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DOWNWARD SELF-REVISION: ERASING POSSIBLE SELVES

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Two studies explored how and when people abandon commitment to threatened possible selves. First, we predicted that self-doubt, anxiety, and expectancy changes will mediate the effect of threats on possible selves. Specifically, the rising anxiety evoked by threats transforms initial doubt into the ultimate fall of expectancies supporting commitment to possible selves. Second, we predicted that this general process of downward self-revision would be more likely to occur when threats fully specify the meaning, or implications, of an undesired discrepancy (i.e., into the vivid prospect of an alternative undesired self as more likely than the desired self if the person continues to pursue the desired self). Results across both studies support the hypotheses. We close by discussing the conceptual and practical implications of the findings.

DOWNWARD SELF-REVISION

Possible selves are the mental representations of one's aspirations and fears; they are personalized goal representations of the self in desired or undesired future end states (Markus & Ruvolo, 1989). Possible selves serve important adaptive func-

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tions as they not only provide standards for evaluating the present self but they also provide powerful incentives that serve to organize, energize, and direct action around their pursuit and acquisition (Ruvolo & Markus, 1992). However, people sometimes abandon possible selves despite these benefits. *Self-revision* refers to such changes in commitment to a possible self.

Although there is little question that possible selves are revised as they are threatened (Ogilvie, 1987), questions do remain regarding the full range of moderators and the exact processes that determine downward self-revision. For example, how (process) and when (moderators) would a student abandon her dream of becoming a psychologist in response to threatening feedback from an advisor that her academic standing falls short of the required standing? Regarding "how," we propose that rising anxiety transforms the initial doubt evoked by threats into the ultimate fall of expectations supporting commitment to possible selves. Regarding "when," downward self-revision is more likely to occur when threats fully specify the meaning, or implications, of an undesired discrepancy into the explicit prospect of an alternative undesired self as more likely than the desired self if the person continues to pursue his or her dream.

DEFINITIONAL TERMS

Before proceeding, we define key terms. Threats to possible selves arise when people receive feedback that their actual standing falls short of the desired standing (Higgins, 1987; Lockwood & Kunda, 1997; Markus & Ruvolo, 1989). However, threats can vary in specificity. *Threat Specificity* is the degree to which the meaning, or implications, of an undesired discrepancy are specified into the explicit prospect of an alternative undesired self as more likely than the desired self if the person continues to pursue the possible self. Threat specificity is a continuous variable that can range from zero (*unspecified threats*), whereby an undesired discrepancy is presented without any specification as to the likelihood of the desired or undesired self, to *fully specified threats*, whereby an undesired discrepancy is fully specified into the vivid prospect of an alternative undesired self as more likely than the desired self. For example, a school advisor may present an *unspecified threat* by merely pointing out that the student's academic standing falls short of the standing required to pursue psychology. Alternatively, the advisor may present a *fully specified threat* by clearly specifying the meaning, or implications, of the undesired discrepancy into the vivid prospect of the student ending up in a dead-end office job after giving up other careers to continue and ultimately fail in psychology (undesired self) as more likely than her successfully becoming a psychologist (desired self).

THE PATHWAYS OF DOWNWARD SELF-REVISION

Before making a case for threat specificity as one moderator of whether threats translate into downward self-revision, we set the conceptual table by first addressing the intervening process that translates *all* threats, specified or otherwise, into downward self-revision. The theoretical and empirical bases of the temporal

pathways specified in our model takes threats from initial doubt (link 1), to rising anxiety (link 2), through to the ultimate fall of expectations (link 3) supporting possible self commitment. Starting with the first link, *Self-doubt* is a meta-cognitive experience of uncertainty about one's competence coupled with an intense preoccupation over prospective failure and negative evaluation (Jones & Berglas, 1978). Past work suggests that self-doubt plays a crucial role in turning threat into self-change (e.g., Hermann, Leonardelli, & Arkin, 2004). This work shows that rising doubt (vs. confidence) in beliefs supporting self-evaluations *mediates* the effect of threat on self-evaluative changes (Briñol, DeMarree, & Petty, 2008; Briñol & Petty, 2003; Briñol, Petty, & Wheeler, 2006).

Drawing from this work, we propose that the effect of threats on possible self-views as well as self-evaluations is initially mediated via rising doubt in the expectancy beliefs supporting possible selves. Now, past work shows that desired selves are typically supported by optimistic expectancy beliefs (Atkinson & Birch, 1970; Carver & Scheier, 1981). That is, people generally pursue desired selves supported by positive expectations of future attainment rather than wild fantasies that the person desires but does not expect to ever attain (Markus & Wurf, 1987). However, recent work has further clarified the expectancy-desired self link by suggesting that desired selves are typically expected but, also, *balanced* against the countervailing awareness of the unexpected undesired self of failure (Oyserman & Saltz, 1993).

Thus, although desired selves are typically expected, the high expectations for a desired self may drop if threats arise that cast doubt on their credibility by suggesting the prospect of an alternative undesired self as a better fit to the undesired discrepancy (Einhorn & Hogarth, 1986; Tversky & Koehler, 1994). The initial drop in expectations accelerates if rising doubt cannot be resolved by discrediting the rising expectation for alternative undesired self. Support for the role of expectancy changes in mediating the threat-change link comes from work on the impact of self-relevant scenarios on compliance behavior (Gregory, Burroughs, & Ainslie, 1985; Koehler, 1991).[1] These findings show that people asked to imagine negative self-relevant scenarios endorse self-relevant attitudes and intentions to prevent the imagined scenario. Most importantly, however, the effect of self-relevant imagery on self-relevant change was not direct but *mediated* via changes in self-relevant

1. Recent work from the goal-regulation literature suggests that expectancy level rather than changes mediates goal-revision processes (Oettingen et al., 2001). We propose that resolution to this disparity regarding the mediating role of expectancy changes lies in one critical difference between the two paradigms. Both paradigms asked people to imagine a future scenario such as completing a desired goal that contrasted from their present state.

In the mental contrasting paradigms, people are not given a specific description of the future scenario but merely asked to imagine and contrast the general future event in contrast with their present state. According to support theory, prompting people to imagine and contrast a general event possibility (e.g., not getting the job) to present reality should not evoke expectancy changes because such prompts do not constrain imagination processes by unpacking a specific outcome simulation of the "general possibility" that is contrasted from reality. Thus, people can simply consult the specific outcome image that they have constructed for the general event possibility and, more importantly, the expectation attached to the image.

As noted before, prompts that present an explicit outcome scenario constrain the individual's ability to construct their own image of *exactly* what life will *be like* and *look like* situated in the general event possibility that is being contrasted from present reality. The specific outcome scenario that is presented to the participant calls their attention to specific new details that they had not considered in the prior expectation of the event possibility.

expectations (Gregory et al., 1985). We propose that threats to possible selves (e.g., specified threats) are self-relevant scenarios that promote change in possible selves via declines in the expectations supporting that possible self. In light of the recent work on the mediating role of doubt in self-change (Briñol et al., 2008), however, we only add that expectancy declines begin when threats enhance doubt in their credibility by specifying the expectation for an alternative undesired self as a better fit to the undesired discrepancy.

