From "Me" the Scholar to "Me" the Saint: Reducing the Negative Behavioral and Affective Consequences of Contingent Self-worth

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This dissertation titled

From "Me" the Scholar to "Me" the Saint: Reducing the Negative Behavioral and

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Abstract

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From "Me" the Scholar to "Me" the Saint: Reducing the Negative Behavioral and Affective Consequences of Contingent Self-worth

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The present studies support the assumption that when an important part of selfworth is threatened, priming a different part of self-worth reduces negative consequences associated with the threat. In particular, I test the hypothesis that shifting the weight, or temporary importance, from one contingency of self-worth (CSW) to a different contingency of self-worth will reduce self-handicapping and prevent lowered self-esteem and negative affect experienced when failure occurs in an important domain. Results across four studies partially support this hypothesis. Studies 1 and 2 limited the CSW domains to virtue and academic success. As predicted, priming a CSW that is inconsistent with the task domain (e.g., priming virtue after negative academic feedback), resulted in less self-handicapping relative to priming a CSW that is consistent with the task domain (e.g., priming academics after negative academic feedback). Similarly, for people whose self-worth is staked in academic success, an inconsistent prime/task procedure resulted in marginally higher self-esteem and less negative affect relative to a consistent prime/task procedure. Studies 3 and 4 extended the domain to athletics. Although significant differences were not found between consistent and inconsistent prime/task procedures with regard to self-esteem or negative affect (Study 4), overall sports domain importance interacted with prime/task consistency to predict selfhandicapping in the hypothesized direction (Study 3). Finally, the proposed intervention was effective in increasing intrinsic motivation on athletic and academic tasks, suggesting that priming a CSW in a non-threatened domain may be effective in promoting a greater sense of autonomy and enjoyment in a threatened CSW domain.

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Chapter 1: Introduction

In his documentary *Muse*, basketball star Kobe Bryant says of failure, "My brain...it cannot process failure. It will not process failure. Because if I sit there and have to face myself and tell myself, 'You're a failure'...I think that's almost worse than death" (as cited in Foster, 2015). For Bryant, these strong words suggest that failure on the basketball court is not only intimately connected to his sense of value as an athlete but, perhaps, also as a human being in general. In a similar, albeit less dramatic example, sentiments such as, "I let myself down," or "I let my family and teammates down" are commonplace in post-game interviews. Following her loss, professional boxer Kina Elyassi said, "I felt like I'd let myself down as well as those who supported me most," ("Psychology of Losing," n.d.) Likewise, after falling short in his major league debut, pitcher Anthony Ranaudo echoed a similar message, saying to reporters, "I let myself and my teammates down" (Jennings, 2015). Like Bryant, these words suggest that something about failing in sports translates more broadly to failure of the self in general. Following a tough day on the mound, Ranaudo is not only a bad pitcher, he is also a terrible teammate; not only did Elyssi get knocked out, she also fell short as a family member and friend.

This relationship between performance and more general feelings of self-worth is not only reserved for sports and professional athletes. In their theory of contingent selfworth and global self-esteem, Crocker and Wolfe (2001) suggest that when one's selfworth is dependent upon perceived success in *any* domain (e.g., academics, virtue, sports), the result is the tireless pursuit of such success and, ultimately, fragile self-esteem that is dependent on meeting or exceeding certain standards (e.g., getting A's, being virtuous, scoring 20 points a game). Important to their theory is that fluctuations in selfesteem are not experienced in response to just any failure or success. Rather, the domain in which these outcomes occur matters. A student who cares very little about success in school, for example, will not be affected by a poor grade in the same way as a student for whom success in school is central to her self-worth. Likewise, although losing a basketball game may make Kobe Bryant feel like a failure who is unable to face himself, falling short in other domains (e.g., school, appearance) may not have the same dramatic effect on his self-evaluations. In this way, it is the domains in which people stake their self-value, or what Crocker and Wolfe more formerly call their *contingences of self-worth* (CSW), and the successes and failures that occur within those domains which are critical to their more global feelings of worth.

Importantly, lowered self-esteem in itself, although undesirable, is not necessarily the most problematic outcome of contingent self-worth. Rather, it is the behaviors associated with *avoiding* lowered self-esteem and *seeking* self-esteem that result in negative outcomes (Crocker & Park, 2004). Self-handicapping, or sabotaging opportunities for success, is one particularly problematic form of self-protection because it entails preemptive behaviors, for example, procrastination (Ferrari & Tice, 2000), failing to work hard (Rhodewalt & Tragakis, 2002), and consuming alcohol (Higgins & Harris, 1988), that are designed to inhibit performance. A study by Niiyu, Brook, and Crocker (2010), for example, demonstrated that students whose self-worth is staked in academic success and who also believe that intelligence can improve were less likely to practice and more likely to engage in performance inhibiting activities prior to taking an academic test. Presumably, these students who set themselves up for failure, in fact, care deeply about success in school. Failure in the important domain, therefore, has the potential to devastate their self-evaluations. In this way, self-handicapping is an ingenious form of self-protection: if failure in an important domain occurs, people have an excuse that preserves self-esteem (e.g., "It's not that I'm not smart, I just didn't study," or, "I'm still a great athlete, I was just really hung-over during the game").

In the following paper, I focus on three specific outcomes of contingent selfworth, namely, self-handicapping, lowered self-esteem, and negative affect, and offer a strategy to prevent these outcomes when threats to self-worth are experienced. In particular, I propose that when an opportunity for success or failure arises in a given CSW (e.g., academics, sports) and self-worth is on the line, shifting focus to an alternate CSW (e.g. virtue), thus reminding people of a different, important aspect of their selfworth, will reduce negative consequences associated with the threat. In other words, if Kobe Bryant and the other athletes in the aforementioned examples were reminded of a different aspect of their self-worth after falling short on the basketball court, baseball mound, and boxing ring, I believe that blows to their self-esteem would be reduced and their more general feelings of self-worth would remain intact.

CSW versus Domain Importance

Importantly, the proposed strategy assumes that CSW are grounded in introjected or external motivation and can influence one's self-worth either positively, in the case of perceived success, or negatively, in the case of perceived failure (Wolfe & Crocker, 2003). It is this quality of CSW, namely, their unique relationship to self-worth, which, in part, make them powerful drivers of motivation and behavior. When an aspect of self-worth is threatened, seeking or protecting self-esteem become primary self-motives, overshadowing other self-motives such as consistency or self-assessment (Sedikides, 1993), as well as other values or goals in general, for example, relatedness with others, health, and ethics (for a review, see Crocker, 2002). While some identities may fall under this definition, others may not. One can identify as an athlete and care deeply about sports, for example, without losing a game having an effect on more global feelings of self-worth or resulting in a self-loathing type reaction such as the kind Kobe Bryant describes in the aforementioned example. Likewise, one can identify as a student and find school important for a variety of reasons (e.g., learning itself, career aspirations) without failure in school causing reductions in self-esteem or successes in school causing extreme elation. In short, there are many possible reasons other than self-esteem that one may find a domain important (Brook, 2005; Ryan, et al., 1996).

In this way, although CSW and domain importance are undoubtedly related (i.e., a domain on which self-worth depends is also likely important for that very reason), there is a conceptual distinction between them which should result in different outcomes when threat arises in a CSW versus an important domain not tied to self-worth in the same way (Brook, 2005). Research suggests, for example, that although domain importance and CSW scores have moderate to strong correlations ranging from .44 in academics (Brook, 2005) to .89 in religion (Crocker, Karpinski, Quinn, & Chase, 2003), higher academic CSW scores predict fluctuations in self-esteem in response to academic successes and

failures, whereas academic domain importance does not (Crocker, Karpinski, Quinn, & Chase, 2003). Similarly, Brook (2005) found that while basing self-worth on academic success predicted lower intrinsic motivation and worse performance on difficult academic tasks (but not for easier tasks, which, presumably are less threatening to self-esteem), the same relationships were not found for domain importance.

This distinction between CSW and domain importance is critical in differentiating the proposed intervention from those offered by self-affirmation and self-complexity researchers. In general, self-affirmation interventions require people to write about an important value before exposing them to threatening information (e.g., asking an alcoholic to stop drinking). Research demonstrates that such self-affirmation exercises result in people being less defensive and more receptive to the threatening message (e.g., Steele, 1988; Harris & Napper, 2005; Epton & Harris, 2008). One of the ways in which self-affirmation interventions are thought to operate is through inducing more selfcomplexity, or by broadening the self and making more identities salient, which should result in less spill-over or activation to other self-concepts when positive or negative events occur in a given domain (Critcher & Dunning, 2015; Linville, 1985). Thus, it is hypothesized that people with higher self-complexity experience less negative affect in response to negative outcomes and less positive affect in response in positive outcomes. To test this hypothesis, one common manipulation entails organizing trait cards into either three (low complexity condition) or seven (high complexity condition) categories (e.g., Halberstadt, Niedenthal, & Setterlund, 1996). Framed in terms of CSW, this could

be thought of as comparing a person whose self-worth is staked in three domains versus a person whose self-worth is staked in seven domains.

Although the values affirmed in self-affirmation interventions may be *important* to someone, it is not clear that one's self-worth is necessarily dependent on those values in the same influential way as one's self-worth is dependent on CSW. Given this distinction, negative feedback in a given domain, for example, academics, should result in more negative outcomes (e.g., lower self-esteem, increased self-handicapping) for people whose self-worth is staked in academic success relative to people who may value or find academics important but whose self-worth does not depend on academic outcomes in the same way. Likewise, given CSW's ability to increase self-esteem in response to positive outcomes and provide motivation to seek out opportunities for success (e.g., Brook, 2005), bringing to mind a CSW (e.g., athletics) when threats to selfworth are experienced in a different CSW (e.g., academics) should offer more of a protective buffer relative to bringing to mind a domain not as closely related to one's self-worth. In other words, an intervention which fights strength with strength and capitalizes on the unique, albeit problematic, power of CSW to influence self-esteem in both positive and negative directions should provide protections beyond what other non-CSW identities and values could offer. To my knowledge, self-affirmation interventions have not distinguished between domain importance and CSW or explored the effect that such a distinction could have on interventions aimed at reducing negative outcomes in the face of threatened self-esteem.

This distinction between CSW and domain importance is further supported by McConnell's (2011) multiple self-aspects framework (MSF) which describes how the self is organized and how this organization contributes to affect and self-evaluation. In particular, the MSF suggests that negative events that implicate a given self-aspect (e.g., failing a math exam) will only influence affect and self-evaluations to the extent that the self-aspect in question (e.g., "math student") is accessible in memory. Some self-aspects are more central to one's identity, more chronically accessible, and thus, hold more power to influence affect both positively and negatively. Although McConnell does not explicitly discuss CSW within the context of his model, I would argue that domains on which one's self-worth depends (i.e., CSW) are comparable to the more central, chronically accessible self-aspects that he describes. For this reason, a threatened selfaspect, or CSW in this case, should not only result in more negative self-evaluations and affect relative to less chronically accessible self-aspects, but activating a non-threatened CSW should render the threatened CSW less accessible in that moment and thus, according to the model, less capable of influencing affect.

Contingent Self-worth and its Cognitive, Motivational, and Behavioral

Consequences

Crocker and Wolfe's (2001) theory of contingencies of self-worth and global selfesteem builds on the work of William James (1890) and distinguishes between more stable self-esteem, or *trait* self-esteem, and self-esteem that fluctuates more readily in response to failures and successes in important domains, or *state* self-esteem. Contingencies of self-worth, therefore, are those domains for which relevant successes and failures cause state self-esteem to fluctuate around one's more consistent level of trait self-esteem. In this way, a person's sense of self-worth in a given moment is a result of the unique make-up of her self-worth, or the domains in which her self-worth is staked (i.e., CSW), the outcomes that occur within those domains, and the level of self-esteem that results. Importantly, although one's level of trait self-esteem is relatively stable and consistent over time, it is impacted by levels of state self-esteem. In particular, when failure occurs in a self-relevant domain, levels of state self-esteem may decrease which, in turn, has the *potential* to cause reductions in one's more stable level of trait selfesteem. This potential signals that one's self-worth is vulnerable and leads to an array of motivational, behavioral, affective, and cognitive consequences. In this way, although unstable self-esteem that fluctuates in response to failures and successes in self-relevant domains is one of the most well-documented effects of contingent self-worth (e.g., Crocker & Park, 2003; Crocker & Wolfe, 2001), the outcomes associated with seeking self-esteem and avoiding reductions in self-esteem are problematic in their own right.

From a motivational and behavioral perspective, for example, contingent selfworth leads people to seek out activities that have the potential to boost their self-esteem and avoid activities that have the potential to reduce it. This motivation to seek success and avoid failure ultimately determines how people spend their time. The more female undergraduates' self-worth is staked on appearance, for example, the more they tend to party, exercise (Crocker, Luhtanen, Cooper, & Bouvrette, 2003), binge drink (Luhtanen & Crocker, 2005), and engage in disordered eating (Egnatios, Park, & Crocker, 2004). The more students' self-worth is staked in academic success, the more likely they are to self-handicap (Niiyu, Brook, & Crocker, 2010) and the more time they spend studying, despite not necessarily receiving better grades (Crocker & Luhatnen, 2003).¹ In the moral domain, the more male students base their self-worth on outperforming others, the more likely they are to cheat on a competitive test (Niiya, Ballantyne, North, & Crocker, 2008).

CSW also have cognitive and affective consequences and can shape both the interpretations of events as well as how events make people feel. For instance, the more students' self-worth is staked in academic success, the more negative affect they experience after receiving negative academic feedback (e.g., a graduate school rejection letter) and the more their self-esteem can be expected to decrease (Crocker, Sommers, & Luhtanen, 2002). A study by Sommers and Crocker (2000) demonstrates the cognitive implications of contingent self-worth. Participants read a vignette describing a person who found a wallet and returned it, only to be berated by the ungrateful owner. When participants were asked to imagine that this had actually happened to them, those for whom self-worth was staked in virtue experienced increased self-esteem (they focused on the fact they did the right thing by returning the wallet), whereas those for whom self-worth was staked in others' approval experienced decreased self-esteem (they focused on being berated and disliked). This example can easily be generalized to athletes and

¹ Interestingly, extra time spent studying does not necessarily lead to better grades for students whose selfworth is contingent on academic success. In particular, Crocker & Luhtanen (2003) found that, in general, more time studying predicted higher GPA, but CSW-academic scores did not predict GPA. Although speculative, it could be that students whose self-worth is staked in academic success are unable to study as effectively due to pressure, anxiety, or negative affect.

students. Depending on the unique makeup of their self-worth, failure on an exam or on the sports field may be interpreted and thus experienced very differently from one athlete or student to the next. A failure that is experienced as "worse than death" for a professional athlete whose self-worth is heavily staked in athletic success, for example, may be experienced less negatively by an athlete who only plays recreationally.

Solutions to Contingent Self-worth

Given the consequences of contingent self-worth and, specifically, the negative behaviors (e.g., self-handicapping) and reductions in self-esteem that can result from failures in important domains, a solution that prevents these outcomes would be valuable. Thus far, two solutions to contingent self-worth have been offered. The first, based on Deci and Ryan's (1995, 2000) self-determination theory (SDT), suggests that, rather than contingent self-worth, which depends on meeting extrinsic demands within a given domain, people should work toward establishing *non*-contingent self-worth. Deci and Ryan more formally describe this as *true* self-esteem, or self-esteem that is based on freely chosen goals and motivations that one has fully internalized. For an athlete with true self self-esteem, for example, rather than striving to win and to improve so that she will gain praise (from self and others), her positive self-evaluations will result from engaging in an activity that is experienced as freely chosen and fully accepted (internalized) as her own. In this case, the self is no longer a slave to external contingencies and the need to chase self-esteem by seeking praise and success in important domains disappears.

But despite true self-esteem being an attractive, if not ideal, solution, it is not clear whether non-contingent self-worth is realistic or even attainable, particularly in individualist cultures where competition, materialistic values (e.g., money, appearance, competition), and distinguishing oneself from others are so highly valued (Greenberg, Pyszczynski, & Solomon, 1986; Pyszczynski, Greenberg, & Goldenberg, 2002; Markus & Kitayama, 1991). In a large scale study of first year college students at a university in the United States, for example, only 4% of the sample scored a 3 or below (on a 7 point scale) on each of the seven common CSW (e.g., achievement in school, family love and support, others' approval, religion, outcompeting others, being virtuous, or appearing attractive) (Crocker, 2002). This difficulty of achieving non-contingent self-worth is exacerbated by the fact that once contingencies have developed and become a part of a person's identity, it seems unlikely that they can be fully abandoned (Crocker & Park, 2004).

