small-scale foraging societies gain status and influence through tasks such as catching large amounts of food or knowledge of plant-based medicine (Reyes-Garcia, Molina, & Broesch, et al., 2008; Rogers & Neill, 1966; Sinha & Mehta, 1972; von Rueden, Gurven, & Kaplan, 2008). If we are to define achievement broadly as performing a behavior that signals value to the social group, the possibility exists that authentic pride may serve as a functional barometer of success across social domains, which would buttress our view of authentic pride as an adaptive psychological mechanism.

Finally, although we have focused exclusively on the informational influence of authentic pride on individual achievement, researchers should examine the functionality of authentic pride at the group level. McClelland (1961) argued that high levels of achievement motivation exert a causal influence on economic development at a national level; small scale societies and industrialized countries that exhibited greater achievement imagery in folk tales and children's stories were shown to exhibit a range of economic growth indices, including a high frequency of entrepreneurial activity, electricity production, and rise in national income. Importantly, McClelland (1961) hypothesized that a rise in achievement motivation signaled an increased

national-level preoccupation with economic growth: “It is as if many of the backward countries realize their backwardness and are now motivated to close the gap between themselves and the more industrially developed countries... What [this interpretation] suggests once again, however, is that the n Achievement score is a sensitive barometer of a concern felt in a country for economic development” (pp. 102). Evidence presented in the present research would suggest a slight amendment to McClelland’s prediction: a country’s level of achievement motivation is not a barometer in and of itself, but rather is a result of the operation of a separate barometer, namely authentic pride. We would predict that low levels of national authentic pride signal to the citizens and government of a nation that they are falling behind in the global economic race, and subsequently motivates the implementation of compensatory economic policy and action to stimulate growth. Such compensatory action manifests as increased achievement motivation, thereby appearing as a barometer gauging national-level dissatisfaction with current economic growth. Our hypothesis, while speculative, represents a fascinating avenue for future inquiry.

7.5 Conclusion

The present set of five studies has provided the first empirical evidence that authentic pride gauges success in concrete achievement domains and, in turn, influences downstream achievement behaviors in a functional manner that promotes increased success. Together, these findings are consistent with the contention that authentic pride represents a functional psychological adaptation that promotes achievement, in the service of facilitation the attainment of prestige-based social status. These findings help substantiate prior claims that authentic pride evolved to promote achievement through its motivational and non-verbal signaling properties (Cheng et al., 2010; Tracy & Robins, 2007; Tracy et al., 2010), and provide empirical support for control-processes of emotion and goal-directed behavior as the underlying mechanism

facilitating pride's functional effects on achievement (Carver & Scheier, 1990; Hsee & Abelson, 1991; Leary et al., 1995; Simon, 1967). In sum, when we endeavor to succeed in an achievement domain—whether academic or athletic—we may be best served to heed the information provided by our authentic pride and adjust our strategies accordingly. If, upon asking ourselves, “*how do I feel about my performance,*” we feel a low sense of pride, that feeling likely provides a unique and functional insight into our actual level of performance.

Figure 1

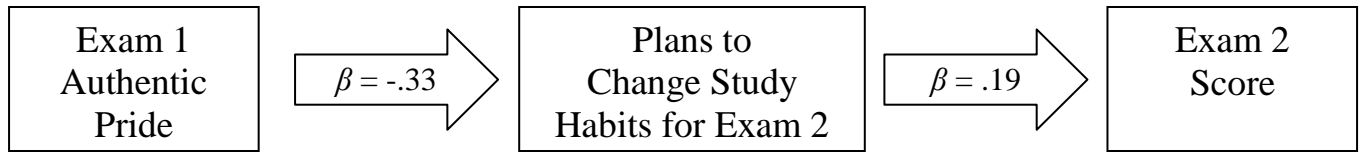
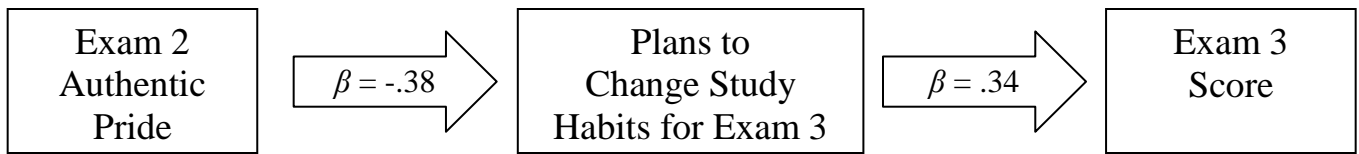


Figure 2



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