Although the work reviewed above supports the importance of the link between doubt and expectancy changes as mediators of self-change, the intermediate role of anxiety is also important because doubt does not always lead people to abandon their expectations and, in turn, commitment to desired selves (Briñol et al., 2006). Specifically, we propose that the anxiety evoked by threats provides that critical intermediate link that transforms natural feelings of doubt into the downward revision of expectations and commitment. That is, people begin to doubt the expected desired self when they cannot discredit the increasingly salient undesired self (link 1). When they cannot resolve that doubt by discrediting the alternative undesired self, they experience rising anxiety over the prospect of the undesired self (link 2). In turn, anxiety translates initial doubt into the activation of protection motivation which, in turn, promotes the fall of expectations supporting the desired self (link 3).

The intermediate role we propose for anxiety is rooted in evidence that people proactively manage vs. passively receive emotional experience (Carroll, Sweeny, & Shepperd, 2006). Bracing is one proactive mechanism of mood regulation used to avoid disappointment arising when expectations exceed outcomes by proactively managing expectancy-outcome fits so that expectations do not exceed outcomes (Taylor & Shepperd, 1998). Most likely, bracing develops as people learn to differentiate early life disappointments by their impact such that greater pain is linked to instances in which expectations far vs. slightly exceeded outcomes. These associations stored with knowledge regarding how the likelihood of more desired expectancy-outcome fits can be increased via proactive expectancy adjustments (Carroll et al., 2006). This associative structure is activated in later evaluative contexts as feedback approaches. As feedback nears, moreover, the negativity bias increases the salience of past disappointments vs. other expectancy-outcome fits (Carroll et al., 2006). The salience of past disappointments, in turn, primes the prospect of future disappointment. Once considered, the increasingly vivid *prospect* of disappointment casts doubt on initially optimistic expectations which, in

1. (continued) As in this study, the compliance paradigms may have revealed the role of expectancy *changes* because the experimental instructions not only forced people to consider a future event (e.g., getting vs. not getting a job) that contrasted from their present state but went further to explicitly unpack the general event category into a specific outcome scenario that participants may have not otherwise considered. Once considered, availability mechanisms may have changed prior expectations to become more consistent with the newly considered outcome image by sharpening and enhancing the salience of certain aspects of the specific outcome image over others (e.g., getting an executive office on the top floor of corporate headquarters when I get this job vs. getting a janitorial position on the basement floor of a regional office when I fail to get this job). Although more research is required, the results of the path analyses are consistent with the foregoing logic by showing that expectancy changes (downward or upward) rather than sheer expectancy level (low or high) mediated the process of downward self-revision when the specificity of threats to desired selves was manipulated.

turn, leads people to forsake optimism to avoid disappointment (Shepperd, Ouellette, & Fernandez, 1996).

However, the effect of anticipated disappointment on expectancy declines is not direct but mediated via the anxiety evoked by anticipated disappointment (Taylor & Shepperd, 1998). The salience of past disappointment turns doubt into anxiety by priming the prospect of future disappointment (Carroll et al., 2006; Weiner, 1986). In turn, anxiety provides the intermediate link that turns rising doubt into falling expectations as people brace for anticipated disappointment (Shepperd et al., 1996). The anxiety evoked by anticipated disappointment unifies bracing and downward self-revision. As in bracing, downward self-revision occurs as the anxiety evoked by the threat of future disappointment turns rising doubt into falling expectations.

Despite the bond of anxiety, bracing and downward self-revision do differ in one important way—the resolution of anxiety. The resolution of anxiety is crucial as the psychological (and physical) system cannot tolerate the extreme stress created by negative affect indefinitely (Forgas & Ciarrochi, 2002). With bracing, anxiety resolves in the outcome (Carroll et al., 2006). By contrast, the anxiety evoked by a strong threat (e.g., specified threats) to a possible self cannot be resolved by an outcome because it is not tied to an *actual* outcome but, instead, to a *hypothetical* outcome that may never actually emerge. However, something has to eventually give as the anxiety that originated in an initial pang of doubt rises beyond a tolerable level to ultimately evoke protection motivation which, in turn, forces the expectation for the possible self to snap and give way when reality does not (Maddux & Rogers, 1983). Ultimately, the anxiety evoked by threat resolves in the fall of expectations supporting possible self commitment.

THE MODERATORS OF DOWNWARD SELF-REVISION

Although we have considered the general process that translates all threats into downward self-revision, it remains unclear what variables moderate the likelihood that any given threat triggers this general process of change. Although most threats to possible selves include an undesired discrepancy, they vary in the specificity attached to those discrepancies. Downward self-revision is more likely to occur when threats fully specify the implications of an undesired discrepancy into the vivid prospect of a specific undesired self as more likely than the desired self if the person continues to pursue his or her dream.

Evaluators (or experimenters) can increase the specificity of threats they present to an evaluative target through several steps. Step 1 creates an unspecified threat by evoking a simultaneous awareness of a person's actual standing, desired standing, and the *undesired discrepancy* between the two. Of course, unspecified threats could trigger disengagement if people do not believe they can overcome the discrepancy in time (Atkinson & Birch, 1970). However, unspecified threats rarely evoke disengagement even if they evoke negative emotions (Higgins, 1987), because they are still raw discrepancies that have no inherent meaning and must be construed to become meaningful (Oettingen, Pak, Schnetter, 2001). Although people *could* construe undesired discrepancies as insurmountable barriers to desired selves, they typically prefer optimistic construals that dismiss such undesired discrepancies as fleeting and surmountable to protect desired selves (Carroll et al., 2006). So,

the student can protect her dream by construing the undesired discrepancy as a meaningless difference that she can and will overcome in time.

To increase the likelihood of downward self-revision, threat specificity can be raised from the level of the unspecified, albeit undesired, discrepancy to clearly specify the meaning, or implications, of that discrepancy for the ultimate prospect of achieving the desired self relative to alternative, less desired, selves. Step 2 raises threat specificity to the partially specified level by unpacking the implications of an undesired discrepancy (Step 1) into an explicit pessimistic forecast for a desired self. So, the advisor presenting a partially specified threat clearly specifies the implications of an undesired discrepancy into the explicit prospect that the student will never realize her dream. The pessimistic expectation built into partially specified threats discredits the desired self by casting doubt on the positive expectation supporting it.

Although partially specified threats would seem adequate to induce change, they rarely do as past work suggests that self-views are not objective facts but, rather, naive theories that people use to explain themselves and the world around them (Epstein, 1973; Kunda, 1987; Sanitioso, Kunda, & Fong, 1990). Consistent with this work, expected possible selves represent naive theories of how the self relates to the future (Kunda, 1987). Like other theories, desired selves are not designed to be perfect truths and, as such, are not evaluated on an absolute metric of predictive success/failure but on a relative metric of support for that self-theory vs. competing theories (Kunda, 1987). Like other theories, then, desired selves are discredited rather than crucially disconfirmed by threats so long as no alternative self can be presented that offers a better fit to the undesired evidence (Sanitioso et al., 1990). In the absence of such an undesired alternative, people can quickly resolve threat via a motivated search for evidence that supports the goal of re-affirming the desired self (Kunda, 1987). In fact, without an alternative to the discredited desired self, motivated reasoning processes are so effective that they can actually make the desired self *stronger* than it was before threat (Markus & Kunda, 1986; Sanitioso et al., 1990).