So what are people to do? On one hand, contingent self-worth may be unavoidable. As soon as a child begins to associate praise and positive feelings resulting from winning a game, getting an A on a quiz, or looking attractive with her sense of selfvalue, the roots of contingent self-worth have been planted. On the other hand, once selfworth is staked in particular domains, an array of affective (e.g., lowered self-esteem, negative affect), behavioral (e.g., self-handicapping, cheating, binge drinking), cognitive (e.g., negative interpretations of outcomes), and motivational (e.g., seeking self-esteem) consequences seem to follow. Given this quandary (i.e., that contingent self-worth may be both unavoidable *and* leads to negative outcomes), a critical issue then is *how*, once contingent self-worth has developed, its negative consequences can be prevented or, at the very least, buffered.

As an alternative to true self-esteem, Crocker and her colleagues (Crocker, 2008; Crocker & Canevello, 2008; Crocker, Nuer, Olivier, & Cohen, 2006; Crocker & Park, 2004) suggest a second strategy in which people maintain contingent self-worth, but choose to let go of egoistic motives and replace them with goals that are inclusive of others' needs and well-being. In this view, rather than a student fulfilling her need to be successful in school by striving to be "the best student in the class," a more productive goal, according to Crocker, would include others, shifting the focus from "me" to "us." In this way, the student would be better off striving to be "the best student in order *to better society or otherwise help others*." Such a shift, Crocker suggests, moves the focus away from the self, thus relieving self-threat and motivation to engage in self-protective behaviors, and toward connectedness with others. Given the important relationship between relatedness with others and well-being (e.g., Leary & Baumeister, 2000), Crocker suggests that connecting in this way through compassionate, shared goals will ultimately lead to positive outcomes (Crocker, 2008; Crocker & Park, 2004).

Crocker's inclusion strategy has proven successful in a number of studies (e.g., Crocker & Canevello, 2008; Crocker, Olivier, & Nuer, 2009), most of which focused on interpersonal relationships and academics. For instance, in a longitudinal study of college students, Crocker and Canevello (2008) tested differences in academic and relationship outcomes over time due to differences in levels of *egosystem* motivation, or a desire to protect or enhance one's own self-worth and self-image, and *ecosystem* motivation, or compassion goals that are inclusive of others' needs. They found that when students were more driven by egosystem versus ecosystem motives, they felt higher levels of loneliness, more conflict, and expressed more desire to outperform others and validate their own intelligence. On the other hand, when ecosystem motivations were high, students felt more closeness with friends and expressed more desire to learn and more interest during their classes.

But although some success has been demonstrated in domains such as academics, it is not clear whether compassion goals are any more realistic than true self-esteem in reducing the negative effects of CSW in those domains in which others' success is directly at odds with one's own success (e.g., sports) or in those domains which are founded on individualistic values (e.g., appearance, competition) that give rise to CSW in the first place. For instance, sports are inherently competitive. An athlete tries to outperform her opponent in a zero-sum game: if I win, you must lose, or vice versa. For athletes who, presumably, are particularly prone to a competitive "me versus you" attitude, compassion goals may even come at a cost to their own performance. A similar difficulty arises in a domain such as appearance. It is difficult to imagine, for example, how others' well-being could be included in one's goals for beauty in a way that removes focus from the self.

A further difficulty is that once contingent self-worth has been established, compassion goals may have to compete with one's primary, overarching motivation to protect or enhance one's own sense of self-value. Research suggests, for example, that rather than becoming more pro-social or compassionate toward others when threats to self-esteem are experienced, the opposite occurs: people tend to become hostile and aggressive unless praise is being offered (Twenge, Baumeister, & Tice, 2001). In support of this view, research suggests that motivation to maintain or enhance one's self-esteem is a primary self-motive, overshadowing other goals such as self-verification and self-assessment (Sedikides, 1993). For people with contingent self-worth, a threatened CSW is particularly problematic, at times leading people to put their own ethical standards, health, and relationships on the line for the sake of boosting self-esteem (Crocker, 2002). Thus, unless others' success is somehow implicated in one's own self-evaluations (e.g., a case of basking in reflected glory), compassion goals, while not necessarily impossible or at odds with self-focused goals, seem unlikely to be the default response when opportunities for success and failure arise in domains central to self-worth.

Building on the work of Crocker and colleagues (Crocker, Olivier, & Nuer, 2009; Crocker, 2008; Crocker & Canevello, 2008; Crocker & Park, 2004), I propose an additional strategy for reducing the negative impacts of contingent self-worth. Importantly, the proposed strategy operates under the assumption that when an important part of self-worth is made salient (e.g., taking an exam), motivations to protect or enhance self-evaluations are inevitably activated. In other words, I assume that selffocused goals are the "default" response to opportunities for success or failure in selfrelevant domains. For this reason, rather than trying to *reduce* self-focused goals by including others or having compassion (Crocker's strategy) or to *prevent* contingent selfworth in general (Deci and Ryan' strategy), the proposed strategy capitalizes on the inevitability of both. In particular, I propose that by temporarily shifting the weight or importance of one CSW to a different CSW, the more salient ("weighted") CSW will alleviate the negative consequences associated with failure in the less salient ("weighted") CSW. Thus, rather than shifting goals from "me" to "us," I suggest that people shift their attention from one CSW (e.g., "me, the student,") to an alternate CSW (e.g., "me, the athlete"). To demonstrate, imagine that a student whose self-worth is heavily staked in academic success is about to take an important exam. Prior to taking the exam, she reads a pamphlet about the importance of ethics and morality, thus priming an alternate CSW (virtue) and temporarily increasing its accessibility in memory. She then takes the exam and receives negative feedback: she got a C when she was expecting to get an A. I argue that the blow to the student's self-esteem and other potential negative consequences of the failure in the important domain will be buffered by the temporary increase in attention to the alternate CSW, namely, virtue. In short, with virtue on her mind, the importance of academics to the student's self-worth, in that moment, is reduced.

Given the pervasiveness of contingent self-worth, a strategy that reduces its negative consequences could serve as an important intervention in various domains. For instance, an athlete who exerts minimal effort as a way to protect her self-worth from the possibility of failure could, prior to the competition, engage in a task in which the importance of a different CSW (e.g., family, school, etc.,) is made salient. The general importance of her sport may be no less essential to her self-worth after such an exercise. However, with a different part of her self-worth on her mind, the acute pressure of the upcoming competition is alleviated, if only for a moment, and her self-protective strategies (e.g., self-handicapping, reduced effort, etc.,) are disrupted.

Overview of Studies

In four studies, I test the effectiveness of the proposed intervention by inducing self-threat (e.g., a looming test or negative performance feedback) and then priming, or bringing to mind, a different, important domain. In particular, I test the hypothesis that shifting the weight, or temporary importance, from one CSW to a different CSW will reduce self-handicapping (Studies 1 and 3) and prevent lowered self-esteem and negative affect (Studies 2 and 4) experienced when an important aspect of self-worth is threatened. More precisely, when the prime and task are in inconsistent domains (e.g., a virtue prime followed by an academic task), less self-handicapping, negative affect, and reductions in self-esteem will result relative to when the prime and task occur in consistent domains (e.g., an academic prime followed by an academic task). Given that CSW are akin to the chronically accessible identities that McConnell (2011) describes in his multi self-aspect framework, priming a CSW that is consistent with the task domain should increase the accessibility of the threatened CSW, thereby exacerbating negative outcomes (e.g., decreased self-esteem) when failure occurs. To contrast, priming a CSW that is inconsistent with the task domain should have the opposite effect. Namely, by increasing attention to a non-threatened CSW, the accessibility of the threatened CSW and therefore its ability to influence affect and self-evaluations in that moment should be reduced.

Results for Study 1 support this hypothesis. Compared to a consistent prime/task procedure, an inconsistent prime/task procedure resulted in less self-handicapping,

regardless of the whether the task was academic or morality related. The hypotheses were partially supported in Study 2. For people whose self-worth was heavily staked in academic success, an inconsistent prime/task procedure led to marginally higher selfesteem and less negative affect relative to a consistent prime/task procedure. No such differences were found for people who did not stake their self-worth in academic success. Studies 3 and 4 extended the domain to athletics. In Study 3, overall sports domain importance interacted with consistency condition to predict self-handicapping in the hypothesized direction. Further, the proposed intervention was effective in increasing interest and enjoyment in the task, as well as perceived choice. Significant differences were not found between consistent and inconsistent prime/task procedures with regard to self- self-esteem or negative affect in Study 4.

Chapter 2: Methods: Study 1

Participants

Participants included 376 undergraduate students enrolled in a psychology course at a large Midwestern university. One participant was excluded from the analysis because of suspicion of the word search's (i.e., the prime's) purpose (N = 375, *Females* = 245, *Mean age* = 19.14,² *SD* = 1.22, *Range* = 18-24). All participants were granted course credit for their participation.

Procedure

The study was administered online. Participants first completed the Contingencies of Self-worth scale (Crocker, Luhtanen, Cooper, & Bouvrette, 2003), followed by the Rosenberg (1965) Self-Esteem Inventory. Participants were then randomly selected to complete a word search designed to prime, or bring to mind, either academic success, virtue, or a neutral mind set. Following the word search, all participants read a cover story, which described the study's purpose "to evaluate your moral [academic] aptitude relative to your peers." Prior to completing the evaluative test (which no participants, in fact, completed), they were given two different chances to demonstrate selfhandicapping: a self-report measure and a behavioral measure. The behavioral measure allowed participants an opportunity to select either "performance inhibiting" or "performance enhancing" music to listen to while completing the test. Finally, participants completed two questions related to their desire to escape, followed by basic

² One participant listed an impossible age of 188. This particular data point was removed in the calculations of the mean and standard deviation of age.

demographic information. They were then asked to report any suspicions before reading a debriefing document that described the purpose of the study.

Measures and Materials

Self-handicapping behavioral measure. Allowing participants to select performance inhibiting or enhancing music prior to a test has been used in past research as a measure of self-handicapping (e.g., Niiya, Brook, & Crocker, 2010; Tice, 1991; Shepperd & Arkin, 1989). Participants read the following description: "Different music has been shown to have different performance effects on moral [academic] reasoning. In order to help us to better understand some of these effects, please choose one of the songs on the next page to listen to while completing the upcoming test." Five song choices were available, ranging from "highly enhancing" to "highly inhibiting." To ensure that participants understood the implied effects of the song choice, after selecting a song, they were asked, "To ensure that you understood the potential effects of your chosen song track, please answer the following question: The music I have chosen to listen to is likely to my performance, [1 = greatly help, 5 = greatly hurt] ($\alpha = .85$).

Self-handicapping self-report measure. A 10-item questionnaire measured constructed and claimed self-handicapping (adapted from Hodgins, Yacko, & Gottlieb, 2006). Constructed and claimed self-handicapping refer to actions that may diminish performance on an upcoming test (e.g., going out last night, alcohol use), or cause failure (e.g., feeling ill). Participants were asked to indicate the extent to which each of the items would interfere with their performance on the upcoming test [1 = not at all, 7 = very much], (α = .90).

Self-esteem. The Rosenberg (1965) Self-Esteem Inventory is a well-known selfesteem measure. Reliability analyses indicated high consistency among items, ($\alpha = .83$)

Contingencies of self-worth. The CSW scale (Crocker, Luhtanen, Cooper, & Bouvrette, 2003) measures the extent to which one's self-worth is staked in various domains. Participants completed six subscales (academic competence, virtue, family support, competition with others, others' approval, and appearance).³ Each subscale consists of five items [1 = *strongly disagree*, 7 = *strongly agree*], (α 's > .77).

Word search prime. Three different word search puzzles were developed as a method of priming academic achievement, virtue, or neutral concepts. The academic word search included the words intelligent, smart, bright, scholarly, and educated, as well as five neutral words (e.g., flower, sweater). The virtue word search included the words moral, virtue, ethical, honest, and integrity, along with the same neutral words used in the academic prime⁴ (see Appendix A). This method of priming concepts was adapted from a study by Chen, Lee-Chai, and Bargh (2001).

Desire to escape. Past research has demonstrated that under threat, people tend to respond with escapist tendencies, or motivation to leave or otherwise escape from the threatening situation (Hodgins, Yacko, & Gottlieb, 2006). This measure was more exploratory in nature, as I hoped to demonstrate that when people believe that evaluation

 $^{^{3}}$ As a test of the self-complexity hypothesis, self-handicapping scores were regressed on the number of domains in which people staked their self-worth (CSW scores > 4). No relationships were found, regardless of experimental condition.

⁴ Pretests were conducted to ensure that people do, in fact, associate the words in the academic prime with academic achievement (and not virtue) and to ensure that they associate the words in the virtue prime with virtue (and not academic achievement). Results supported this assumption.

in an important domain (e.g., academics) is imminent, making that part of their self-worth more salient will cause them to demonstrate a stronger desire to escape relative to those primed with an unrelated CSW. Participants were asked to indicate "how much would you, right now in this moment, like to: 1. Go to sleep; 2. Leave the study [1 = not at all; 15 = extremely].

Chapter 3: Results and Discussion: Study 1

In Study 1, I tested hypothesis that priming a CSW that is inconsistent with the upcoming task will result in less self-handicapping relative to priming a CSW that is consistent with the upcoming task. Orthogonal contrasts were constructed, such that code 1 tested differences between consistent and inconsistent prime/task procedures (.5, -.5), and code 2 tested differences between the academic (-.333) and virtue primes (-.333) relative to the neutral prime (.667). In a hierarchical regression analysis, I regressed behavioral and self-report self-handicapping separately on task (academic or moral), code 1, code 2, CSW-academic and virtue scores, and all possible two-way and three-way interactions. No three-way interactions were significant, so they were removed from the model. Differences between consistency conditions did not vary as a function of CSW scores, so all two-way interactions involving CSW academic and virtue scores were also removed (see Table 1). As predicted, code 1 was the only significant predictor, suggesting that, regardless of task type (virtue or academic), priming a domain that is inconsistent with the upcoming task results in less behavioral self-handicapping relative to priming a domain that is consistent with the upcoming task. Importantly, the neutral prime yielded a mean that fell directly between the consistent and inconsistent conditions, regardless of task type (see Figure 1). No differences were found with regard to selfreport handicapping or any of the other outcome variables. Surprisingly, however, CSWacademic scores predicted decreased self-handicapping, regardless of task of condition. Given past research suggesting that individual variables such as one's beliefs about the malleability of intelligence (e.g., Niiyu, Brook, and Crocker, 2010) can influence selfhandicapping in academics, this result could be due to something inherent in the participants themselves.

Together, these results suggest that when people confront a possible failure in an important domain, shifting weight to an alternate CSW results in less self-handicapping, regardless of how important that domain is to self-worth. One explanation for why no differences in self-handicapping were observed at different levels of CSW scores is that the distribution of both CSW-academic and CSW-virtue scores was similar with very little variability: both were negatively skewed with roughly 90% of CSW-academic scores and 80% of CSW-virtue scores falling above the scale's midpoint of 4.

Table 1

Predictor	Step 1	Step 2
Code 1 ^a	.36**	.36**
Code 2 ^b	.01	.01
Task	.04	.03
CSW-Academic	14*	14*
CSW-Virtue	04	04
Code1 x Task		11
Code2 x Task		.09
ΔF	3.00*	.16
ΔR^2	.04	.001

Regression Analyses Predicting Behavioral Self-Handicapping from Consistency Conditions and Task Type, Study 1

p* < .05. *p* <.01.