However, when an undesired self is presented that is a better fit to evidence, people can no longer expect what they like and, instead, must forsake the optimistic expectancy for the discredited desired self to avoid the more credible prospect of the undesired self (Carroll et al., 2006). The level of threat specificity is maximized when steps 1 and 2 are extended to Step 3 that validates the undesired self by giving a vivid and graphic face to that general prospect of failure. The importance of specifying an explicit description of the general undesired self is illustrated by past work suggesting that expectations are not attached to abstract, general, possibilities but to explicit, specific, descriptions of event possibilities called *hypotheses* (Tversky & Koehler, 1994). As noted before, moreover, expectations supporting event hypotheses are assessed in relative rather than absolute terms of support for a focal hypothesis vs. other hypotheses. Importantly, however, support does not depend on *actual* evidence but, rather, on the *explicitness of description* for that evidence (Rottenstreich & Tversky, 1997). Support *increases* by unpacking, or *specifying*, an event hypothesis (e.g., not becoming a psychologist) into its specific outcome scenarios (e.g., becoming a store clerk after failing in psychology) and decreases by unpacking the alternative event hypothesis (e.g., becoming a psychologist) into its specific outcome scenarios (e.g., building a top Boston practice after earning a Harvard doctorate).

Thus, we propose that downward self-revision is most likely to occur when threats validate the general undesired self by articulating it into an explicit description of a specific undesired self. The specific description of the undesired self evokes doubt in the expected desired self by presenting an undesired possibility that the student might not have otherwise thought or cared to consider (Tversky & Koehler, 1994). Once considered, however, availability mechanisms take hold to sharply enhance the salience and probability of explicit details (the self tortured by failure vs. consoled by loved ones) unpacked in the specific undesired image (Tversky & Koehler, 1994). Ultimately, the anxiety evoked by the increasingly salient undesired image of *exactly* what she will become after failing turns doubt into the fall of expectations supporting commitment to the student's once vibrant dream of becoming a psychologist.

COMPARING THE PAST TO THE PRESENT

This work aims to extend past work in several ways. First, most past work has focused on changes in possible self accessibility (Ruvolo & Markus, 1992) whereas we explore changes in commitment. Second, this work differs from some past work that has focused on changes in possible self commitment in terms of the proposed origin and timeline of change. For example, some work has focused on self-initiated changes in personal standards or goals that slowly occur as people confront new challenges over the lifespan (Rothermund & Brandstadter, 2003; see also Klinger, 1975).[2] By contrast, we focus on *socially initiated* changes that *abruptly* rather than gradually occur in a single social experience.

Third, past work that has explored abrupt changes in possible selves differs from the present work in terms of their primary focus on the causes and consequences of change to the relative neglect of the intervening processes (Atkinson & Birch, 1970; Wrosch, Miller, Scheier, & Brun de Pontet, 2007). Fourth, the present work differs from past work that has explored the intervening process of self-change with respect to the *specific* process hypothesized to drive change. Specifically, past work that has examined the intervening process primarily focuses on small subsets of one or two potentially relevant mediators to account for, what is likely, a complex process driven by multiple mediating mechanisms. Some argue that meta-cognitive experiences (e.g., self-doubt) mediate the link between threats and self-change (Briñol et al., 2008; see also Oyserman, Bybee, & Terry, 2006). Others argue that expectations, negative affect (anxiety or depression), or both mediate the effect of threat on changes in desired selves (Gregory et al., 1985; Klinger, 1975; Oettingen et al., 2001). By contrast, we attempt to unify these previously disparate accounts to propose that doubt, negative affect, and expectations *all* play critical time-dependent roles in the intervening process of downward self-revision.

2. The comparison between the present model and the work of Brandstatter and colleagues on personal standards rests on the tenuous assumption that standards and possible selves are equivalent. Standards are typically defined as mental criterion or rule against which present outcomes are evaluated (Higgins, 1997). Although possible selves can serve as evaluative standards, they are not simply standards (Markus, Cross, & Wurf, 1990; Markus & Nurius, 1986). Possible selves can also serve as incentives that organize, energize, and direct activity around their own pursuit and acquisition (Markus & Nurius, 1986; see also Markus, Cross, & Wurf, 1990).

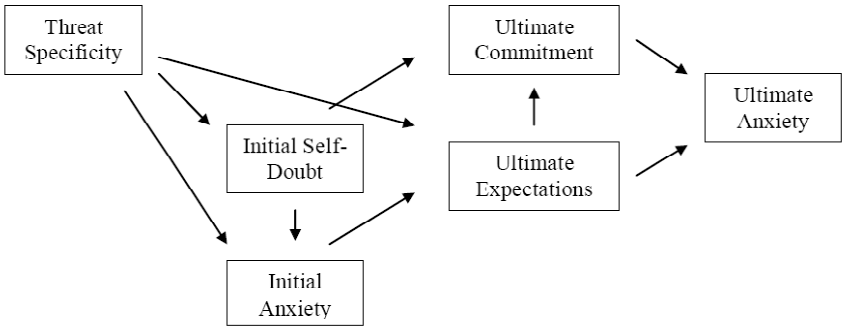

FIGURE 1. The Pathways of Downward Self-Revision.

Fifth and, most importantly, this work extends past work by specifying a more precise account of the temporal pathways (see Figure 1) that take threats from initial doubt (link 1), to anxiety (link 2), through to the ultimate fall of expectations (link 3) supporting possible self commitment. Only one other model has specified that threats evoke anxiety and doubt which, in turn, initiate declines in expectations supporting goal commitment (Carver & Scheier, 1990). However, even this model did not specify the exact temporal link between doubt and anxiety in the process of self-change. Thus, we aim to extend past work with a more precise account of *exactly* how as well as when threats translate into downward self-revision.

OVERVIEW AND PREDICTIONS FOR STUDIES

Two studies tracked the effect of threat specificity on self-doubt, anxiety, expectations, and commitment across 3 time points. We refer to changes between Times 1 and 2 as *initial* changes and changes between Times 2 and 3 as *ultimate* changes. In all, we specified 10 predictions. Predictions 1-3 state that participants in the fully specified threat condition vs. all others would be more likely to show initial doubt elevations (Prediction 1), initial and ultimate expectancy declines (Prediction 2), and ultimate commitment declines (Prediction 3). Prediction 4 states that participants in the fully specified threat condition vs. all others would be more likely to show the pattern of initial elevations followed by ultimate declines in anxiety.

Predictions 5-10 tested the mediation model proposed to explain the downward self-revision *process*. Prediction 5 states that initial doubt elevations and ultimate expectancy declines mediate the total effect of threat on ultimate commitment declines. However, Predictions 6-8 state that anxiety would be an intermediate link between doubt and expectancy changes such that initial doubt elevations would first mediate the effect of threat specificity on initial anxiety elevations (Prediction 6) which would, in turn, mediate the effect of initial doubt elevations as well as threat (Prediction 7-8) on ultimate expectancy declines. Prediction 9 states that

ultimate expectancy declines would, in turn, mediate the effect of initial anxiety elevations on ultimate commitment declines. Prediction 10 states that ultimate declines in expectations and commitment would mediate the effect of initial elevations on ultimate declines in anxiety.

STUDY 1

METHODS

Overview and Design. To test these predictions, we presented upper-division business and psychology students with a fictitious master's program in business psychology that would train them for high-paying consulting positions as business psychologists (see Appendix). The presentation encouraged participants to form a desired self as a business psychologist. Next, participants were randomly assigned to one of four threat specificity conditions: Control, unspecified, partially specified, and fully specified threats. Participants in the control condition received feedback that made no mention of how their academic standing compared to the desired academic standing. In contrast, participants in the threat conditions received threatening information that their GPA fell below the minimum GPA required for acceptance into the program that would train them to become business psychologists. We then systematically varied the specificity of the threatening discrepancy from unspecified, partially specified, up through fully specified threats. This gave us four levels of threat specificity that were crossed with three time points to yield a 4 (Threat Specificity: Control, Unspecified, Partially Specified, and Fully Specified) x 3 (Time of Estimate: Time 1, Time 2, & Time 3) mixed model factorial design.