^a.50 = consistent prime/task; -.50 = inconsistent prime/task

^b -.333 = academic and virtue primes; .667 = neutral prime



Figure 1. Behavioral Self-handicapping by Prime/Task Consistency Conditions, Study 1

Table 2

Descriptives of Study 1 Predictors and Outcome Variables

Measure	Min	Max	M	SD
CSW-Academic	2.6	7	5.50	.90
CSW-Virtue	2.2	7	5.00	.90
Trait Self-esteem	1.9	6.60	4.66	.90
Self-handicapping (song choice)	1	5	2.20	1.05
Self-handicapping (self- report)	1	7	2.76	1.29
Desire to escape (leave)	1	15	9.25	3.90
Desire to escape (sleep)	1	15	6.31	3.92

Chapter 4: Study 2 Overview

Although self-handicapping is a problematic self-protection strategy that has important implications for people's performance and general well-being, one of the most basic and widespread effects of contingent self-worth is the effect that failure in important domains has on self-esteem and more general feelings of self-worth. In particular, a primary aspect of Crocker & Wolfe's (2001) theory of contingent self-worth and global self-esteem is that failures and successes in important domains cause state self-esteem, or one's self-evaluations in a given moment, to fluctuate around one's more stable level of trait self-esteem. Thus, finding a method in which reductions in state selfesteem experienced in response to failure in important domains could be prevented has high practical value and goes to the heart of CSW research and theory. Study 2 will address this directly. In particular, I will conduct a laboratory study to test the hypothesis that priming a CSW that is inconsistent with the task domain (e.g., priming virtue prior to an academic task) will result in higher state self-esteem and less negative affect after receiving negative feedback, relative to priming CSW that is consistent with the task domain (e.g., priming academics prior to an academic task).

Chapter 5: Methods: Study 2

Participants and Procedure

Participants included 261 undergraduate students (*Females* = 178, *Mean age* = 19.33, SD = 1.23, *Range* = 18-26) at a large Midwestern university who received course credit for their participation. Upon entering the lab, participants were taken through the informed consent procedure. After agreeing to participate, a confederate briefly explained the (fabricated) purpose of the study: to test the relationship between personality variables and aptitude in different domains. Participants were directed to a computer, on which they completed five CSW subscales⁵ (Crocker, Luhtanen, Cooper, & Bouvrette, 2003) followed by the Rosenberg (1965) Self-Esteem Inventory. They were then randomly selected to complete either the academic or moral aptitude test, followed by either the academic or virtue prime (identical to those used in Study 1). All participants then received negative performance feedback before completing the following dependent measures: a measure of motivation to improve their future performance, a state self-esteem scale, and an affect scale. Finally, participants were questioned for suspicion and fully debriefed.

⁵ As a test of the self-complexity hypothesis, negative affect and state self-esteem were separately regressed on the number of domains in which people staked their self-worth (CSW score > 4). In general, self-worth staked in more domains led to higher levels of negative affect, ($\beta = .24$, p = .008), following negative feedback, regardless of experimental condition. No relationship was found between CSW domains and state self-esteem. Although speculative, this suggests that having self-worth staked in multiple CSW may offer little protection against threat and may even be detrimental.

Measures and Materials

State self-esteem scale. The state self-esteem scale is identical to the Rosenberg (1965) Self-Esteem Inventory, except that the phrase "Right now..." is added prior to each statement ($\alpha = .93$).⁶

Affect scale. Participants rated the extent to which they experienced negative affect (angry, frustrated, mad, annoyed, tense, agitated, preoccupied, irritated) and positive affect (happy, cheerful, proud, agreeable, pleased, content, energetic) [1 = not at all, 7 = very much]. This scale was adapted from a study by Park & Crocker (2008). Reliability analyses indicated strong consistency amongst items in each scale (α 's > .90).

Motivation. After receiving negative feedback and completing the prime, participants were given the opportunity to receive practice materials which, they were told, would improve their performance. They were then asked the following: "Would you be interested in getting more information about these learning materials? [1 = not at all interested, 7 = very interested]." This item was exploratory in nature, as I was interested in whether priming an alternate CSW would affect motivation to improve after failure.

Moral and academic aptitude tests. The moral aptitude test consisted of two of Kohlberg's (1958) moral dilemmas followed by a series of questions related to the moral character of the actors in each dilemma and the rightness or wrongness of their decision ("Kohlberg Dilemmas," n.d.). This was followed by an abbreviated version of the Moral Foundations Questionnaire (Graham, Haidt, & Nosek, 2008). The academic aptitude test

⁶ Modifying the Rosenberg (1965) Self-Esteem Inventory to include the words, "Right now,...", has been used as a measure of state self-esteem in previous studies (e.g., Niyya, Brook, & Crocker, 2010; Crocker, Luhtanen, Cooper, & Bouvrette, 2003; Niiya, Crocker, & Bartmess, 2004).
consisted of sample GRE questions, for example, analogies, algebra, and reading comprehension (see Appendix B)

Negative feedback. Upon completing the academic or moral test, participants received the following information: "Your academic [moral] aptitude score was 410 out of a possible 800 points. This falls in the 44th percentile, meaning that 56 percent of your peers are considered to have greater academic [moral] competence."

Chapter 6: Results and Discussion: Study 2

In separate hierarchical regression analyses, state self-esteem⁷ and negative affect were regressed on prime/task domain consistency (consistent or inconsistent), task type (academic or moral), CSW-virtue and academic scores, and all possible two and threeway interactions. All three-way interactions, as well as all interactions involving CSWvirtue scores were non-significant, so they were removed from the model (see Table 3). The interaction between CSW-academic scores and prime/task consistency did not reach significance for self-esteem. However, the pattern of results supports my hypothesis, as the simple slope for consistency was significant in the presence of the interaction. In particular, for people whose self-worth is heavily staked in academic success (+1 SD), a consistent prime/task procedure resulted in lower state self-esteem relative to an inconsistent prime/task procedure ($\beta = -.35$, p = .052). As the importance of academic success to self-worth decreases (-1 SD), differences between consistency conditions were reduced, ($\beta = -.02$, p = .89), (see Figure 2).

⁷A residual measure of state self-esteem controlling for baseline levels of trait self-esteem was created by regressing state self-esteem on trait self-esteem.

Hierarchical Regression Analyses Predicting State Self-Esteem and Negative Affect from Consistency Condition, Task, and Contingency of Self-Worth Academic Scores, Study 2

	State Sel	f-esteem	Negative	e Affect
Predictor	Step 1	Step 2	Step 1	Step 2
Task ^a	.78**	.88**	81**	67*
Consistency ^b	10	35*	.06	.43
CSW-Academic	15*	13	.28*	.07
Task x Consistency		.18		21
Task x CSW-Academic		25*		.05
Consistency x CSW-Academic		22		.35 *
ΔF	20.38**	2.15 *	10.96**	1.08
ΔR^2	.19	.02	.11	.01

*p < .1. ** p < .05. ^a 0 = academic task; 1 = virtue task ^b 0 = inconsistent prime/task; 1 = consistent prime task



Figure 2. Residual State Self-esteem (State Self-esteem, Controlling for Trait Self-esteem) by Consistency Condition at Different Levels of CSW-academic Scores, Study 2

Self-esteem also varied as a function of task type (academic or moral). In particular, the morality task resulted in higher self-esteem compared to the academic task in general. Although this difference was found for people whose self-worth was less dependent on academic success, (-1SD), ($\beta = .50$, p < .01), it was most pronounced for people whose self-worth was heavily staked in academic success (+ 1SD), ($\beta = .88$, p<.001), (see Figure 3).



Figure 3. Residual State Self-esteem (State Self-esteem, Controlling for Trait Self-esteem) by Task at Different Levels of CSW-academic Scores, Study 2

Although only marginally significant, the consistency by CSW-academic interaction yielded a similar pattern of results with regard to negative affect, ($\beta = .35$, p = .09). For people whose self-worth is heavily staked in academic success, a consistent prime/task procedure resulted in more negative affect relative to an inconsistent prime/task procedure, ($\beta = .43$, p = .12.) As the importance of academics to self-worth decreased, this difference diminished, ($\beta = -.11$, p = .67), (see Figure 4).



Figure 4. Negative Affect by Consistency Condition at Different Levels of CSW-academic Scores, Study 2

A main effect was found for task type, such that relative to the academic task, the moral task resulted in less negative affect, regardless of prime and CSW scores (see Figure 5). Although speculative, the more positive outcomes in terms of self-esteem and affect following the morality task suggest that people may not take feedback from a moral reasoning test seriously and thus, may not experience threats to their self-worth. Alternately, it could be that threats to one's sense of morality are experienced as *extremely* threatening, thus resulting in dissonance as people react by fiercely defending that aspect of their self-worth.



Figure 5. Negative Affect by Task, Study 2

Together, the pattern of results in Study 2 provides support for my primary hypothesis. For people whose self-worth is heavily staked in academic success, priming a domain that is inconsistent with the task, thus shifting focus away from the threatened CSW, leads to less negative outcomes in terms of self-esteem and negative emotion, relative to priming a domain consistent with the task.

Measure	Min	Max	М	SD
Negative Affect	1	6.86	2.72	1.32
Trait Self-esteem	2.6	7	5.52	.93
State Self-esteem	1	7	5.37	1.13
CSW-Academic	3.2	7	5.70	.76
CSW-Virtue	1	7	5.13	.93
Motivation	1	7	3.24	1.49

Descriptives of Study 2 Predictors and Outcome Variables

Chapter 7: Overview of Studies 3 & 4

Given the more negative outcomes when the task was academic relative to moral in Study 2, it could be that a test that measures "moral reasoning" is not as plausible to participants as a test that measures academic aptitude. Alternately, it could be that negative morality feedback was experienced as extremely threatening and, as a result, dismissed in a dissonance-inspired reaction. A further issue concerns the distribution of CSW-virtue and academic scores: most participants' self-worth is heavily staked in both domains (M = 5.13, SD = .92; M = 5.70, SD = .76). With such little variability it is difficult to assess whether the intervention was more or less effective based on the extent to which one's self-worth depends on the threatened domain.

Studies 3 and 4 will address these issues by extending the domain to athletics. Athleticism, like academic aptitude, is a skill that is more commonly measured and judged, so feedback regarding one's athleticism should be met with less skepticism. Further, given that some participants may be current collegiate athletes, whereas others may have played a sport in high school or not at all, I expect more variability in the importance of sports to participants' self-worth.⁸

In Studies 3 and 4, I test the hypothesis that for people whose self-worth is staked in academic and athletic success who are to take either an "athletic abilities" or academic test, priming a CSW that is inconsistent with the task (e.g., priming academics prior to an athletic task) will result in less self-handicapping (Study 3), as well as less reductions in

⁸ I conducted a pilot study to ensure that enough undergraduate students' self-worth was staked in sports, as well as to ensure proper variability. Results confirmed both, (N = 110, Mean = 4.75, Median = 5.00, SD = 1.21, Range = 5.80).

self-esteem and less negative affect (Study 4) compared to priming a CSW that is consistent with the task (e.g., priming athletics prior to an athletic task).

An additional goal of Studies 3 and 4 is to distinguish the proposed intervention from self-affirmation interventions, in part, by demonstrating that CSW are unique in their ability to both cause and alleviate negative outcomes when self-worth is on the line. In order to test this possibility, I will include items that measure non-self-esteem reasons for finding a domain important, as well as measures of intrinsic motivation such as enjoyment, tension/pressure, and autonomy. Although I expect CSW and domain importance to be related, I expect them to predict different outcomes. In particular, along with CSW leading to more negative outcomes in general relative to domain importance, the effectiveness of the proposed intervention should vary depending on the extent to which one's self-worth is staked in a given domain. People whose self-worth is dependent on athletic and academic success, for example, should experience more selfthreat upon receiving negative athletic (or academic) feedback, as well as more relief upon being reminded of a different aspect of their self-worth, relative to people who find athletics (or academics) important for reasons not as closely related to their self-worth.

Including measures of intrinsic motivation should be helpful in drawing further distinctions between CSW and domain importance. In particular, if CSW are tied to selfworth in a way that produces introjected motivation (e.g., "I have to succeed in sports to feel good about myself"), then higher CSW scores should predict less intrinsic motivation and more tension relative to reasons for finding a domain important that are not tied to self-esteem in the same way (e.g., enjoyment of a sport).

Chapter 8: Methods: Study 3

Procedure and Participants

Participants included 375 students (*Females* = 254, *Mean age* = 18.87, *SD* = 1.21) at a large Midwestern university who received course credit for their participation. The procedure was identical to Study 1 with a few exceptions. First, a test of "athletic ability" replaced the moral aptitude test, and an "athletic success" prime replaced the virtue prime. Second, along with song selection, an additional behavioral measure of self-handicapping was included in which participants were given the chance to take practice questions to prepare for the upcoming test. Self-handicapping operationalized in this way has been successful in a number of studies (e.g., Niiya, Brook, & Crocker, 2010; Rhodewalt & Tragakis, 2002), and it may be a more realistic demonstration of actual self-handicapping behaviors (e.g. procrastinating, choosing not to study, etc.) relative to song choice.

A final difference involves the ordering of the priming task (word search). Rather than occurring prior to the instructions alerting participants of the upcoming test as in Study 1, it occurs after the instructions. It is possible that the delay between the prime and the self-handicapping task in Study 1 may have reduced the prime's effectiveness. Research suggests, for example, that priming is susceptible to decay effects, becoming less effective as time passes (e.g., Higgins & Brendl, 1995; Higgins, Bargh, & Lombardi, 1985). Thus, priming people directly before the self-handicapping task should result in a stronger effect of the priming procedure.

Measures and Materials

Athletic abilities cover story. The athletic ability test cover story is partially adapted from AXON's "Athletic Brain," ("Axon Sports," 2013) an actual sports performance research program which links cognitive skills such as visual accuracy and spatial reasoning to athletic ability.⁹ Participants will not actually complete the test but will, instead, read the following description (see Appendix C for comparable academic abilities cover story):

The current study's aim is to evaluate your athletic ability relative to your peers at Ohio University. Athletic ability can be defined as one's coordination between mind and body and, in particular, one's accuracy and speed in relaying a message to act or react from the brain to the body.

In fact, new cutting edge research within sports psychology and sports performance suggests that there is such a thing as "the athletic brain," which is different and completely unrelated to measures of intelligence or academic aptitude such as the SAT:

> "The brain of an expert athlete is different. Whether it's picking up a curveball out of the pitcher's hand or spotting an open man out of the

⁹ I conducted a pilot study to ensure that the athletic cover story would be perceived as intended, that is, as a test of athletic ability. Results supported this assumption. In paired t-tests, the athletic abilities test was judged as being more a test of athletic ability (M = 5.9, SD = 1.07) and athletic performance (M = 6.0, SD = 1.04), relative to being a test of health (M = 3.93, SD = 1.69), or fitness (M = 4.71, SD = 1.49), all p's < .05. Further, CSW sports scores predicted higher ratings of the extent to which participants relate to the test (i.e., "In thinking of your own athletic background, goals, and expectations, to what extent can you relate to the purpose of this test?" (r = .61, p = .02), as well as the extent to which they found the test relevant to their own lives (i.e., "To what extent would your performance on this test matter to you? In other words, do you think it would provide useful/relevant information to your own life?" (r = .67, p = .009).

corner of their eye, athletes have to be experts at taking in visual information, processing that information, and then making rapid and precise high-speed decisions' ("Axon Sports," 2013)."

Taken together, the factors listed below have been shown to be the best predictors of athletic ability, as each one plays a role in critical sports-specific performance.

> PHYSICAL STRENGTH AND FUNCTIONALITY GENETIC FACTORS VISUAL ACCURACY AND SPEED REACTION AND ANTICIPATION

In support of the strong link between the above factors and athleticism, a test of athletic ability- the EXO-10- has been developed which takes these 4 factors into account. Results of this test have been shown to be accurate and very strong predictors of current and future athletic success. In fact, across a sample of hundreds of professional and top college athletes, a strong, positive correlation has been established between the athletic-specific factors evaluated by this test and athletic performance. In other words, the better people perform on this test, the better their athletic outcomes.

In what follows, you will be asked to complete the EXO-10, which includes a series of exercises related to athletic ability. You will also be asked to answer a few questions about your athletic background as well as that of your family. You will be presented with your score following completion, as well as where you stand relative to peers. Athletic success prime. The athletic word search included the words athletic, Olympics, trophy, sports, and champion, as well as five neutral words (e.g., flower, sweater).¹⁰

Self-handicapping-practice. Prior to the athletic abilities test (which was not actually completed), participants were given a chance to practice the upcoming exercises. The following instructions described the task: "Prior to engaging in the aptitude test, you will be given the option of practicing some of the questions and activities. Research suggests a positive correlation between practice and success on the upcoming test. In other words, the more you practice, the better you should perform. Please indicate the number of questions/activities you would like to practice. After making your selection, please be patient as your practice questions are generated" [0-20].