Participants. Undergraduate students (19 = Male; 45 = Female) enrolled in upper division business and psychology classes participated for extra credit. Students signed up to meet with a career advisor for one hour to learn about a new master's program in business psychology (see Appendix) that was being developed at their university as an alternative to traditional graduate training programs. Students who did not wish to participate in the business psychology study could complete a 45 minute survey on values and beliefs for equivalent extra credit.

The incorporation of the alternative research option for (a) equivalent compensation at (b) a lower time cost was intended to ensure that students who volunteered to participate in this study were motivated by a genuine, intrinsic interest in business psychology as a possible career opportunity. Indeed, we propose that the students who did vs. did not volunteer to participate in this study showed some level of initial intrinsic motivation and commitment to becoming a business psychologist by actually signing up and reporting for the business psychology study over the alternative research option that required a lower time commitment for the same course incentive.

Procedure. The experiment was held in a campus office and consisted of six phases: (1) Brief introduction (including Time 1 questionnaires), (2) Determining eligibility criteria for the program, (3) Manipulation of threat specificity, (4) Time 2 questionnaires, (5) Review of campus career resources, and (6) Time 3 questionnaires and debriefing.

When participants arrived, a researcher posing as a secretary explained that the purpose of the study was to provide information and recruit viable candidates for a new career training opportunity. The secretary provided participants with the brochure announcing a 12-month master's program in Business Psychology that described the program, curriculum, and recent placements of graduates from other universities (see Appendix). The secretary instructed participants to "look over the brochure and consider the possibility of a career in business psychology before meeting with a career advisor who will provide you with more information." The purpose of this phase was to prompt participants to form some commitment to the business psychology possible self by imagining building a career in business psychology.

After approximately three minutes, the secretary explained that the career advisor would need the participants to complete a career inventory assessing their academic history and career goals in order to evaluate their fit with the business psychology program. The participants then completed the initial inventory which included baseline measures of our critical items that asked participants to rate their level of self-doubt ("At this moment, I feel unsure of my abilities": 0 = *Strongly Disagree*; 4 = *Strongly Agree*), their level of anxiety ("How anxious are you about your career future": 0 = *Not at all Anxious*; 4 = *Extremely Anxious*), their admissions expectations (from 0% to 100%), and their intention to apply to the program (1 = *Definitely Not*; 5 = *Definitely*).[3]

The inventory also included a question about the participant's cumulative GPA and several filler items to divert suspicion. Once completed, the secretary instructed the participant to wait while he/she fetched the career advisor.

On exiting the room, the secretary checked the participant's self-reported GPA and selected an eligibility insert indicating either no GPA requirement (control condition) or a requirement .10 above the participant's GPA (threat conditions). Inserts were drawn from an array of premanufactured inserts that were identical except for the minimum GPA value listed for program admissions. This array represented every GPA value to ensure that we could standardize the discrepancy in the threat conditions: Regardless of reported GPA, participants were exposed to an eligibility requirement that was .10 GPA points above their own GPA. Three minutes later, a second experimenter posing as the career advisor entered the room.

Following a brief introduction, the advisor reviewed the eligibility requirements. In all conditions, the advisor explained that all applicants must include documentation of earning a Bachelor's degree, three letters of recommendation, and a statement of intent with their application. The advisor then executed the manipulation of threat specificity by addressing the GPA requirement.

3. One could argue that self-doubt, anxiety, expectations, and commitment are conceptually overlapping rather than independent constructs and, as such, the effects of these variables on one another cannot be empirically disentangled. To preempt this potential concern, we conducted a series of cronbach's alphas and bivariate correlations to assess the degree of inter-item consistency between self-doubt, anxiety, expectations, and even commitment within each of the three time points. Consistent with our claim that these are related but unique variables, the average inter-item consistency among doubt, anxiety, expectations, and commitment was well below even the most relaxed .50 standards at each of the 3 time points in both Studies 1 and 2 (Time 1 all αs < .34; Time 2 αs < .21; Time 3 αs < .33). Although the bivariate inter-correlations were larger, these results confirmed the claim that, although related, the different mediators were unique variables (Time 1 all *r*s < .39; Time 2 *r*s < .30; Time 3 *r*s < .24).

In the *Control* condition, the advisor explained that the program policy was to tailor the GPA requirement to the average GPA at each institution rather than set a general GPA requirement across institutions. The advisor added that they were still in the process of gathering data on the average GPA of students at the participant's university and would set a GPA requirement by the next term. The provision of this information ensured that differences between the control participants and the other three conditions could be attributed to the threatening *content of feedback* rather than the *mere provision of feedback*.

At a conceptual level, *Threat Specificity* is the degree to which the meaning, or implications, of an undesired discrepancy are clearly specified into the explicit prospect of the desired self as less likely than a specific undesired self if the person continues to pursue the possible self. Consistent with this conceptual definition, our operational definition of threat specificity varied the degree to which threats clearly specified the implications of an undesired discrepancy into the explicit prospect of the desired self as less likely than a specific undesired self of failure if the person continued to pursue the possible self of becoming a business psychologist. Thus, our operational definition represented increasing levels of threat specificity from zero (*unspecified threats*), whereby the career advisor merely presented an undesired discrepancy, to moderate (*partially specified threats*), whereby the advisor presented an undesired discrepancy and then specified the implications of that discrepancy into the pessimistic prospect of the desired self as unlikely, all the way through to high (*fully specified threats)*, whereby the advisor presented an undesired discrepancy and then specified the implications of that discrepancy into the explicit prospect of the desired self as not only unlikely but, actually, less likely than a vivid undesired self if the person continued to pursue business psychology.

More specifically, in the *Unspecified Threat* condition, the advisor induced awareness of an undesired discrepancy by merely pointing to the GPA requirement, the participant's lower GPA, and then asking the participant to acknowledge the undesired discrepancy between his/her actual standing (actual GPA) and the desired standing (required GPA). In the *Partially Specified Threat* condition, the advisor also pointed out the undesired discrepancy (Step 1) but, unlike the *Unspecified Threat* condition, threat specificity was increased to a moderate level. The advisor further specified the implications of the undesired discrepancy into the explicit prospect of the desired self as unlikely (Steps 1 and 2) by indicating that the participant was not what they were looking for and that it was unlikely that the participant would be admitted if he/she pursued admissions to the business psychology career training program (discreditation of the desired self). The advisor added that it would also be unlikely that the participant could bring his/her GPA up enough before graduation to meet the requirement. Nevertheless, the advisor encouraged the participant to apply if he/she was still interested, stating that he/she might be reviewed by a lenient admissions committee and attain admissions to the program. The purpose of the advisor's acknowledgment of a legitimate, albeit slim, possibility of acceptance was to *merely discredit* rather than *completely reject* the desired self.

The *Fully Specified Threat* condition was identical to the *Partially Specified Threat* and the *Unspecified Threat* condition in that the advisor presented the undesired discrepancy (Step 1). Moreover, the *Fully Specified Threat* condition was identical to the *Partially Specified Threat* condition in that they further specified the threat

by discrediting the desired self of program admissions as unlikely, based on that discrepancy (Steps 1 and 2). As in the *Partially Specified Threat* condition, moreover, the advisor encouraged the participant to apply if he/she was still interested, stating that he/she might be reviewed by a lenient admissions committee and slip into the program.

However, unlike the *Partially Specified Threat* condition, the advisor extended Steps 1 and 2 to fully specify the implications of the undesired discrepancy (the explicit prospect of the desired self of success in business psychology as not only unlikely but, actually, less likely than a specific undesired self cloaked in rejection and failure if the person continued to pursue business psychology; Steps 1, 2, & 3). Specifically, after indicating that it was unlikely the student would be admitted if he/she applied (discrediting the desired self), the advisor added that it was, in fact, more likely that the participant would be rejected, at best, if he/she continued to pursue the business psychology training program. The advisor further added that what he/she feared more was that the participant would somehow slip past a lenient admissions committee only to struggle with the high demands of the program and ultimately end up with no job prospects if he/she managed to graduate (validating a vivid undesired self). The advisor explained that he/she knew of such problematic cases at other schools where unqualified students, like the participant, were somehow admitted only to fail to meet the high-pace demands of the 12-month curriculum. He/she added that the program was unable to place these unfortunate students as business psychologists following graduation and they often ended up in low-paying office jobs unrelated to business psychology.

Next, the advisor indicated that he would go over some brochures from the career advising office to guide the participant's career decisions. However, he/she explained that before reviewing those materials, he/she would like to give the participant an opportunity to complete an additional career measure now that he/she had learned more about the program. The advisor provided the participant with the inventory that asked participants to repeat the critical measures. The advisor justified the re-appearance of some of the items by explaining that people sometimes change their minds regarding their career goals and the program after having learned more about it. Once completed, the advisor reviewed brochures from the career advising offices on campus and recommended those offices for help with career decisions. The advisor then explained that he/she must leave to prepare for the next appointment, but indicated that the secretary would return to ask the participant to complete an exit inventory.

Five minutes later, the secretary re-entered the room with the exit inventory, which asked the participant to respond to the critical measures, evaluate the advisor, and provide contact information. The secretary justified the re-appearance of some questions in the same way as the advisor did at Time 2. Finally, all participants were debriefed. No participants identified the investigative purpose or expressed suspicion. All participants were then dismissed.

STUDY 1 RESULTS

Preliminary Analyses. Preliminary analyses revealed no main or interactive effects involving sex of participants on any of dependent measures. We thus collapsed all analyses across sex. Next, we conducted an additional series of analyses includ-

ing the centered covariate of GPA to rule out the possibility that our manipulation of threat specificity would have affected participants differently depending upon their preexisting academic performance (GPA). Results confirmed a non-significant threat specificity x GPA interaction across all of the dependent measures at Times 1, 2, or 3 or in changes in any of these measures across Times 1-3, all *F*s (7, 57) < 1.61, all *p*s > .20, all *d*s < .41. We thus exclude GPA from subsequent analyses.

We next examined the impact of the threat specificity factor across time. First, results confirmed that there was a significant threat specificity x time interaction across all critical measures of self-doubt, anxiety, expectations, and commitment, all *F*s (6, 120) > 3.14, all *p*s > .01, all *d*s > .70. At Time 1, we found no difference across conditions in anxiety, self-doubt, admissions expectations, or commitment, all *F*s(3, 61) < 1.54, all *p*s > .21, all *d*s < .40.

At Time 2, no significant differences emerged across conditions of threat specificity in commitment, F (3, 61) = .49, $p > .68$, $d = .24$. However, at Time 2, significant differences emerged in admission expectations, anxiety, and self-doubt as a function of threat specificity, all *F*s > 2.70, *p*s < .05, all *ds* > .58. The significant differences in self-doubt observed at Time 2 extended to Time 3 where significant differences also emerged across threat specificity conditions in levels of self-doubt, $F(3, 61) = 4.23$, $p > .00$, $d = .73$. Moreover, at Time 3, significant differences emerged across threat specificity conditions in commitment $F(3, 61) = 5.60$, $p < .01$, $d = .82$, as well as admissions expectations, $F(3, 61) = 20.69$, $p > .00$, $d = 1.62$. As anticipated, however, the significant differences observed in anxiety across threat specificity conditions at Time 2 disappeared at Time 3, $F(3, 61) = 1.84$, $p > .15$, $d = .46$.

Primary Analyses. We then conducted a series of analyses to examine changes across conditions of threat specificity on self-doubt, anxiety, expectations, and commitment over time (see Table 1). As mentioned before, we will refer to change scores between Times 1 and 2 as *initial* changes and change scores between Times 2 and 3 as *ultimate* changes.

First, significant differences did emerge across threat specificity conditions in the degree of initial change in self-doubt, anxiety, admissions expectations, and commitment between Times 1 and 2, all *F*s(3, 61) < 3.54, all *p*s > .05 all *d*s < .52. No significant differences emerged across threat specificity conditions in the degree of ultimate change in self-doubt as the differences observed at Time 2 extended to Time 3, $F(3, 61) = .02$, $p > .99$, $d = .05$. However, significant differences did emerge across threat specificity conditions in the degree of ultimate change in commitment, $F(3, 61) = 7.47$, $p > .00$, $d = .97$, as well as admissions expectations, $F(3, 61) = 8.76$, $p > .00$, $d = 1.05$. As anticipated, moreover, significant differences did emerge across threat specificity conditions in the degree of ultimate change in anxiety as the initial anxiety evoked by threats resolved to baseline at Time 3, $F(3, 61) = 2.52$, $p > .05$, $d = .57$.

A series of dependent sample t-tests examined changes within each condition of threat specificity in commitment, expectations, self-doubt, and anxiety across time. Consistent with Predictions 1-3, only participants exposed to fully specified threats showed significant initial elevations in self-doubt (Prediction 1), significant initial and ultimate declines in expectations (Prediction 2), as well as significant ultimate declines in commitment (Prediction 3) to the business psychology self, all *t*s(15) > 2.53, all *p*s < .05, all *d*s > .57.

TABLE 1. Self-Doubt, Expectations, Commitment, and Anxiety as a Function of Threat Specificity

	Control	Unspecified Threat	Partially Specified Threat	Fully Specified Threats
	M (SD)	*M (SD)*	*M (SD)*	*M (SD)*
Self-Doubt				
Time 1	2.2 (1.1)[a]	1.7 (1.1)[a]	2.2 (1.3)[a]	1.6 (1.8)[a]
Time 2	1.5 (1.2)[b]	1.2 (0.9)[b]	2.0 (1.0)[a]	2.5 (2.2)[b]
Time 3	1.6 (1.2)[b]	1.3 (0.8)[b]	2.0 (1.2)[a]	2.5 (1.1)[b]
Expectations				
Time 1	64.1 (25.4)[a]	53.1 (27.6)[a]	53.8 (20.5)[a]	59.7 (19.1)[a]
Time 2	71.2 (21.5)[b]	56.0 (23.2)[a]	48.4 (18.7)[a]	28.8 (16.7)[b]
Time 3	72.5 (21.5)[b]	58.9 (25.7)[a]	49.1 (19.6)[a]	17.0 (14.9)[c]
Commitment				
Time 1	2.8 (1.7)[a]	2.8 (1.2)[a]	3.3 (1.3)[a]	3.6 (1.8)[a]
Time 2	3.5 (1.4)[a]	3.5 (1.5)[b]	3.5 (1.6)[a]	3.0 (2.2)[a]
Time 3	3.5 (1.6)[b]	3.4 (1.5)[ab]	3.4 (1.6)[a]	1.8 (0.9)[b]
Anxiety				
Time 1	3.0 (1.1)[a]	2.6 (1.1)[a]	2.9 (1.2)[a]	2.4 (1.8)[a]
Time 2	2.9 (1.1)[a]	2.5 (1.0)[a]	3.1 (1.1)[a]	3.4 (2.2)[b]
Time 3	2.8 (1.2)[a]	2.3 (1.0)[a]	3.2 (1.1)[a]	2.6 (1.3)[a]

Note. For each measure, means within columns with different superscripts differ at $p < .05$.