Overall domain importance. Overall domain importance included two items for academic and athletic domains adapted from Brook (2005): "Doing well in school [sports] is important to me"; "I don't care about school [sports] much at all" [1 = Strongly disagree, 7 = Strongly agree] (α 's > .72).

Specific reasons for domain importance. Items measuring more specific reasons for why a domain may be important other than self-esteem included items such as learning itself, parents, competition, society, friends, and finances (Brook, 2005), [1 = Extremely unimportant, 7 = Extremely important].

¹⁰ As with the virtue and academic primes, pretests were conducted to ensure that people associate the words used in the sports prime with athletic success and not with academic success. And vice versa for the academic prime words. Results support this assumption.

Intrinsic motivation inventory (IMI). Five subscales of the IMI (Ryan, 1982) measured interest and enjoyment, perceived competence, effort, felt pressure and tension, and perceived choice, (all α 's > .83). Although all five subscales are related to aspects of intrinsic motivation, the interest and enjoyment subscale is considered closest to intrinsic motivation on an upcoming task. Examples of items used on this scale include, "I would describe this activity as very interesting," and "This activity will be fun to do" [1 = strongly disagree, 7 = strongly agree] (see Appendix C).

Chapter 9: Results and Discussion: Study 3

As with analyses in Study 1, orthogonal contrasts were constructed such that code 1 tests differences between consistent and inconsistent prime/task procedures (.5, -.5), and code 2 tests differences between academic (-.333) or virtue primes (-.333) relative to the neutral prime (.667). In separate hierarchical regression analyses, I regressed both self-handicapping measures and five IMI subscales on task (academic or athletic), code 1, code 2, CSW-academic and sports scores, and all possible two-way and three-way interactions. None of the interactions were significant for any of the outcome variables, so they were removed from the model (see Table 5). Although in the predicted direction, with the consistent prime/task procedure resulting in more performance inhibiting song choices (M's = 2.23 vs. 2.13) and the selection of less practice questions (M's = 7.19 vs. 7.40) relative to the inconsistent prime/task procedure, these differences did not reach significance. No significant differences were observed between experimental prime (academic or sport) and neutral prime conditions (code 2) on practice question selection (M's = 7.30 vs. 7.31) or song choice (M's = 2.38 vs. 2.18). As expected, higher CSWsports scores predicted the selection of less practice questions, or more self-handicapping. However contrary to expectation, higher CSW-academic scores marginally predicted the selection of *more* practice questions, or less self-handicapping. No significant relationships were found between CSW scores and song choice.¹¹

¹¹ As a test of the self-complexity hypothesis, self-handicapping scores were regressed on the number of domains in which people staked their self-worth (CSW scores > 4). No relationships were found, regardless of experimental condition, p's > .50.

Results for intrinsic motivation were consistent with my hypothesis. In particular, although the athletic task resulted in more interest and enjoyment compared to the academic task in general, there was a significant main effect found for consistency (code 1), such that the consistent prime/task procedure resulted in less interest and enjoyment relative to the inconsistent prime/task procedure. This occurred regardless of task type, as the code 1 by task interaction did not reach significance, p = .85. The same was found for perceived choice or autonomy: regardless of the task, the consistent prime/task procedure resulted in less perceived choice relative to the inconsistent prime/task procedure (see Figure 6). In other words, prior to engaging in a task that threatens an important CSW, priming a different CSW results in more intrinsic motivation and a greater sense of autonomy on the upcoming task. This finding is important because it suggests that, despite CSW being grounded in extrinsic motivation, a non-threatened CSW such as those used in the inconsistent priming condition may actually be useful in increasing intrinsic motivation in a threatened CSW.

Regression Analyses Predicting Self-Handicapping, Interest, and Choice from Consistency Condition, Task, and Contingencies of Self-worth, Study 3

Predictor	Song choice	Practice	Interest & Enjoyment	Perceived Choice
Code 1 ^a	.10	33	37**	34**
Code 2 ^b	.19	.15	.06	12
Task ^c	.17	.69	.29**	.12
CSW-Academic	05	.65*	.11	.07
CSW-Sports	01	64**	.02	12**
F	1.30	2.67*	3.71**	2.67**
R^2	.02	.04	.05	.04

* *p* < .1. ** *p* < .05.

^a .50 = consistent prime/task; -.50 = inconsistent prime/task

^b -.333 = academic and virtue primes; .667 = neutral prime ^c 0 = academic task; 1 = athletic task



Figure 6. Intrinsic Motivation Inventory Subscales by Prime/Task Consistency Condition, Study 3

Domain Importance versus CSW

In order to understand whether domain importance and CSW are distinct constructs and lead to different self-handicapping and motivational outcomes, despite being related to each other, I replaced all interactions involving CSW scores with a measure of overall domain importance, and other more specific reasons for importance,¹²

¹² Other reasons for importance included learning, competition, career, parents, finances, friends, society, and health.

and reran the analyses separately for each term.¹³ Specifically, both self-handicapping measures and all five IMI subscales were regressed on code 1, code 2, task, importance (either overall importance or one of the other reasons for importance), CSW scores,¹⁴ and all two-way and three-way interactions involving importance. None of the three-way interactions in any of the analyses were significant. Among the two-way interactions, overall sports importance interacted with code 1 on self-handicapping (see Table 6). In particular, for people who find sports important (+ 1 SD), the consistent prime/task condition resulted in the selection of less practice questions, or more self-handicapping, relative to those in the inconsistent prime/task condition, ($\beta = -2.53$, p = .056). As sports became less important (- 1 SD), this difference diminished, ($\beta = 1.44$, p = .26) (see Figure 7). Although this result supports the effectiveness of the proposed intervention, it is surprising, particularly given that no such interaction was found with regard to CSW scores in the primary analysis, which, presumably, should be associated with more selfthreat relative to non self-esteem reasons for importance. No significant differences were found with regard to song choice, all p's > .10.

Further distinctions between CSW and overall domain importance were observed in comparing their relationships to self-handicapping in general, regardless of consistency condition or task. As expected, higher CSW-sport scores predicted the selection of less practice questions, or more self-handicapping. Although a similar relationship was

¹³ This method of comparison between CSW and domain importance is consistent with that used by Brook (2005).

¹⁴ Given that self-worth as a reason for importance is likely included in the overall domain importance measure, I controlled for CSW scores in all analyses.

initially observed with regard to overall sports domain importance (i.e., higher importance predicted less practice), it was non-significant in the presence of CSW scores, suggesting that effects on self-worth included in the measure were driving the relationship.

Further, although no relationship was found between academic domain importance and either of the self-handicapping outcome measures as expected, CSWacademic scores predicted an *increase* in the number of practice questions selected (i.e., less self-handicapping). This is consistent with the relationship found in Study 1 with regard to song choice. Although contrary to my expectations, given that CSW have been shown to have positive motivational and self-regulatory consequences (Brook, 2005), this finding is not all that surprising. For example, Crocker & Luhtanen (2003) found that basing self-worth in academics predicted increased studying time, despite not resulting in better grades.

Regression Analyses Predicting Self-Handicapping from Consistency Condition, Task, and Academic and Sports Domain Importance Scores, Controlling for CSW, Study 3

		Practice	
Predictor	Step 1	Step 2	Step 3
Code 1 ^a	35	34	-2.53*
Code 2 ^b	.03	.14	52
Task ^c	.66	.71	.87
Sport Importance	36**	.09	.04
Academic Importance	07	66	66
CSW-Academic		1.03**	1.06**
CSW-Sport		75**	72**
Code 1 x Task			.40
Code 2 x Task			.91
Code 1 x Sport Importance			-1.03**
Code 2 x Sport Importance			25
Code 1 x Academic Importance			.17
Code 2 x Academic Importance			11
Task x Sport Importance			.19
Task x Academic Importance			21
ΔF	1.42	4.36**	1.22
ΔR^2	.10	.02	.03

* *p* < .06. ***p* < .05

^a .50 = consistent prime/task; -.50 = inconsistent prime/task
^b -.333 = academic and virtue primes; .667 = neutral prime
^c 0 = academic task; 1 = athletic task



Figure 7. Self-handicapping by Consistency Condition at Different Levels of Overall Sports Importance, Study 3

Along with overall domain importance, I also expected that more specific, non self-esteem reasons that one may find a domain important (e.g., learning, friends, career) would fail to influence self-handicapping behaviors in the same negative way as CSW. This was mostly supported. Regardless of consistency condition or task, finding academics important because of career aspirations ($\beta = -.21$, p < .01) and learning itself, ($\beta = -.08$, p = .08), and finding sports important because of health ($\beta = -.07$, p = .04), each predicted *less* self-handicapping on song choice. No other significant relationships were found between self-handicapping and specific reasons for either academic or sports importance, p's > .05.

Notable distinctions were also found between CSW and non self-esteem reasons for importance with regard to intrinsic motivation. In particular, whereas overall sports importance predicted higher reported competence, ($\beta = .13, p < .001$), and less pressure and tension, ($\beta = -.18, p < .001$), regardless of task or consistency condition, CSW sports scores predicted decreased competence, ($\beta = -.11, p = .02$) and lower perceptions of choice, ($\beta = -.15, p = .052$). This distinction was further supported by more specific reasons for importance. For example, playing the sport for its own sake, competition, parents, society, and health all predicted increased enjoyment and interest in the task, as well as increased perceived competence, (all β 's between .10 and .15, all p's < .05). Finding sports important because of health reasons predicted increased effort on the task ($\beta = .14, p = .006$), whereas playing the sport for its own sake ($\beta = -.10, p = .05$), and for competition ($\beta = -.11, p = .04$), predicted decreased tension and pressure.

In the academic domain, differences between CSW and domain importance emerged in their relationships with effort. In particular, regardless of task or consistency condition, CSW-academic scores predicted increased effort, ($\beta = .21, p = .01$), but overall academic importance did not, ($\beta = .09, p = .29$). This particular finding supports the assumption that, due to their relationship to self-worth, CSW may be unique in their ability to motivate behavior. Further, finding academics important because of learning itself predicted increased interest and enjoyment in the task ($\beta = .20, p < .001$), increased effort ($\beta = .18, p = 001$), and greater perceived choice ($\beta = .12, p = .02$). Finding academics important for financial reasons predicted decreased tension and pressure on one hand, ($\beta = -.11, p = .04$), but also decreased perceptions of choice on the other, ($\beta = -.11, p = .04$).

Taken together, these results support the assumption that, despite being related to each other (see Tables 7 and 8 for correlations), non self-esteem reasons for domain importance generally lead to more positive self-handicapping and motivational outcomes relative to CSW, particularly in the athletic domain.

Table 7

Correlations between CSW Academics, Overall Academic Domain Importance, and Other Reasons for Academic Domain Importance, Study 3

	1	2	3	4	5	6	7	8	9	10
1. CSW-Aca	-									
2. Aca. Imp.	.54**	-								
3. Learning itself	.26**	.34**	-							
4. Competition	.22**	.10	.16**	-						
5. Career	.34**	.36**	.29**	.19**	-					
6. Parents	.10*	.09	.10*	.22**	.27**	-				
7. Money	.15**	.16**	.08	.17**	.47**	.25**	-			
8. Friends	.03	.08	.18**	.34**	.20**	.43**	.22**	-		
9. Society	.19**	.18**	.14**	.33**	.26**	.40**	.31**	.51**	-	
10. Self-esteem	.33**	.31**	.25**	.36**	.33**	.38**	.33**	.36**	.54**	-
* <i>p</i> < .05, ** <i>p</i> <	.01									

Correlations between CSW Sports, Overall Sports Domain Importance, and Other Reasons for Sports Domain Importance, Study 3

	1	2	3	4	5	6	7	8	9	10	11
1. CSW-Sports	-										
2. Sports Imp.	.79**	-									
3. Sport itself	.62**	.69**	-								
4. Competition	.61**	.67**	.69**	-							
5. Career	.33**	.35**	.24**	.32**	-						
6. Parents	.41**	.41**	.36**	.40**	.69**	-					
7. Money	.32*	.30**	.30**	.36**	.72**	.65**	-				
8. Friends	.46**	.49**	.49**	.51**	.54**	.69**	.53**	-			
9, Society	.43**	.43**	.41**	.46**	.52**	62**	.49**	.68**	-		
10. Self-esteem	.67**	.66**	.59**	.63**	.52**	.66**	.53**	.67**	.64**	-	
11. Health	.48**	.47**	.54**	.50*	.32**	.42**	.36**	.49**	.43**	.68**	-
* p < .05 ** p <	.01										

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Measure Min Max M	[
Descriptives of Study 3 Predictors and Outcome Variables	

Measure	Min	Max	M	SD
Self-handicapping (song choice)	1	5	2.25	1.06
Self-handicapping (practice)	1	20	7.30	5.19
CSW-Academic	2	7	5.62	.78
CSW-Sport	1	7	4.25	1.36
Overall Academic Importance	2.5	7	6.39	.70
Overall Sports Importance	1	7	4.37	1.84
Interest/Enjoyment	1	6.67	3.82	1.06
Perceived Competence	2	7	4.47	.73
Effort	1	7	4.49	1.08
Felt Pressure and Tension	1	6.8	3.25	1.16
Perceived Choice	1	7	4.33	1.17
Specific Importance:Academic				
Learning itself	1	7	5.85	1.19
Competition	1	7	4.03	1.61
Career	1	7	6.58	.78
Parents	1	7	5.76	1.32
Financial Success	1	7	6.08	1.10
Friends	1	7	4.88	1.69
Society	1	7	4.80	1.54
Self-esteem	1	7	5.59	1.28
Specific Importance: Sports				
Playing the sport itself	1	7	4.50	2.02
Competition	1	7	4.42	1.96
Career	1	7	3.02	2.08
Parents			3.62	2.06
Financial Success	1	7	2.73	2.04
Friends	1	7	4.06	2.04
Self-esteem	1	7	4.29	2.02
Health	1	7	5.31	1.67

Chapter 10: Methods: Study 4

Participants and Procedure

Participants included 270 undergraduates at a large Midwestern university who earned course credit for their participation (Mean Age = 19.05, SD = 1.26, Females = 147).¹⁵ The procedure was identical to Study 2, except that an athletic aptitude test and athletic success prime replaced the moral aptitude test and academic success prime, and a neutral prime was added to ensure that any effects found were due to the specific content of the prime or word search, as opposed to the word search itself. After the informed consent procedure, participants were directed to different computers, on which they first completed the CSW subscales (all α 's > .73)¹⁶, domain importance scales (all α 's > .69), and Rosenberg (1965) Self-esteem Inventory (α 's = .90). Next, depending on condition, they either read the academic or athletic cover story. At this point, those assigned to the academic test continued with the test. Those assigned to the athletic test were asked to briefly move to a different room so that they could complete the physical component. After completing the physical component of the test, participants returned to their computers, where they recorded their results and continued with the written component of the athletic test. Upon completion of either the academic or athletic test, they received negative performance feedback and then engaged in either an academic, sports, or neutral priming task (word search). They then completed all dependent measures including state

¹⁵ One participant failed to complete the dependent measures.

¹⁶ As a test of the self-complexity hypothesis, state self-esteem and negative affect were separately regressed on the number of domains in which people staked their self-worth (CSW scores > 4). No relationships were found with regard to self-esteem. However, self-worth staked in more domains led to higher levels of negative affect, ($\beta = .32$, p < .001), regardless of experimental condition.

self-esteem ($\alpha = .93$), negative affect ($\alpha = .91$), and all subscales of the IMI (all α 's > .88). Finally, all participants were debriefed and questioned for suspicion.

Materials

Athletic abilities test. The athletic abilities test begins with a description identical to that used in Study 3 and consists of exercises and questions related to the four factors outlined in the cover story: physical strength and functionality, genetic factors, visual accuracy and speed, and reaction and anticipation. The primary goal was to construct a test that participants *believe* is an actual measure of athletic ability.