In fact, contrary to the pattern of downward self-revision observed in the fully specified condition, participants in the *Control* and *Unspecified Threat* conditions actually showed significant *initial declines* rather than elevations in self-doubt as well as significant *initial elevations* rather declines in commitment over time, all ts(15) > 2.24, all ps < .05, all ds > .57. Moreover, participants in the *Control* condition even showed significant *initial elevations* rather than declines in expectations over time. Participants exposed to partially specified threats showed no significant initial or ultimate changes on any of the dependent measures over time, all ts(15) < 1.38, all ps > .18, all ds > .42. Although the pattern of change in self-doubt, expectations, and commitment observed in the control and unspecified conditions may seem surprising at first glance, it is certainly consistent with theories of motivated reasoning which suggest that people are quite adept at constructing justifications for a desired conclusion in the absence of undesired evidence or even in presence of mildly undesired evidence (Markus & Kunda, 1986).

Particularly compelling, the results confirmed the unique time-dependent pattern in anxiety suggested by Prediction 4. Consistent with Prediction 4, only participants the *Fully Specified Threat* condition showed significant initial elevations in anxiety, followed by significant ultimate declines in anxiety, both ts(15) < 1.17, both ps > .26, both ds < .38. This pattern of means supports the time-dependent role of anxiety in downward self-revision such that initial anxiety is resolved by ultimate declines in expectations that support commitment to threatened possible selves. Participants across all other conditions showed no initial or ultimate changes in anxiety, all ts(15) > 2.28, all ps < .05, all ds > .57.

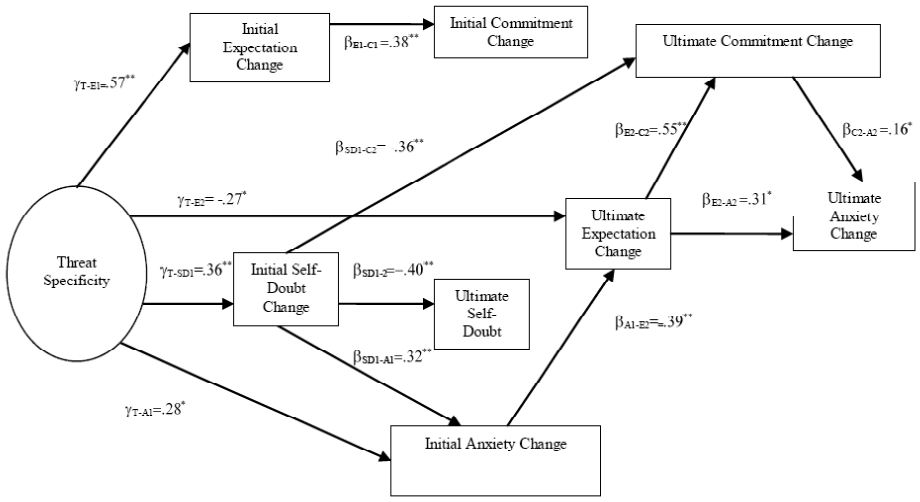

FIGURE 2. Results of the path analysis delineating those direct paths found to be significant. Numbers beside arrows are beta weights. *$p < .05$. **$p < .01$.

Test of Mediation Model. We conducted a path analysis to test whether changes in self-doubt, anxiety, and ultimate expectations mediated the effect of threat specificity on ultimate changes in commitment. The results of a path analysis using maximum likelihood estimation revealed adequate fit for the hypothesized model, $\chi^2(14) = 10.45$, $p = .73$, RMSEA = .00, RMR = .05, CFI = 1.00.

Figure 2 presents the direct path coefficients that were significant for the pathways specified in the time-dependent mediation model. All effect coefficients represent standardized regression coefficients. The effect analyses showed that ultimate commitment changes were best predicted from ultimate expectancy changes (total and direct effect = .55), initial self-doubt change (total effect = -.46; direct effect = -.36), threat specificity (total effect = -.42; direct effect =.04), and initial anxiety changes (total effect= -.31; direct effect =-.09).

More importantly, the indirect effects of several factors were significant in predicting ultimate drops in commitment. The decomposition of effects provided support for the time-dependent sequence specified in our mediation model to answer the question of "how" threats translate into downward self-revision over time. Consistent with our model, the significant total effect of threat specificity on ultimate changes in commitment decomposes into a significant indirect effect (-.46) and a non-significant direct effect (.04). Consistent with Prediction 5, moreover, the total indirect effect of threat specificity on ultimate commitment changes is entirely mediated via initial self-doubt changes and ultimate expectancy changes [(.48) (-.46) + (-.44) (.55) = -.46].

The decomposition of effects also supported Predictions 6-10 derived to test the role of anxiety as an intermediate link between self-doubt and expectations. Consistent with Prediction 6, anxiety first enters the process via initial self-doubt as the significant total effect of threat specificity on initial anxiety elevations (.43) decomposes into a significant direct effect (.28) and a significant indirect effect that is mediated entirely via initial elevations in self-doubt (.15). Consistent with Predictions 7-8, initial elevations in anxiety mediate the effect of self-doubt as well as

threat specificity on ultimate declines in expectations. Consistent with Prediction 7, the significant total effect of threat specificity on ultimate expectancy declines (-.44) decomposes into a significant direct effect (-.27) and a significant indirect effect that is mediated via initial anxiety elevations (-.17). Consistent with Prediction 8, moreover, anxiety serves as the critical intermediate link between self-doubt and expectations as the significant total effect of initial self-doubt elevations on ultimate expectancy declines (-.12) decomposes into a zero direct effect and a significant indirect effect that is mediated entirely via initial anxiety elevations (-.12).

Consistent with Prediction 9, the role of anxiety in downward self-revision is advanced through falling expectations as the significant total effect of initial anxiety elevations on ultimate commitment declines (-.31) decomposes into a non-significant direct effect (-.09) and a significant indirect effect (-.22) that is entirely mediated via ultimate declines in expectations. Finally, consistent with Prediction 10, the process resolves with the ultimate collapse of expectations and commitment as the significant total effect of initial elevations on ultimate declines in anxiety (-.43) decomposes into a non-significant direct effect (-.26) and a significant indirect effect (-.17) that is mediated entirely via the ultimate declines in expectations and commitment to the possible self [(-.39) (.55) + (-.31) (.16)].

Taken together, these results support our claim that the initial anxiety evoked by specified threats provides a critical intermediate link that transforms initial self-doubt evoked by specified threats into ultimate declines in expectations supporting commitment to possible selves. It is worth noting that initial expectancy and commitment changes as well as subsequent changes in self-doubt did not contribute either directly or indirectly to the ultimate changes in anxiety or, more importantly, commitment to pursuing the business psychology possible self.

STUDY 1 DISCUSSION AND ALTERNATIVE MODELS

Although these analyses support the time-dependent mediation model of downward self-revision, we wanted to provide the highest level of support by testing the relative as well as absolute fit of our target model in comparison to other conceptually and empirically sensible models. First, model comparison chi-square tests revealed a significant decrement in fit when the target model was modified to exclude (serially not simultaneously) the direct links from any of the mediators of initial self-doubt, initial anxiety changes, and ultimate expectancy changes to the outcome variable of ultimate declines in commitment, all $\Delta\chi^2$s > 18.18, all *p*s < .01.

Moreover, results from the model comparison chi-square tests revealed a significant decrement in fit when the target model was modified to either (1) leave the link between initial self-doubt and anxiety changes unspecified as prior models of goal disengagement have done (Carver & Scheier, 1990), or (2) exclude initial changes in anxiety as a mediator of the effect of threat on ultimate expectancy declines (the ultimate mediator of the effect of threat on ultimate commitment declines), both $\Delta\chi^2$s > 5.96, both *ps* < .05. Finally, results showed a significant decrement in fit when the target model was modified to either (1) reverse the order of the pathways linking initial self-doubt and anxiety changes so that initial self-doubt elevations did not intervene between threat specificity and initial anxiety elevations, or (2) reverse the order of the pathways linking ultimate expectancy changes and commitment changes so that ultimate expectancy declines no longer

intervened between initial anxiety elevations and ultimate commitment declines, both $\Delta\chi^2$s > 12.64, all *p*s < .01.

In sum, the results provide empirical evaluation of our conceptual model. The model comparison chi-square tests do not merely show that the mediators of self-doubt, anxiety, and expectancy changes were needed *to adequately* explain how the threats we presented translated into the ultimate declines in commitment among some participants. They show that these mediators were needed in *the exact order* specified by our model to obtain *the best* available explanation of the process that translated threats into downward self-revision.

STUDY 2

METHODS

Overview and Predictions. Although promising, the findings of Study 1 deserve replication in a second empirical data set given the complexity of our mediation model. To this end, Study 2 attempted to replicate these findings on a new sample to further support our unique model of exactly how as well as when downward self-revision unfolds over time in response to threat. We tested the same 10 predictions supported in Study 1. As in Study 1, moreover, we tracked the predicted effects of threat on doubt, anxiety, expectations, and commitment across three time points.

Participants and Design. The procedure of Study 2 was identical to that of Study 1. We recruited 70 (17 = Male; 53 = Female) upper division business and psychology students to participate in exchange for extra credit. As in Study 1, participants were presented with the fictitious master's program in business psychology that would train them to become top-paying consultants in business psychology. As in Study 1, moreover, participants were then randomly assigned to one of the four threat specificity conditions: control, unspecified, partially specified, and fully specified threats. Once again, therefore, we had four levels of threat specificity that were crossed with three time points to yield a 4 (Threat Specificity: Control, Unspecified, Partially Specified, and Fully Specified) x 3 (Time of Estimate: Time 1, Time 2, & Time 3) mixed model factorial design.

STUDY 2: RESULTS

Preliminary Analyses. As in Study 1, preliminary analyses revealed no effects involving sex of participants on any of dependent measures, all *F*s(7, 63) < 1.89, all *p*s > .18, all *d*s < .45. As in Study 1, moreover, the interactive effect of GPA x threat specificity was non-significant across all dependent measures, all *F*s(7, 63) < 2.80, all *p*s > .10, all *d*s < .45. As such, we exclude both sex and GPA from subsequent analyses.

As in Study 1, we next examined the impact of the threat specificity factor on our dependent measures at each of the three time points. First, results confirmed that there was a significant threat specificity x time interaction across all critical measures of self-doubt, anxiety, expectations, and commitment, all *F*s(6, 120) > 4.74, all *p*s > .01, all *d*s > .75.

At Time 1, we found no difference across conditions in anxiety, self-doubt, admissions expectations, or commitment, all *F*s(3, 67) < 1.08, all *p*s > .30, all *d*s < .34. However, at Time 2, significant differences did emerge in commitment, admission expectations, anxiety, and self-doubt as a function of threat specificity, all *F*s(3, 67) > 6.13, *p*s < .01, all *d*s > .81. The significant differences in self-doubt observed at Time 2 extended to Time 3 where significant differences also emerged across threat specificity conditions in levels of self-doubt, $F(3, 67) = 27.25$, $p > .01$, $d = 1.70$. Moreover, at Time 3, significant differences emerged across threat specificity conditions in commitment as well as expectations, both *F*s(3, 67) > 30.60, both *p*s < .01, both *d*s = 1.80. As expected in both studies and observed in Study 1, however, the significant differences observed in anxiety across threat specificity conditions at Time 2 disappeared at Time 3, $F(3, 67) = 1.89$, $p > .17$, $d = .45$.

Primary Analyses. As in Study 1, we then conducted a series of analyses to examine time-dependent changes in doubt, anxiety, expectations, and commitment across conditions of threat specificity (see Table 2). As in Study 1, we will refer to change scores between Times 1 and 2 as *initial* changes and change scores between Times 2 and 3 as *ultimate* changes.

First, significant differences did emerge across threat specificity conditions in the degree of initial change in self-doubt, anxiety, admissions expectations, and commitment between Times 1 and 2, all *F*s(3, 67) > 9.62, all *p*s < .01, all *d*s > 1.01. As in Study 1, no significant differences emerged across threat specificity conditions in the degree of ultimate change in self-doubt as the differences observed at Time 2 extended to Time 3, $F(3, 67) = .22$, $p > .64$, $d = .15$. As in Study 1, however, significant differences emerged across threat specificity conditions in the degree of ultimate change in commitment, expectations, and anxiety, all *F*s(3, 67) = 8.14, all *p*s < .01, all *d*s > .93.

A series of dependent sample t-tests examined changes within each condition of threat specificity in commitment, expectations, self-doubt, and anxiety across time. As in Study 1, results supported Predictions 1-3 as only participants exposed to fully specified threats showed significant initial elevations in self-doubt (Prediction 1), significant initial and ultimate declines in expectations (Prediction 2), as well as significant ultimate declines in commitment to the business psychology self (Prediction 3), all *t*s(17) > 2.55, all *p*s < .05, all *d*s > .58. In fact, as in Study 1, participants in both the control and unspecified threat conditions actually showed patterns of change consistent with *upward* rather than downward self-revision. Participants in both the control and unspecified threat conditions showed initial elevations in commitment and participants in the control condition even showed initial elevations in expectations and declines in self-doubt, all *t*s(18) > 2.33, all *p*s < .05, all *d*s > .52! As in Study 1, participants in the partially specified threat condition showed no initial or ultimate changes on any of the dependent measures, all *t*s(18) < 1.38, all *p*s > .18, all *d*s < .32.