The "physical strength and functionality" component includes a handgrip strength test, a push-up test (how many they can do in a 20 second period), and two exercises- the reaching exercise and squatting exercise- adapted from the Functional Movement Screening Test, used by athletic departments and sports performance programs to identify athletic limitations. The reaching exercise entails reaching over your head with one arm (as if scratching your back) and trying to touch your fingers on that hand with your other hand. The distance between fingers on your right and left hand is measured. The squatting exercise entails simply holding a weightless bar over your head and then squatting, while maintaining your posture. A score is given for quality of the squatting position (i.e., whether your back bends, legs buckle, etc.) (see Appendix C).

For the "visual accuracy and speed" component, each question includes a picture of an object (e.g., bubblegum) accompanied by a word (e.g., bubblegum). In some cases, the object displayed matches the word, as in the previous example. In other cases, it does not match. Participants have to state whether it is a match or not as quickly as they can. Some items also require that they select the opposite of what is true. Items were adapted from the "Athlete Mental Skills Profile," ("Athletic Skills," n.d).

The "reaction and anticipation" task include items from the Stroop (1935) Color Word Task and requires participants to name the color of the word as quickly as possible. The final part of the test includes questions related to their own athletic background, their family's athletic background, and their own physical characteristics, for example, height and weight (see Appendix C for complete materials).

Chapter 11: Results and Discussion: Study 4

As with the previous studies, orthogonal contrasts were constructed such that code 1 compared consistent and inconsistent prime/task procedures (.5, -.5), and code 2 compared the experimental primes (academic or sport; -.333) and the neutral prime (.667). In separate hierarchical regression analyses, I regressed state self-esteem,¹⁷ negative affect, and five IMI subscales on task (academic or athletic), code 1, code 2, CSW-academic and sports scores, and all possible two-way and three-way interactions. None of the interactions in any of the analyses were significant, so they were removed from the model (see Table 10). Further, no significant differences in state self-esteem or negative affect were found between prime/task consistency conditions (code 1). Thus, my primary hypothesis was not supported: priming a CSW (e.g., sports) after receiving negative feedback in a different CSW (e.g., school) did little to reduce the negative outcomes associated with the failure. Further, although non-significant, the experimental primes (academic and athletic) resulted in higher self-esteem (M's = 5.22 vs. 4.95) and less negative affect (M's = 2.80 vs. 3.11) relative to the neutral prime. As expected, both CSW sport and academic scores predicted increased negative affect. Only CSW sport scores significantly predicted lowered self-esteem. A main effect was found for task, such that state self-esteem was lower and negative affect was higher for the academic task relative to the athletic task (see Figure 8). Thus, it appears that the academic task may have posed more of a threat to self-worth relative to the athletic task.

¹⁷ A residual measure of state self-esteem controlling for baseline levels of trait self-esteem was created by regressing state self-esteem on trait self-esteem.

No significant differences in any of the IMI subscales were found between the prime/task consistency conditions (code 1), all p's > .05. A main effect for task type was observed such that the sporting task resulted in higher interest, t(267) = 9.88, p < .01, perceived competence, t(267) = 9.06, p < .01, effort, t(267) = 4.14, p < .01, and perceived choice, t(267) = 3.32, p < .01, as well as lower pressure and tension, t(267) = -2.70, p < .01, relative to the academic task (see Figure 9). In other words, people associate more intrinsic motivation with sports in general relative to academics. This is unsurprising given that the sample is composed of undergraduate students who likely participate in sports as an extracurricular activity versus a career.

Table 10

Regression Analyses Predicting State Self-Esteem and Negative Affect from Consistency Condition, Task, and Contingencies of Self-Worth, Study 4

Predictor	State Self- esteem	Negative Affect
Code 1 ^a	.01	05
Code 2 ^b	18	.28
Task ^c	.44**	61*
CSW-Academic	07	.26*
CSW-Sports	09*	.14*
F	6.30**	6.04**
R^2	.11	.10

* *p* < .05, ** *p* < .01

^a.50 = consistent prime/task; -.50 = inconsistent prime/task

^b -.333 = academic and virtue primes; .667 = neutral prime

^c 0 = academic task; 1 = athletic task



Figure 8. State Self-esteem and Negative Affect by Task, Study 4



Figure 9. Intrinsic Motivation Inventory Subscales by Task, Study 4

Domain Importance versus CSW

As with Study 3, in order to compare the effects of CSW with non-self-esteem reasons for finding a domain important, I replaced all interactions involving CSW scores with overall domain importance, and other reasons for importance, and reran the analysis separately for each term. Specifically, state self-esteem, negative affect, and five IMI subscales were regressed separately on code 1, code 2, task, importance (either overall importance or one of the other reasons for importance), CSW scores,¹⁸ and all two and three-way interactions involving importance. No interactions reached significance in any

¹⁸ Given that self-worth is likely included in the overall importance measure, I controlled for CSW scores in the analysis.

of the analyses, so they were removed. As expected, overall academic importance was unrelated to negative affect and, in fact, led to *decreased* negative affect in the presence of CSW scores (see Table 11). On the other hand, the more one bases her self-worth on school, the more negative affect she can expect to experience in response to failure. In other words, despite the correlation between domain importance and CSW scores (r = .49for academics), this particular result suggests that they predict different affective outcomes in response to setbacks. No relationship was found between either CSWacademic scores and state self-esteem or academic domain importance and state selfesteem, regardless of consistency condition or task type.

In the sports domain, there appeared to be extensive overlap between CSW scores and overall domain importance, which was further supported by the strong correlation between the two measures (r = .78). In particular, although CSW sport scores predicted *more* negative affect and overall sports importance predicted *less* negative affect when analyzed separately, ($\beta = .14$, $\beta = -.12$, p's < .05), these relationships became nonsignificant when both variables were included in the same model. A similar result was found with regard to state self-esteem. Overall sports importance and CSW-sports scores both predicted decreased state self-esteem in isolation, ($\beta = -.08$, $\beta = -.09$, p's < .05), but these relationships became non-significant in each other's presence.

Regression Analyses Predicting State Self-Esteem and Negative Affect, from Consistency Condition, Task, and Domain Importance, Study 4

	Negative Affect		State Self-esteem	
Predictor	Step 1	Step 2	Step 1	Step 2
Code 1 ^a	08	01	.03	.02
Code 2 ^b	.26	.26	17	17
Task ^c	60	63*	.45*	.45*
Sport Importance	12**	03	08*	06
Academic Importance	06	25*	01	.02
CSW-Academic		.39*		09
CSW-Sport		.16		03
ΔF	3.69*	8.97*	6.08*	1.16
ΔR^2	.07	.06	.10	.01

* *p* < .05, ** *p* < .01

^a.50 = consistent prime/task; -.50 = inconsistent prime/task

^b -.333 = academic and virtue primes; .667 = neutral prime

^c 0 = academic task; 1 = athletic task

As with the more general measure of domain importance, I did not expect specific, non-self-esteem reasons for finding a domain important to influence self-esteem and affect in the same negative way that CSW do. Results mostly supported this assumption, as competition, career, parents, finances, society, and health as reasons for sports and academic importance were unrelated to self-esteem and negative affect, all *p*'s > .05. However, in the academic domain, peer group as a reason for finding academics important predicted increased negative affect ($\beta = .10, p = .06$) and lowered self-esteem ($\beta = -.08, p = .008$). Surprisingly, learning itself as a reason for academic and sports importance predicted lower self-esteem, ($\beta = -.07, p = .07; \beta = -.06, p = .04$). The fact
that finding academics important because of one's peer group predicted negative outcomes is not all that surprising, as the need to belong and competition with others can lead to extrinsic motivation and, in fact, are considered distinct CSW. More surprising, however, are the negative outcomes predicted by learning itself, which, at least in theory, should be intimately related to intrinsic motives and thus, should focus one's energy toward the process of engaging in the activity as opposed to negative performance feedback.

As expected, distinctions were found between overall domain importance and CSW scores with regard to intrinsic motivation. In particular, regardless of task or consistency condition, overall academic importance predicted increased interest and enjoyment in the task ($\beta = .25, p = .01$), greater perceived competence, ($\beta = .18, p = .06$), increased effort ($\beta = .28, p = .01$), and more choice or autonomy, ($\beta = .23, p = .04$). Similarly, finding academics important for learning itself marginally predicted increased interest and enjoyment in the task, ($\beta = .11, p = .07$), increased effort ($\beta = .18, p = .008$), and more autonomy, ($\beta = .16, p = .02$). The only other relationship between importance and motivation observed was for career, which predicted increased interest and enjoyment, ($\beta = .20, p = .04$).

In the sports domain, overall importance was marginally related to increased perceptions of competence, ($\beta = .12, p = .08$) and decreased tension and pressure, ($\beta = .15, p = .07$). Further, finding sports important because of playing the sport itself marginally predicted increased enjoyment and interest in the task, ($\beta = .07, p = .08$).

Importance because of health predicted increased enjoyment and interest, ($\beta = .18, p < .001$), as well as increased effort, ($\beta = .18, p = .006$).

These positive outcomes with regard to the relationship between non self-esteem reasons for importance and intrinsic motivation can be contrasted with those found for CSW scores. In particular, CSW academic scores predicted decreased perceptions of competence, ($\beta = -.23$, p = .02) and increased pressure and tension ($\beta = .23$, p = .06). CSW sports scores were unrelated to all intrinsic motivation measures.

In sum, it appears that non self-esteem reasons for domain importance generally lead to more positive outcomes with regard to negative affect, intrinsic motivation, tension and pressure, autonomy, and perceptions of competence, relative to CSW. These results are consistent with Brook's (2005) findings that, although highly correlated themselves, CSW and domain importance predict different outcomes, (see Table 12 and 13 for correlations between CSW and importance variables). Importantly, however, the effectiveness of the intervention was not found to vary with CSW scores or any of the domain importance variables. Although this result is consistent with my expectation for domain importance, it runs contrary to my expectation for CSW scores. Specifically, if CSW are unique in their ability to both cause and relieve threats to self-worth, then priming a CSW that is consistent with the task domain should result in more self-threat for people with contingent self-worth, just as priming a CSW that is inconsistent with the task domain should result in more relief, relative to people whose self-worth does not depend on success in the same way.

Table 12

Correlations between CSW Academics, Overall Academic Importance, and Other Reasons for Academic Domain Importance, Study 4

	1	2	3	4	5	6	7	8	9	10
1. CSW-Aca	-									
2. Aca Import.	.47**	-								
3. Learning itself	.14*	.28**	-							
4. Competition	.10	.04	.08	-						
5. Career	.15*	.28**	.28**	.18**	-					
6. Parents	.12	.20**	.06	.16**	.21**	-				
7. Money	.19**	.26**	.05	.23**	.47**	.15**	-			
8. Friends	.09	.07	.21**	28**	.23**	.28**	.14*	-		
9. Society	.07	.07	.15*	.28**	.20**	.17**	.25**	.24**	-	
10. Self-esteem	.24**	.36**	.31**	.13*	.27**	.30**	.17**	.28**	.24**	-

* *p* < .05. ** *p* < .01.

Table 13

Correlations between CSW Sports, Overall Sports Importance, and Other Reasons for Sports Domain Importance, Study 4

	1	2	3	4	5	6	7	8	9	10	11
1. CSW-Sports	-										
2. Sports Imp.	.78**	-									
3. Sport itself	.57**	.69**	-								
4. Competition	.55**	.60**	.65**	-							
5. Career	.29**	.30**	.20**	.30**	-						
6. Parents	.27**	.36**	.27**	.31**	.62**	-					
7. Money	.16**	.22**	.19**	.17**	.70**	.54**	-				
8. Friends	.35**	.51**	.45**	.39**	.46**	.62**	.40**	-			
9. Society	.30**	.35**	.29**	.36**	.45**	.50**	.38**	.49**	-		
10.Self-esteem	.59**	.57**	.51**	.49**	.35**	.39**	.31**	.49**	.43**	-	
11. Health	.35**	.41**	.39**	.39*	.18**	.32**	.15**	.39**	.33**	.56**	-
* $p < .05$. ** $p < .01$.											

Table 14

Measure	Min	Max	M	SD
Negative Affect	1	6.86	2.91	1.34
Trait Self-esteem	2.20	7	5.21	1.06
State Self-esteem	1.30	7	5.13	1.18
CSW-Academic	3.60	7	5.72	.79
CSW-Sport	1	7	4.80	1.22
Overall Aca. Importance	2.5	7	6.39	.87
Overall Sports Importance	1	7	5.16	1.68
Interest/Enjoyment	1	7	4.24	1.37
Perceived Competence	1	7	3.83	1.23
Effort	1	7	4.17	1.31
Felt Pressure and Tension	1	6	3.02	1.31
Perceived Choice	1	7	4.83	1.25
Specific Importance: Academic				
Learning itself	1	7	5.91	1.20
Competition	1	7	4.57	1.66
Career	1	7	6.63	74
Parents	1	7	6.04	1.34
Financial Success	1	7	6.20	1.06
Friends	1	7	5.15	1.60
Society	1	7	5.03	1.47
Self-esteem	1	7	5.49	1.40
Specific Importance: Sports				
Playing the sport itself	1	7	5.45	1.75
Competition	1	7	5.03	1.85
Career	1	7	3.34	2.15
Parents	1	7	3.89	2.09
Financial Reasons	1	7	2.87	2.12
Friends	1	7	4.68	1.78
Society	1	7	3.96	1.73
Self-esteem	1	7	5.12	1.58
Health	1	7	6.10	1.23

Descriptives of Study 4 Predictors and Outcome Variables

Chapter 12: Discussion

My primary aim in four studies was to test the hypothesis that when threat is experienced in a given CSW (e.g., academics), priming a different CSW (e.g., virtue) will buffer negative outcomes such as self-handicapping, lowered self-esteem, and negative affect. Study 1 demonstrated that an inconsistent prime/task procedure (e.g., a virtue prime followed by an academic task) resulted in less self-handicapping relative to a consistent prime/task procedure (e.g., an academic prime followed by an academic task). A similar pattern of results was found in Study 2 with regard to negative affect and selfesteem: for people whose self-worth is heavily staked in academic success, priming a CSW that is inconsistent with the task domain resulted in less negative affect and higher self-esteem relative to those primed with a CSW that is consistent with the task domain. As the importance of academics to self-worth decreased, this effect was reduced.

But despite the success of the proposed intervention in the initial studies, results in Studies 3 and 4, which extended the domain to athletics, were less consistent. In particular, although the pattern of results was in the hypothesized direction, means for the different consistency conditions in the primary analyses were nearly identical, suggesting that priming a CSW that is inconsistent with the upcoming task did little to reduce negative outcomes. Importantly, however, the effectiveness of the intervention was found to vary as a function of overall sports importance (Study 3). In particular, for people who find sports important, the inconsistent prime/task procedure resulted in less self-handicapping relative to the consistent prime/task procedure. As the overall importance of sports decreased, this effect was reduced.

A further encouraging outcome in Study 3 was that differences in intrinsic motivation were observed between consistency conditions. In particular, priming a CSW that is inconsistent with the task domain resulted in higher interest and enjoyment as well as higher perceived choice, relative to priming a CSW that is consistent with the task domain. Given the benefits of intrinsic motivation (e.g., performance, perseverance, enjoyment; Deci & Ryan, 1995) coupled with the negative impact that CSW generally have on intrinsic motivation, this suggests one avenue in which the intervention could be useful and further tested. For example, priming a CSW such as sports success prior to engaging in a task that threatens self-worth (e.g., an academic test) could promote positive outcomes such as enjoyment and a sense that engaging in the test is freely chosen. In this way, even though the development of CSW may be inevitable and likely at odds with intrinsic motives, the proposed intervention may be capable of tipping the scales ever so slightly, moving one's motives, at least temporarily, away from actions driven by demanding self-esteem needs and toward those driven by enjoyment, challenge, and freedom.

A further aim of this research was to differentiate between CSW and domain importance, in part, to demonstrate the special motivational nature of domains that are tied to self-worth. I wanted to show that CSW not only result in negative consequences (e.g., self-handicapping, lowered self-esteem) when threatened, but that their unique relationship to self-worth can also be used to *alleviate* negative consequences. In this way, I expected the effectiveness of the intervention to vary with CSW scores, but not with overall domain importance scores (or other non self-esteem reasons for importance). This was supported in Study 2 with regard to CSW scores, as differences between consistency conditions were found in the predicted direction, but only for people whose self-worth was heavily staked in academics. In observing this finding more closely, it is interesting to note that people whose self-worth was staked in academics who were primed with concepts consistent with the task experienced the most severe outcomes in terms of affect and self-esteem. This group was in a particularly punishing situation: not only did their self-worth depend on success in academics, but this vulnerability was likely exacerbated by the increased accessibility of the threatened domain resulting from the priming procedure.¹⁹ Importantly, however, despite experiencing more negative outcomes relative to people whose self-worth was less staked in academics, they also experienced more *relief* from bringing to mind a different domain (see Figures 2 and 4 for reference). In other words, for people whose self-worth depends on academic success, more threat was experienced in response to negative feedback, yet more relief was enjoyed by thinking of a different CSW. Admittedly, however, a measure of domain importance was not included in Study 2, so it is difficult to assess more direct distinctions between CSW and non self-esteem reasons for importance in their capacity to both cause and alleviate threatened self-esteem.

¹⁹ Although the inconsistent and consistent prime/task conditions referenced here include both virtue and academic tasks, more specific comparisons between the academic prime/academic task condition and the virtue prime/academic task condition closely mirrored those of the broader consistency conditions.

In Study 3, contrary to expectation, rather than the effectiveness of the intervention varying with CSW scores, it was found to vary with overall sports importance. Although I expected CSW scores, rather than overall importance, to interact with prime/task consistency, many different reasons for importance are likely included in the overall sports importance measure (competition, r = .67; friends, r = .49), and therefore may contribute to feelings of threat when an evaluative task in an important domain is looming. A further explanation, however, is that a significant portion of the overall sports importance measure may be comprised of self-esteem reasons for finding the domain important. This is supported by the strong correlation observed between CSW sports scores and overall importance (r = .79), as well as those between specific non selfesteem reasons (e.g., friends, competition, society, etc.) and CSW sports scores (r's between .32 and .62). In this way, although fewer people tend to heavily stake their selfworth in sports (e.g., $\sim 25\%$ of the sample scored 5 or greater on the CSW subscale for sports) relative to academics ($\sim 75\%$ of the sample scored 5 or greater on the CSW subscale for academics), once self-worth becomes dependent on success in sport, non self-esteem reasons for finding the domain important may be overcome by self-esteem demands in a way that differs from academics. Given the extensive time required of serious athletes and the trend toward specializing at younger ages, the significant overlap between domain importance and self-worth is unsurprising.

To further distinguish between domain importance and CSW, I also compared their more direct relationship to each of the outcome variables. In particular, I expected non self-esteem reasons for domain importance and CSW to predict different outcomes in general, despite being correlated with each other. This expectation was mostly supported in Studies 3 and 4. In particular, although there were some discrepancies (e.g., CSWacademics led to less self-handicapping in Studies 1 and 3), CSW scores generally led to more negative outcomes with regard to self-handicapping (in sports), negative affect, and intrinsic motivation, whereas non self-esteem reasons for domain importance were mostly either unrelated to the outcome measures or predicted positive outcomes (e.g., increased interest and enjoyment, autonomy, and perceptions of competence, and decreased negative affect and tension).

The finding that basing self-worth on academics led to less self-handicapping, yet more negative affect and reduced perceptions of competence is symbolic of the powerful, at times contradictory, influence of CSW on behavior, affect, and self-evaluations. On one hand, students who base their self-worth on academics *need* to succeed: their selfworth depends on it. From this perspective, it is not surprising that they would practice more to prepare for an upcoming task. On the other hand, their reliance on success in academics places them at a greater risk for negative emotions and self-evaluations. Over time, one can imagine that the experience of these unwelcome outcomes must come at a cost to the continued pursuit of their goals.

One important limitation which could account for some of the inconsistencies observed in the effectiveness of the proposed intervention, particularly in Studies 3 and 4, is that the athletic task was conducted in a laboratory setting located in an academic building, as opposed to a more sport specific setting, such as a gym or athletic facility. This purely academic setting could have simultaneously exaggerated the extent to which threat was experienced in the academic domain (i.e., participants already had academics on their mind prior to even starting the study and, in fact, were participating in order to gain academic credit), while limiting the extent to which threat was experienced in the athletic domain. This difference was likely exaggerated by the nature of the researchers conducting the study. Rather than coaches or trainers in athletic gear, researchers were academic types wearing regular clothing. This possibility is supported by the main effect found for task type. In particular, relative to the sporting task, the academic task resulted in lower self-esteem, higher negative affect, and more tension and pressure. For this reason, it will be important in future studies to ensure that the conditions are comparable so that any self-threat experienced is due purely to one's CSW.

Conclusions and Future Directions

Kobe Bryant, Kina Elyassi, and likely every serious athlete or academic whose self-worth is dependent, to at least some degree, on success within their chosen field, likely have at least one thing in common: a drive to succeed that, under certain conditions, may seem to overcome all other goals. One way to frame this drive is to locate self-worth at the center of one's self, with all behaviors, motives, and emotions revolving around its demands. Kobe Bryant wished his own death if he should fail on the basketball court. Kina Elyassi felt like less of a daughter after losing a boxing match, a role that, at least on the surface, seems as though it should be far removed from her identity as a boxer. But given the pervasiveness of contingent self-worth as well as the inevitability of failure in important domains, even for stars like Kobe Bryant, a critical question concerns how to prevent the depletion of one's more global feelings of value when such failure occurs. Most research conducted with regard to CSW has focused overwhelmingly on its negative outcomes (e.g., Crocker, 2002; Crocker & Luhtanen, 2003). For this reason, an assumption is made that CSW should be avoided at all costs, in part, because once developed, people become slaves to their demands. Rather than dispute this (CSW do undeniably lead to negative outcomes) the present research sheds light on a different perspective, suggesting instead that the unique ability of CSW to influence emotion, motivation, and behavior, causing Kobe Bryant to feel like he would rather die than lose a game, for example, can also be used in a positive way to alleviate the same negative outcomes that they cause in the first place.

In particular, given the promising results of the intervention in Studies 1 and 2 with regard to self-handicapping, self-esteem, and negative affect, and in Study 3 with regard to intrinsic motivation, future research should continue to focus on the positive consequences that CSW can promote. It is not surprising, for example, that the same motives that move people, on one hand, to engage in irrational behaviors to protect an aspect of their self-worth (e.g., self-handicapping) and on the other, to spend a lifetime engaging in seemingly tedious actions in order bolster it (e.g., spending hours working on free throws), could be effective in buffering threats to self-worth in a different domain. The specific way in which this intervention works to reduce self-threat requires further clarification through more research. However, McConnell's (2011) multiple self-aspect framework may offer a clue. In particular, bringing to mind a non-threatened, but chronically accessible CSW may buffer negative outcomes associated with failure in a different CSW by reducing the threatened CSW's accessibility in memory. Future research needs to establish whether CSW are, in fact, more chronically accessible in memory relative to identities that are not related to self-worth in the same way. But this possibility would explain how CSW can be both a cause of negative outcomes associated with threats to self-worth as well as a powerful solution to those threats.

Given the inconsistent effectiveness of the proposed intervention, a further direction for this research is to explore the more specific differences between individual CSW in their ability to both cause and alleviate threats to self-worth. A lingering question, for example relates to distinctions between individual CSW in their motivational properties. It seems reasonable to assume, for example, that despite all CSW by definition being grounded in introjected or extrinsic motives (e.g., "I must succeed in golf to feel valuable"), some CSW may also contain intrinsically motivated components (e.g., "I love the feeling of hitting a golf ball"). Crocker admits, for example, that not all CSW are created equal: some, like virtue or God's love, generally lead to more positive outcomes compared to CSW that rely more heavily on external measures of success (e.g., wins and losses in sports, grades in school; Crocker & Wolfe, 2001).

As this relates to the current research, it could be that this balance between extrinsic versus intrinsic motivation affects the extent to which threat is experienced within a CSW, as well as the effectiveness of the proposed intervention in reducing that threat. In Study 2, for example, given the relative failure of the morality task to illicit negative outcomes, as well as the effectiveness of the virtue prime in reducing negative outcomes in academics, it could be that virtue as a CSW results in less threat in general and is unique in its ability to buffer against threat in different domains. Sports provide a particularly useful and interesting domain in which to explore this possibility. On one hand, perhaps more than in any other domain, most athletes likely begin playing sports because of an intrinsic interest in it. On the other hand, as the athlete become more skilled and successful, the escalation of extrinsic motives such as money, scholarships, and recognition from others makes the deterioration of intrinsic motives, at least to some degree, seem inevitable. In this way, it is possible and perhaps likely that a professional athlete like Kobe Bryant has both an intrinsic love for basketball, based on the sport itself, as well as a dependence on being successful in it. Understanding how these two different types of motives interact within a given domain to influence the effectiveness of the proposed intervention is an important direction for this research.

In sum, although more research is required to understand the conditions under which the proposed intervention is effective versus ineffective, this research offers a promising solution to the common problems faced by people with contingent self-worth. In particular, it sheds light on the potential of CSW to reduce self-threat experienced in a given domain and thus enable people to strive toward their goals free from the oppressive demands of their self-worth.

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Appendix A: Study 1 Measures and Materials

CSW Subscales

How much do you agree or disagree with the following statements. If you have not experienced the situation described in a particular statement, please answer how you think you might feel if that situation occurred.

VIRT1.1 Doing something I know is wrong makes me lose my self-respect.

- Strongly Disagree
- **O** Disagree
- **O** Somewhat Disagree
- **O** Neutral
- **O** Somewhat Agree
- O Agree
- **O** Strongly Agree

VIRT1.2 Whenever I follow my moral principles, my sense of self-respect gets a boost.

- **O** Strongly Disagree
- **O** Disagree
- **O** Somewhat Disagree
- O Neutral
- **O** Somewhat Agree
- **O** Agree
- **O** Strongly Agree

ACA1.1 My opinion about myself isn't tied to how well I do in school.

- **O** Strongly Disagree
- **O** Disagree
- Somewhat Disagree
- O Neutral
- **O** Somewhat Agree
- O Agree
- O Strongly Agree

VIRT1.3 I couldn't respect myself if I didn't live up to a moral code.

- **O** Strongly Disagree
- **O** Disagree
- Somewhat Disagree
- **O** Neutral
- **O** Somewhat Agree
- O Agree
- **O** Strongly Agree

ACA1.2 Doing well in school gives me a sense of self-respect.

- **O** Strongly Disagree
- **O** Disagree
- Somewhat Disagree
- O Neutral
- **O** Somewhat Agree
- **O** Agree
- **O** Strongly Agree

ACA1.3 I feel better about myself when I know I'm doing well academically.

- Strongly Disagree
- **O** Disagree
- Somewhat Disagree
- O Neutral
- O Somewhat Agree
- O Agree
- O Strongly Agree

ACA1.4 My self-esteem is influenced by my academic performance.

- **O** Strongly Disagree
- **O** Disagree
- Somewhat Disagree
- O Neutral
- **O** Somewhat Agree
- O Agree
- **O** Strongly Agree

VIRT1.4 My self-esteem would suffer if I did something unethical.

- **O** Strongly Disagree
- **O** Disagree
- Somewhat Disagree
- O Neutral
- O Somewhat Agree
- O Agree
- **O** Strongly Agree

ACA1.5 I feel bad about myself whenever my academic performance is lacking.

- **O** Strongly Disagree
- **O** Disagree
- **O** Somewhat Disagree
- **O** Neutral
- **O** Somewhat Agree
- O Agree
- O Strongly Agree

VIRT1.5 My self-esteem depends on whether or not I follow my moral/ethical principles.

- Strongly Disagree
- **O** Disagree
- Somewhat Disagree
- O Neutral
- Somewhat Agree
- O Agree
- O Strongly Agree

Comp.1 I feel worthwhile when I perform better than others on a task or skill.

- Strongly Disagree
- **O** Disagree
- Somewhat Disagree
- O Neutral
- **O** Somewhat Agree
- O Agree
- O Strongly Agree

App.1 I don't care if other people have a negative opinion about me.

- Strongly Disagree
- **O** Disagree
- O Somewhat Disagree
- O Neutral
- **O** Somewhat Agree
- O Agree
- O Strongly Agree

Fam.1 Knowing that my family members love me makes me feel good about myself.

- **O** Strongly Disagree
- **O** Disagree
- Somewhat Disagree
- O Neutral
- **O** Somewhat Agree
- O Agree
- O Strongly Agree

App.2 I can't respect myself if others don't respect me.

- Strongly Disagree
- **O** Disagree
- **O** Somewhat Disagree
- O Neutral
- **O** Somewhat Agree
- O Agree
- O Strongly Agree

Fam.2 My self-worth is not influenced by the quality of my relationships with my family members.

• Strongly Disagree

O Disagree

- Somewhat Disagree
- O Neutral
- O Somewhat Agree
- O Agree
- **O** Strongly Agree

Comp.2 Knowing that I am better than others on a task raises my self-esteem.

- Strongly Disagree
- **O** Disagree
- **O** Somewhat Disagree
- **O** Neutral
- O Somewhat Agree
- O Agree
- O Strongly Agree

App.3 I don't care what other people think of me.

- Strongly Disagree
- **O** Disagree
- Somewhat Disagree
- **O** Neither Agree nor Disagree
- O Somewhat Agree
- O Agree
- O Strongly Agree

Fam.3 When my family members are proud of me, my sense of self-worth increases.

- **O** Strongly Disagree
- **O** Disagree
- **O** Somewhat Disagree
- O Neutral
- **O** Somewhat Agree
- O Agree
- O Strongly Agree

Comp.3 Doing better than others gives me a sense of self-respect.

- **O** Strongly Disagree
- O Disagree
- O Somewhat Disagree
- O Neutral
- O Somewhat Agree

O Agree

O Strongly Agree

App.4 What others think of me has no effect on what I think about myself.

- **O** Strongly Disagree
- **O** Disagree
- Somewhat Disagree
- O Neutral
- O Somewhat Agree
- O Agree
- Strongly Agree

Fam.4 When I don't feel loved by my family, my self-esteem goes down.

- **O** Strongly Disagree
- **O** Disagree
- **O** Somewhat Disagree
- **O** Neutral
- **O** Somewhat Agree
- O Agree
- **O** Strongly Agree

Comp.4 My self-worth is affected by how well I do when I am competing with others.

- **O** Strongly Disagree
- **O** Disagree
- **O** Somewhat Disagree
- **O** Neutral
- O Somewhat Agree
- O Agree
- **O** Strongly Agree

Fam.5 It is important to my self-respect that I have a family that cares about me.

- **O** Strongly Disagree
- **O** Disagree
- **O** Somewhat Disagree
- O Neutral
- **O** Somewhat Agree
- O Agree
- O Strongly Agree

Comp.5 My self-worth is influenced by how well I do on competitive tasks.

- **O** Strongly Disagree
- **O** Disagree
- Somewhat Disagree
- **O** Neutral

O Somewhat Agree

O Agree

O Strongly Agree

App.5 My self-esteem depends on the opinions others hold of me.

O Strongly Disagree

O Disagree

O Somewhat Disagree

O Neither Agree nor Disagree

O Somewhat Agree

O Agree

O Strongly Agree

Att.1 When I think I look attractive, I feel good about myself.

O Strongly Disagree

O Disagree

• Somewhat Disagree

O Neither Agree nor Disagree

O Somewhat Agree

O Agree

O Strongly Agree

Att.2 My self-esteem is unrelated to how I feel about the way my body looks.

O Strongly Disagree

O Disagree

O Somewhat Disagree

O Neutral

O Somewhat Agree

O Agree

O Strongly Agree

Att.3 My self-esteem is influenced by how attractive I think my face or facial features are.

O Strongly Disagree

O Disagree

• Somewhat Disagree

O Neutral

O Somewhat Agree

O Agree

O Strongly Agree

Att.4 My sense of self-worth suffers whenever I think I don't look good.

• Strongly Disagree

O Disagree

- **O** Somewhat Disagree
- **O** Neutral
- **O** Somewhat Agree
- O Agree
- **O** Strongly Agree

Att.5 My self-esteem does not depend on whether or not I feel attractive.

- **O** Strongly Disagree
- **O** Disagree
- Somewhat Disagree
- **O** Neither Agree nor Disagree
- O Somewhat Agree
- O Agree
- **O** Strongly Agree

Rosenberg Self-esteem Scale

Q25 Below is a list of statements dealing with your general feelings about yourself. Please indicate how strongly you agree or disagree with each statement.

- SE.1 On the whole, I am satisfied with myself.
- **O** Strongly Disagree
- **O** Disagree
- **O** Somewhat Disagree
- **O** Neither Agree nor Disagree
- **O** Somewhat Agree
- O Agree
- **O** Strongly Agree

SE.2 At times, I think I am no good at all.

- **O** Strongly Disagree
- **O** Disagree
- **O** Somewhat Disagree
- **O** Neither Agree nor Disagree
- **O** Somewhat Agree
- O Agree
- O Strongly Agree

SE.3 I feel that I have a number of good qualities.

- **O** Strongly Disagree
- **O** Disagree
- Somewhat Disagree
- **O** Neither Agree nor Disagree
- **O** Somewhat Agree
- O Agree

O Strongly Agree

SE.4 I am able to do things as well as most other people.

- **O** Strongly Disagree
- **O** Disagree
- Somewhat Disagree
- **O** Neither Agree nor Disagree
- O Somewhat Agree
- O Agree
- O Strongly Agree

SE.5 I feel I do not have much to be proud of.

- **O** Strongly Disagree
- **O** Disagree
- Somewhat Disagree
- **O** Neither Agree nor Disagree
- **O** Somewhat Agree
- O Agree
- O Strongly Agree

SE.6 I certainly feel useless at times.

- Strongly Disagree
- **O** Disagree
- **O** Somewhat Disagree
- **O** Neither Agree nor Disagree
- O Somewhat Agree
- O Agree
- O Strongly Agree

SE.7 I feel that I'm a person of worth, at least on equal plane with others.

- **O** Strongly Disagree
- **O** Disagree
- Somewhat Disagree
- **O** Neither Agree nor Disagree
- O Somewhat Agree
- O Agree
- O Strongly Agree

SE.8 I wish I could have more respect for myself.

- **O** Strongly Disagree
- **O** Disagree
- Somewhat Disagree
- **O** Neither Agree nor Disagree
- O Somewhat Agree

O Agree

O Strongly Agree

SE.9 All in all, I am inclined to feel that I am a failure.

- Strongly Disagree
- **O** Disagree
- Somewhat Disagree
- **O** Neither Agree nor Disagree
- O Somewhat Agree
- O Agree
- O Strongly Agree

SE.10 I take a positive attitude toward myself.

- **O** Strongly Disagree
- **O** Disagree
- Somewhat Disagree
- O Neither Agree nor Disagree
- O Somewhat Agree
- O Agree
- O Strongly Agree

Word Search Prime

The next part of the study involves completing a word search. Some people find working on such games relaxing. You will be asked to indicate your experience later in the study.

Q129 Directions: When you find a word from the word bank, hover over it with the mouse and a box outlining the word will appear. Simply click once on the word in the puzzle. It will become highlighted (green) when you do so. Some other letter-strings not included in the word bank may become outlined when you hover over them. Do not select these. If you do, simply double-click on the letter-string to deselect it. Once all of the words from the word bank (and only those words) are highlighted green, you can move on to the next part of the study.

М	D	S	Τ	R	Р	Κ	Η	S	В	W
Ι	Ν	Т	Ε	L	L	I	G	Е	Ν	Т
Q	Y	R	Х	В	F	W	Е	Ι	L	Κ
S	L	Ε	D	Е	L	R	Ι	М	Х	Р
Ι	R	Т	Η	D	Ο	J	Ζ	А	Η	0
J	А	А	Т	U	W	S	S	G	Η	0
Р	L	Ε	Η	С	Е	Т	М	А	0	Η
Н	Ο	W	G	А	R	Е	А	Ζ	U	Н
Ο	Η	S	Ι	Т	R	R	R	Ι	S	Y
Ν	С	М	R	Е	Κ	V	Т	Ν	Е	Q
Е	S	Ε	В	D	J	W	Y	Ε	G	R
	f int	bright ducated flower house telligen	l it					magaz phor schola sma swea	iine ne urly rt ter	
Y	K	R	Е	Т	А	Е	W	S	С	Ν
L	М	J	Κ	Η	Е	V	L	S	М	Е
Η	L	Y	Ι	0	S	M	Ι	Ν	0	R
O N	A	E	L	O V	0	D	N	N	E	U
IN E	т	R	с П	T	Н	r R	т Е	Z	T	с Н
S	H	E	E	R	L	A	G	A	Z	0
Т	Т	W	Ν	Т	А	F	R	Ζ	А	Р
Е	Е	0	0	U	R	А	Ι	Ι	G	Е
Ι	Ν	L	Η	Е	0	0	Т	А	А	R
Ζ	V	F	Ρ	S	М	D	Y	D	М	С
	ethic flow hone hous integr	eal er est se rity						mag m ph sw vi	azine oral one eater rtue	

Moral Cover Story

Please read the following instructions carefully: The current study's aim is to evaluate your moral aptitude relative to your peers. Moral aptitude can be defined as one's overall capacity for ethical decision-making, and a general understanding of morality, or what makes an act right or wrong. In what follows, you will be asked to answer a series of questions related to ethical and moral competence. You will be presented with your score following completion, as well as where you stand relative to peers. Prior to taking the

competency test, however, please answer the following questions. Given that sometimes more goes into performance than just one's ability, this information will help us to better understand your results and performance.

Academic Cover Story

Please read the following instructions carefully: The current study's primary aim is to evaluate academic aptitude relative to your peers. Academic aptitude can be defined as one's overall capacity for verbal language and analytic reasoning capabilities. In what follows, you will be asked to answer a series of questions related to verbal and analytic competence. You will be presented with your score following completion, as well as where you stand relative to peers. Prior to taking the competency test, however, please answer the following questions. Given that sometimes more goes into performance than just one's ability, this information will help us to better understand your results and performance.

Self-report Self-handicapping Measure

Given that we are interested in your performance on the upcoming task, it is important that we are aware of any reasons that may reduce your ability to perform well. Please indicate how much each of the following will interfere with your performance on the upcoming task: (1=not at all, 7=very much)

SH.1 Going out last night **O** 1 Not at all **O** 2 **O** 3 **O** 4 Neutral **O** 5 **O** 6 **O** 7 Very much SH.2 Alcohol use **O** 1 Not at all **O** 2 **O** 3 **O** 4 Neutral **O** 5 **O** 6 **O** 7 Very much SH.3 Poor diet **O** 1 Not at all **O** 2 **O** 3 **O** 4 Neutral

O 5 **O** 6 **O** 7 Very much SH.4 Lack of effort **O** 1 Not at all **O** 2 **O** 3 **O** 4 Neutral **O** 5 **O** 6 **O** 7 Very much SH.5 Lack of sleep **O** 1 Not at all **O** 2 **O** 3 **O** 4 Neutral **O** 5 **O** 6 **O** 7 Very much SH.6 Illness **O** 1 Not at all **O** 2 **O** 3 **O** 4 Neutral **O** 5 **O** 6 **O** 7 Very much SH.7 Anxiety **O** 1 Not at all **O** 2 **O** 3 **O** 4 Neutral **O** 5 **O** 6 **O** 7 Very much SH.8 Depression **O** 1 Not at all **O** 2 **O** 3

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4 Neutral
5
6
7 Very much
SH.9 Relationship problems
1 Not at all
2
3
4 Neutral
5
6
7 Very much
SH.10 Conflict with work or classes
1 Not at all
2

2
3
4 Neutral
5
6
7 Very much

Behavioral Self-handicapping Measure

Q118 Different music has been shown to have different effects on performance on academic [moral] reasoning tasks. In order to help us to better understand some of these effects, please choose one of the songs on the next page to listen to while completing the upcoming task.

Please choose one of the following songs to listen to while completing the upcoming task. The predicted effects of each of the options is listed below the song track. (Reverse Coded)

- Track A1 (- -) Highly detracting
- **O** Track A2 (-) Mildly detracting
- O Track A3 Neutral
- **O** Track A4 (+) Mildly enhancing
- **O** Track A5 (++) Highly enhancing

Manipulation Check

To ensure that you understood the potential effects of your chosen song track, please answer the following question: The music I have chosen to listen to is likely to _____my performance.

O 1 Greatly hurt
O 2 Slightly hurt
O 3 Not affect
O 4 Slightly help
O 5 Greatly help

Desire to Escape Questionnaire

Q103 How much would you "right now, in this moment" like to:

Escape.1 Go to sleep

O not at all 1 **O** 2 **O** 3 **O** 4 **O** 5 **O** 6 **O** 7 O neutral 8 **O** 9 **O** 10 **O** 11 **O** 12 **O** 13 **O** 14 O extremely 15 Escape.2 Leave the study **O** not at all 1 **O** 2 **O** 3 **O** 4 **O** 5 **O** 6 **O** 7 O neutral 8 **O** 9 **O** 10 **O** 11 **O** 12

- **O** 13
- **O** 14
- O extremely 15

Demographics What is your age? What is your gender? O Male

O Female

What is your ethnicity?

- **O** Hispanic
- O Non-Hispanic

What race best describes you?

- **O** Indian
- **O** Asian
- O American Indian/Alaska Native
- **O** Black/African American
- **O** White
- **O** Multiple
- Native Hawaiian/Pacific Islander
- **O** Other

Is English your native language?

Appendix B: Study 2 Measures and Materials²⁰

Moral Aptitude Test

Directions: The following is a moral aptitude exam, which has been shown to be predictive of overall moral competence, virtue, as well as future moral behavior. You will be presented with various moral dilemmas and questions. Please read them carefully and respond as honestly as possible to the questions that follow.

In Europe, a woman was near death from a special kind of cancer. There was one drug that the doctors thought might save her. It was a form of radium that a druggist in the same town had recently discovered. The drug was expensive to make, but the druggist was charging ten times what the drug cost him to make. He paid \$400 for the radium and charged \$4,000 for a small dose of the drug. The sick woman's husband, Heinz, went to everyone he knew to borrow the money and tried every legal means, but he could only get together about \$2,000, which is half of what it cost. He told the druggist that his wife was dying, and asked him to sell it cheaper or let him pay later. But the druggist said, "No, I discovered the drug and I'm going to make money from it." So, having tried every legal means, Heinz gets desperate and considers breaking into the man's store to steal the drug for his wife.

DA.1 Should Heinz steal the drug?

- O Yes
- O No

DA.2 Is it actually right or wrong for him to steal the drug?

- **O** It is right for him to steal the drug
- **O** It is wrong for him to steal the drug
- **O** It is neither right nor wrong for him to steal the drug

DA.3 Does Heinz have a duty or obligation to steal the drug?

- O Yes
- O No

DA.4 If Heinz doesn't love his wife, should he steal the drug for her?

- O Yes
- O No

DA.5 Does it make a difference in what Heinz should do whether or not he loves his wife?

- O Yes
- O No

¹⁰⁸

²⁰ Note: Only those measures and materials which are not included in the previous Appendix are shown.
DA.6 Suppose the person dying is not his wife but a stranger. Should Heinz steal the drug for the stranger?

O Yes

O No

DA.7 Suppose it's a pet animal he loves. Should Heinz steal to save the pet animal?

O Yes

O No

DA.8 Is it important for people to do everything they can to save another 's life? • Yes

 \bigcirc 1cs

O No

O Depends on the circumstances

DA.9 It is against the law for Heinz to steal. Does that make it morally wrong?

O Yes

O No

DA.10 In general, should people try to do everything they can to obey the law?

- O Yes
- O No

O Depends on the circumstances

Two young men, brothers, got into serious trouble. They were secretly leaving town in a hurry and needed money. Karl, the older one, broke into a store and stole a thousand dollars. Bob, the younger one, went to a retired old man who was known to help people in town. He told the man that he was very sick and that he needed a thousand dollars to pay for an operation. Bob asked the old man to lend him the money and promised that he would pay him back when he recovered. Really Bob wasn't sick at all, and he had no intention of paying the man back. Although the old man didn't know Bob very well, he lent him the money. So Bob and Karl skipped town, each with a thousand dollars.

DB.1 Which is worse, stealing like Karl or like Bob?

- **O** Karl's behavior is worse
- **O** Bob's behavior is worse

Q110 In general, should promises always be kept?

- **O** No, not always
- **O** Yes, always, no matter what

Q111 Is it important to keep a promise to someone you don't know well or will never see again?

O Not at all Important

• Very Unimportant

- **O** Neither Important nor Unimportant
- Very Important
- Extremely Important

Q112 How valuable or important are property rights?

- **O** Not at all Important
- Very Unimportant
- Neither Important nor Unimportant
- Very Important
- Extremely Important

Q113 Should people do everything they can to obey the law?

- O No, not always
- **O** Yes, always, no matter what

Q114 Was the old man being irresponsible by lending Bob money?

- **O** Yes
- O No

Q128 In the following section, please rate each item on how important it would be to yo	u
when trying to decide if an action was moral or not.	

	NOT AT ALL RELEVANT 1	2	3	4	5	EXTREMELY RELEVANT 6	
Whether or not someone suffered emotionally.	Ο	0	o	0	0	0	
Whether or not some people were treated differently than others	O	0	•	0	0	0	
Whether or not someone's action showed love for his or her country.	о	О	O	O	0	O	
Whether or not someone showed a lack of respect for authority.	0	О	•	•	0	0	
Whether or not someone violated standards of purity and decency.	O	О	•	0	0	0	

Whether or not someone was good at math.	0	0	0	0	0	0
Whether or not someone cared for someone weak or vulnerable.	О	О	О	O	O	О
Whether or not someone acted unfairly.	О	0	О	0	0	О
Whether or not someone did something to betray his or her group.	О	О	О	0	О	О
Whether or not someone conformed to the traditions of society.	О	0	0	0	0	О
Whether or not someone did something disgusting.	0	0	О	0	0	О
Whether or not someone was cruel.	О	0	0	0	0	О
Whether or not someone was denied his or her rights.	О	О	О	0	О	О
Whether or not someone showed a lack of loyalty.	0	0	0	0	0	О
Whether or not an action caused chaos or disorder.	О	0	0	0	0	0
Whether or not someone acted in a way that God would approve of.	О	0	О	О	О	О

Academic Test

The following is an academic aptitude exam, which has been shown to be predictive of overall academic competence, critical thinking abilities, as well as future academic success. Part 1 tests logic and Part 2 tests reading comprehension and vocabulary.

Q111 If Lynn can type a page in p minutes, what piece of the page can she do in 5 minutes?

O 5/p

O p-5

- **O** p+5
- **O** p/5

O 1-p+5

Q112 If Sally can paint a house in 4 hours, and John can paint the same house in 6 hour, how long will it take for both of them to paint the house together?

- **O** 2 hours and 24 minutes
- 3 hours and 12 minutes
- **O** 3 hours and 44 minutes
- **O** 4 hours and 10 minutes
- **O** 4 hours and 33 minutes

Q113 Employees of a discount appliance store receive an additional 20% off of the lowest price on an item. If an employee purchases a dishwasher during a 15% off sale, how much will he pay if the dishwasher originally cost \$450?

- **O** \$280.90
- **O** \$287
- **O** \$292.50
- **O** \$306
- **O** \$333.89

Q114 The sales price of a car is \$12,590, which is 20% off the original price. What is the original price?

- **O** \$14,310.40
- **O** \$14,990.90
- **O** \$15,290.70
- **O** \$15737.50
- **O** \$16935.80

Q115 Solve the following equation for A : 2A/3 = 8 + 4A

- **O** -2.4
- **O** 2.4
- **O** 1.3
- **O** -1.3
- **O O**

Q116 If Leah is 6 years older than Sue, and John is 5 years older than Leah, and the total of their ages is 41. Then how old is Sue?

- **O** 8
- **O** 10
- **O** 14
- **O** 19
- **O** 21

Q117 Refer to the following passage for questions 1 through 5.

In 1892, the Sierra Club was formed. In 1908, an area of coastal redwood trees north of San Francisco was established as Muir Woods National Monument. In the Sierra Nevada Mountains, a walking trail from Yosemite Valley to Mount Whitney was dedicated in 1938. It is called the John Muir Trail. John Muir was born in 1838 in Scotland. His family name means moor, which is a meadow full of flowers and animals. John loved nature from the time he was small. He also liked to climb rocky cliffs and walls. When John was 11 years old, his family moved to the United States and settled in Wisconsin. John was good with tools and soon became an inventor. He first invented a model of a sawmill. Later, he invented an alarm clock that would cause the sleeping person to be tipped out of bed when the timer sounded. Muir left home at an early age. He took a 1,000-mile walk south to the Gulf of Mexico in 1867 and 1868. Then he sailed for San Francisco. The city was too noisy and crowded for Muir, so he headed inland for the Sierra Nevadas. When Muir discovered the Yosemite Valley in the Sierra Nevadas, it was as if he had come home. He loved the mountains, the wildlife, and the trees. He climbed the mountains and even climbed trees during thunderstorms in order to get closer to the wind. He put forth the theory in the late 1860s that the Yosemite Valley had been formed through the action of glaciers. People ridiculed him. Not until 1930 was Muir's theory proven correct. Muir began to write articles about the Yosemite Valley to tell readers about its beauty. His writing also warned people that Yosemite was in danger from timber mining and sheep ranching interests. In 1901, Theodore Roosevelt became president of the United States. He was interested in conservation. Muir took the president through Yosemite, and Roosevelt helped get legislation passed to create Yosemite National Park in 1906. Although Muir won many conservation battles, he lost a major one. He fought to save the Hetch Hetchy Valley, which people wanted to dam in order to provide water for San Francisco. In late 1913, a bill was signed to dam the valley. Muir died in 1914. Some people say losing the fight to protect the valley killed Muir.

- Q118 What happened first?
- **O** The Muir family moved to the United States
- O Muir Woods was created
- **O** John Muir learned to climb rocky cliffs
- John Muir walked to the Gulf of Mexico
- **O** John Muir visited along the east coast

Q119 When did Muir invent a unique form of alarm clock?

- **O** While the family still lived in Scotland
- **O** After he sailed to San Francisco
- **O** After he traveled to Yosemite
- While the muir family lived in Wisconsin
- **O** After he took the long walk

Q120 What did John Muir do soon after he arrived in San Francisco?

- **O** He ran outside during an earthquake.
- **O** He put forth a theory about how Yosemite was formed.
- **O** He headed inland for the Sierra Nevadas.
- **O** He be began to write articles about the Sierra Nevadas
- **O** He wrote short stories for a local newspaper.

Q121 What happened last?

- **O** John Muir died
- **O** John Muir Trail was dedicated
- Muir's glacial theory was proven.
- **O** The Sierra Club was formed
- John's family visited him.

Q135 The following section contains analogies. Please fill in the blank with the word that fits best.

Q130 BOAST : LANGUAGE :: SWAGGER : (____)

- O anger
- O gait
- O sight
- O wealth

Q131 BELITTLE : DISPARAGE :: (____) : RIDICULE

- **O** jeopardize
- O efface
- O assuage
- O deride

Q132 (____): INNOCUOUS :: REPREHENSIBLE : PRAISEWORTHY

- **O** pretentious
- **O** virulent
- **O** antiseptic
- **O** widespread

Q133 (____): MINIMALIST :: ORNATE : UNADORNED

- O Rococo
- O Cubist
- **O** Pastoral
- **O** Pointillist

Q134 DESECRATE : (____) :: DESPOIL : BEAUTIFUL

- O rich
- O ugly

O holy

O corporeal

Motivation/Interest in Improving

If you would like to improve your performance, the researcher has practice materials that may be useful. These materials are set up to be used on any computer or ipad and are an interactive way to learn and improve. Would you be interested in getting more information about these learning materials?

- **O** Very Disinterested
- **O** Disinterested
- **O** Somewhat Disinterested
- O Neutral
- O Somewhat Interested
- **O** Interested
- **O** Very Interested

State Self-esteem Scale

Q135 Below is a list of statements dealing with how you feel about yourself right now. Please indicate how strongly you disagree or agree with each statement. SSE.1 Right now, I am satisfied with myself.

- Strongly Disagree
- **O** Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- O Somewhat Agree
- O Agree
- O Strongly Agree

SSE.2 Right now, I think I am no good at all.

- Strongly Disagree
- **O** Disagree
- Somewhat Disagree
- **O** Neither Agree nor Disagree
- Somewhat Agree
- O Agree
- O Strongly Agree

SSE.3 Right now, I feel that I have a number of good qualities.

- Strongly Disagree
- **O** Disagree
- Somewhat Disagree
- **O** Neither Agree nor Disagree
- O Somewhat Agree

O Agree

O Strongly Agree

SSE.4 Right now, I am able to do things as well as most other people.

- **O** Strongly Disagree
- **O** Disagree
- O Somewhat Disagree
- **O** Neither Agree nor Disagree
- O Somewhat Agree
- O Agree
- Strongly Agree

SSE.5 Right now, I feel I do not have much to be proud of.

- Strongly Disagree
- **O** Disagree
- O Somewhat Disagree
- Neither Agree nor Disagree
- **O** Somewhat Agree
- O Agree
- O Strongly Agree

SSE.6 Right now, I certainly feel useless.

- O Strongly Disagree
- **O** Disagree
- O Somewhat Disagree
- Neither Agree nor Disagree
- O Somewhat Agree
- O Agree
- **O** Strongly Agree

SSE.7 Right now, I feel that I'm a person of worth, at least on equal plane with others.

- **O** Strongly Disagree
- **O** Disagree
- Somewhat Disagree
- **O** Neither Agree nor Disagree
- O Somewhat Agree
- O Agree
- O Strongly Agree

SSE.8 Right now, I wish I could have more respect for myself.

- **O** Strongly Disagree
- **O** Disagree
- O Somewhat Disagree
- **O** Neither Agree nor Disagree

O Somewhat Agree

O Agree

O Strongly Agree

SSE.9 Right now, I am inclined to feel that I am a failure.

- O Strongly Disagree
- **O** Disagree
- O Somewhat Disagree
- **O** Neither Agree nor Disagree
- **O** Somewhat Agree
- O Agree
- O Strongly Agree

SSE.10 Right now, I take a positive attitude toward myself.

- **O** Strongly Disagree
- **O** Disagree
- Somewhat Disagree
- **O** Neither Agree nor Disagree
- O Somewhat Agree
- O Agree
- O Strongly Agree

Affect Scale

Q140 To what extent do you feel the following:

NAff.1 angry

- **O** Not at all 1
- **O** 2
- **O** 3
- **O** 4
- **O** 5
- **O** 6
- **O** Very much 7

NAff.2 frustrated

- **O** Not at all 1
- **O** 2
- **O** 3
- **O** 4
- **O** 5
- **O** 6
- **O** Very much 7

NAff.3 mad

O Not at all 1

- **O** 2
- **O** 3
- **O** 4
- **O** 5
- **O** 6
- **O** Very much 7

NAff.4 annoyed

- **O** Not at all 1
- **O** 2
- **O** 3
- **O** 4
- **O** 5
- **O** 6
- **O** Very much 7

NAff.5 tense

- **O** Not at all 1
- **O** 2
- **O** 3
- **O** 4
- **O** 5
- **O** 6
- **O** Very much 7

NAff.6 agitated

- **O** Not at all 1
- **O** 2
- **O** 3
- **O** 4
- **O** 5
- **O** 6
- **O** Very much 7

NAff.7 preoccupied

- **O** Not at all 1
- **O** 2
- **O** 3
- **O** 4
- **O** 5
- **O** 6
- **O** Very much 7

NAff.8 irritated

- **O** Not at all 1
- **O** 2
- **O** 3
- **O** 4
- **O** 5
- **O** 6
- Very much 7

PAff.9 happy

- **O** Not at all 1
- **O** 2
- **O** 3
- **O** 4
- **O** 5
- **O** 6
- **O** Very much 7

PAff.10 cheerful

- **O** Not at all 1
- **O** 2
- **O** 3
- **O** 4
- **O** 5
- **O** 6
- **O** Very much 7

PAff.11 proud

- **O** Not at all 1
- **O** 2
- **O** 3
- **O** 4
- **O** 5
- **O** 6
- **O** Very much 7

PAff.12 agreeable,

- **O** Not at all 1
- **O** 2
- **O** 3
- **O** 4
- **O** 5
- **O** 6

O Very much 7

PAff.13 pleased

- Not at all 1
- **O** 2
- **O** 3
- **O** 4
- **O** 5
- **O** 6
- **O** Very much 7

PAff.14 content

- **O** Not at all 1
- **O** 2
- **O** 3
- **O** 4
- **O** 5
- **O** 6
- O Very much 7

PAff.15 energetic

- Not at all 1
- **O** 2
- **O** 3
- **O** 4
- **O** 5
- **O** 6
- **O** Very much 7

Appendix C: Studies 3 & 4 Measures and Materials

Athletic Abilities Instructions

The current study's aim is to evaluate your athletic ability relative to your peers at Ohio University. Athletic ability can be defined as one's coordination between mind and body and, in particular, one's accuracy and speed in relaying a message to act or react from the brain to the body.

In fact, new cutting edge research within sports psychology and sports performance suggests that there is such a thing as "the athletic brain," which is different and completely unrelated to measures of intelligence or academic aptitude such as the SAT:

"The brain of an expert athlete is different. Whether it's picking up a curveball out of the pitcher's hand or spotting an open man out of the corner of their eye, athletes have to be experts at taking in visual information, processing that information, and then making rapid and precise high-speed decisions" ("Axon Sports," 2013):

Taken together, the factors listed below have been shown to be the best predictors of athletic ability, as each one plays a role in critical sports-specific performance.

PHYSICAL STRENGTH AND FUNCTIONALITY GENETIC FACTORS VISUAL ACCURACY AND SPEED REACTION AND ANTICIPATION

In support of the strong link between the above factors and athletic success, a test of athletic ability- the EXO-10- has been developed which takes these 4 factors into account. Results of this test have been shown to be accurate and very strong predictors of current and future athletic success. In fact, across a sample of hundreds of top athletes, a strong, positive correlation has been established between the athletic-specific factors evaluated by this test and athletic performance. In other words, the better people perform on this test, the better their athletic outcomes.

In what follows, you will be asked to complete the EXO-10, which includes a series of exercises related to athletic ability. You will also be asked to answer a few questions about your athletic background as well as that of your family. You will be presented with your score following completion, as well as where you stand relative to peers.

Academic Abilities Test Instructions

The current study's aim is to evaluate your academic ability relative to your peers at Ohio University. Academic ability can be defined as one's overall intelligence, working in conjunction with how effectively and efficiently one is able to perceive, interpret, process, and recall stimuli.

In fact, new cutting edge research within educational psychology suggests that there is such a thing as "the academic brain:"

"The brain of an expert academic is different. Whether it's taking an exam, writing an essay, or solving a math equation, the best students have to be experts at taking in visual information, processing that information, and being able to recall that information at a later date." ("Axon Research Lab," 2013):

Taken together, the factors listed below have been shown to be the best predictors of academic ability, as each one plays a role in critical academic-specific performance across most, if not all, academic subjects.

READING COMPREHENSION VERBAL ABILITY SPATIAL REASONING

In support of the strong link between these three factors and academic ability, a test of academic ability- the EXO-10- has been developed. Results of this test have been shown to be accurate and very strong predictors of current and future academic success. In fact, across a sample of hundreds of college students and graduate students, a strong, positive correlation has been established between the cognitive factors evaluated by this test and academic performance. In other words, the better people perform on this test, the better their academic outcomes.

In what follows, you will be asked to complete the EXO-10, which includes a series of exercises related to academic ability. You will be presented with your score following completion, as well as where you stand relative to peers.

CSW Sport Subscale

My opinion about myself isn't tied to how well I do in sports. Doing well in sports [school] gives me a sense of self-respect. I feel better about myself when I know I'm doing well in sports. My self-esteem is influenced by my athletic performance. I feel bad about myself whenever my athletic performance is lacking.

Athletic Prime

Ν	Ε	L	Ν	0	I	Ρ	М	A	Η	С
V	Ζ	М	М	А	G	А	Ζ	I	Ν	E
Ρ	W	Κ	А	Т	Η	L	Ε	Т	I	С
L	S	Х	Η	U	0	J	S	Y	Η	В
Ι	W	Т	R	L	L	I	U	Η	Y	S
Т	Е	Ν	Е	Т	Y	K	0	Ρ	J	Ρ
U	Α	Х	W	Ρ	М	W	Н	0	S	0
С	Т	V	0	Η	Ρ	Q	D	R	V	R
Х	Ε	Ζ	L	0	I	G	Ν	Т	Ε	Т
U	R	U	F	Ν	С	R	Y	Ν	Η	S
В	Y	Ρ	R	Ε	S	U	Η	U	V	G
ath chai	nletic	n						(Olym pho	pics ne
no	ower								spo	rts
nouse swe								swea	iter	
mag	gazino	e							trop	hy

Athletic Ability Test

Part 1: Physical Strength and Functionality.

- A handgrip strength test using a Dynamometer. One measure will be taken on each hand.
- A push-up test. Participants will be asked to do as many as they can in one 20 second period.
- Reaching exercise: Entails reaching over your head with one arm (as if scratching your back) and trying to touch your fingers on that hand with your other hand. The distance between fingers on your right and left hand is measured
- Squatting exercise- Entails holding a weightless bar over your head and then squatting (only one time), while maintaining your posture. A score is given for quality of the squatting position (i.e., whether your back bends, legs buckle, etc.

Part 2: Online Portion Measuring Reaction Time, Visual Accuracy and Speed, and Genetic Factors

A. Reaction time. In what follows, your **reaction time and ability to anticipate** will be measured. Words in various colors will be presented. Name the COLOR (not what the word says). For example, for the word, **RED**, you would select BLUE as the correct answer because the text is written in blue. For the word, **YELLOW**, you would select red

as the correct answer. Answer as accurately, but also as quickly as you can. When you are ready to begin, press start.

Q6 RED

- O red (1)O blue (2)
- Q8 BLACK O blue (1) O black (2)

Q10 BLUE

O red (1)O blue (2)

Q12 YELLOW

O blue (1)O yellow (2)

Q14 ORANGE

O orange (1)O green (2)

Q16 BROWN

O blue (1)O brown (2)

Q24 BLUE

- O red (1)O blue (2)
- 01uc (2)
- Q26 BLUE O blue (1) O black (2)

Q28 BLUE \bigcirc red (1) \bigcirc blue (2) **Q30 YELLOW** \bigcirc blue (1) **O** yellow (2)Q33 BLUE **O** blue (1)**O** brown (2) Q35 BROWN **O** Yellow (1) **O** brown (2) **Q37 RED** \bigcirc black (1) \bigcirc red (2) Q39 GREEN **O** green (1) \bigcirc red (2) Q41 GREEN **O** green (1) \bigcirc red (2)

B. Visual accuracy and speed. This part of the test is meant to assess your visual accuracy and speed, or your athletic-specific ability to recognize stimuli quickly, make split-second decisions, and make adjustments as the task proceeds. The exercise consists of word/image pairs. If a pair matches, click the "Correct;" button. If the pair does not match, click the "Incorrect" button. However, if the word "opposite" appears at the top of the screen, you need to reverse your answer.

In the first example (pear and star), the answer would be incorrect, For the second example, although it is an exact match, the word Opposite appears at the top of the screen, so rather than choosing Correct, you would have to choose "Incorrect."

Remember, you are being timed, so try to answer as quickly as possible - and remember to reverse your answer when the word Opposite appears. Also, please note that you will not be able to use the Back button in your browser in order to change or redo the exercise. Some pairs may be repeated.

C. Genetic and athletic background.

Did you play organized sports in middle school? Did you play organized sports in high school? Would you consider yourself a "student-athlete?" Do you currently play sports? Which level: intercollegiate (varsity), club, intermural. What is your height? What is your weight? Did your mother play organized sports in middle school? Did your mother play organized sports in high school? Would you consider your mother an athlete? Did your father play organized sports in middle school? Did your father play organized sports in high school? Would you consider your father an athlete?



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