Finally, as in Study 1, the results confirmed the unique time-dependent pattern in anxiety (Prediction 4). Consistent with Prediction 4, only participants the *Fully Specified Threat* condition showed significant initial elevations in anxiety, followed by significant ultimate declines in anxiety, both *t*s(17) < 3.18, both *p*s > .01, both *d*s > .73. This pattern of means supports the time-dependent role we have proposed for anxiety in downward self-revision such that initial anxiety is resolved by ultimate declines in expectations that support commitment to threatened pos-

TABLE 2. Self-Doubt, Expectations, Commitment, and Anxiety as a Function of Threat Specificity

	Control	Unspecified Threat	Partially Specified Threat	Fully Specified Threats
	M (SD)	*M (SD)*	*M (SD)*	*M (SD)*
Self-Doubt				
Time 1	2.4 (1.0)[a]	2.6 (0.7)[a]	2.6 (0.9)[a]	2.6 (1.1)[a]
Time 2	1.9 (1.1)[b]	2.4 (0.6)[b]	2.8 (1.0)[a]	3.6 (1.4)[b]
Time 3	1.7 (1.1)[b]	2.2 (0.6)[b]	2.6 (1.1)[a]	3.5 (1.5)[b]
Expectations				
Time 1	56.2 (15.7)[a]	62.4 (16.2)[a]	57.2 (10.9)[a]	59.5 (11.9)[a]
Time 2	63.0 (12.5)[b]	67.8 (17.8)[a]	53.8 (14.8)[a]	40.2 (17.6)[b]
Time 3	63.8 (12.6)[b]	69.8 (18.2)[a]	53.5 (15.9)[a]	24.0 (16.6)[c]
Commitment				
Time 1	3.1 (0.8)[a]	3.0 (0.6)[a]	3.0 (0.7)[a]	3.2 (1.3)[a]
Time 2	3.6 (0.9)[b]	3.6 (1.1)[b]	3.1 (0.9)[a]	3.0 (1.2)[a]
Time 3	3.6 (1.3)[b]	3.6 (1.2)[b]	3.0 (0.7)[a]	1.5 (0.8)[b]
Anxiety				
Time 1	3.0 (0.8)[a]	2.6 (0.8)[a]	2.9 (0.8)[a]	2.9 (0.8)[a]
Time 2	2.8 (1.0)[a]	2.6 (0.7)[a]	3.2 (0.7)[a]	4.2 (0.8)[b]
Time 3	2.7 (0.9)[a]	2.3 (0.6)[a]	3.2 (0.8)[a]	2.9 (1.3)[a]

Note. For each measure, means within columns with different superscripts differ at $p < .05$.

sible selves. Participants across all other conditions showed no initial or ultimate changes in anxiety all ts(17) < 1.76, all ps > .10, all ds < .40.

Study 2: Test of Mediation Model. We conducted a path analysis to test whether initial changes in self-doubt, anxiety, and ultimate changes in expectations mediated the effect of threat specificity on ultimate changes in commitment. The results of a path analysis using maximum likelihood estimation revealed adequate fit for the hypothesized model, $\chi^2(14) = 8.79$, $p = .85$, RMSEA = .00, RMR = .03, CFI = 1.00.

Figure 3 presents the direct path coefficients that were significant for the pathways specified in the time-dependent mediation model. The effect analyses showed that ultimate commitment changes were best predicted from ultimate expectancy changes (total and direct effect = .49), threat specificity (total effect = -.47; direct effect = -.10), initial anxiety changes (total effect = -.46; direct effect =-.20), and initial self-doubt change (total effect = -.27; direct effect = -.09).

More importantly, the indirect effects of several factors were significant in predicting ultimate drops in commitment. The decomposition of effects provided further support for the time-dependent sequence specified in our mediation model to answer the question of "how" threats translate into downward self-revision over time. Consistent with our model, the significant total effect of threat specificity on ultimate changes in commitment decomposes into a significant indirect effect (-.37) and a non-significant direct effect (-.10). Consistent with Prediction 5, moreover, the total indirect effect of threat specificity on ultimate commitment changes is almost entirely mediated via initial self-doubt changes and ultimate expectancy changes [(.46) (-.27) + (-.46) (.49) = -.34].

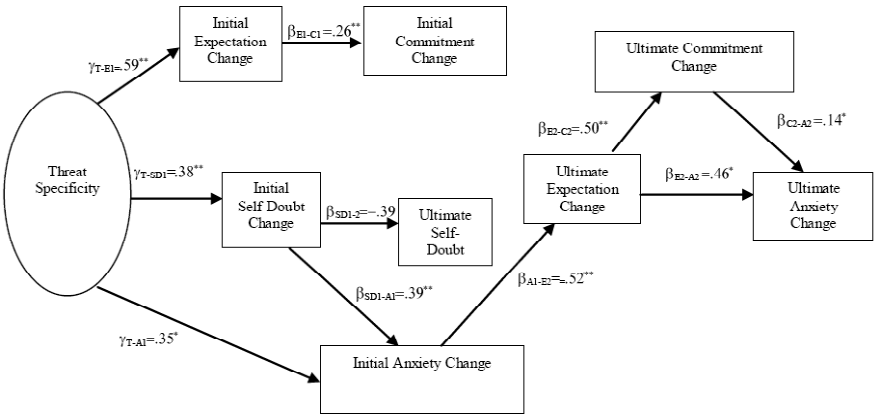

FIGURE 3. Results of the path analysis delineating those direct paths found to be significant. Numbers beside farrows are beta weights. *$p < .05$. **$p < .01$.

As in Study 1, the decomposition of effects in Study 2 also supported Predictions 6-10 derived to test the role of anxiety as an intermediate link between self-doubt and expectations. Consistent with Prediction 6, anxiety first enters the process via initial self-doubt as the significant total effect of threat specificity on initial anxiety elevations (.53) decomposes into a significant direct effect (.35) and a significant indirect effect that is mediated entirely via initial elevations in self-doubt (.18). Consistent with Predictions 7-8, initial elevations in anxiety, in turn, mediate the effect of initial elevations in self-doubt as well as threat specificity on ultimate declines in expectations. Consistent with prediction 7, the significant total effect of threat specificity on ultimate expectancy declines (-.46) decomposes into a non-significant direct effect (-.18) and a significant indirect effect that is mediated via initial anxiety elevations (-.28). Consistent with Prediction 8, anxiety serves as the critical intermediate link between self-doubt and expectations as the significant total effect of initial self-doubt elevations on ultimate expectancy declines (-.23) decomposes into a non-significant direct effect (-.01) and a significant indirect effect (-.22) that is almost entirely mediated through initial elevations in anxiety [(.40) * (.54) = .21].

Consistent with Prediction 9, the role of anxiety in downward self-revision is advanced through falling expectations. The significant total effect of initial anxiety elevations on ultimate commitment declines (-.46) decomposes into a non-significant direct effect (-.20) and a significant indirect effect (-.26) that is entirely mediated via ultimate declines in expectations. Finally, consistent with Prediction 10, the process resolves with the ultimate collapse of expectations and commitment as the significant total effect of initial elevations on ultimate declines in anxiety (-.52) decomposes into a non-significant direct effect (-.20) and a significant indirect effect (-.31) that is mediated entirely via the ultimate declines in expectations and commitment to the possible self.

These findings replicate the basic pattern of mediating effects obtained in Study 1. Taken together, the results across both studies support our claim that the initial anxiety evoked by threats provides a critical intermediate link that transforms initial self-doubt into ultimate declines in expectations supporting commitment to possible selves. As in Study 1, moreover, it is worth noting that initial expectancy and commitment changes as well as subsequent changes in self-doubt did not contribute either directly or indirectly to the ultimate changes in anxiety or, more importantly, commitment to pursuing the business psychology possible self.

STUDY 2 DISCUSSION AND ALTERNATIVE MODELS

As in Study 1, we wanted to evaluate the relative as well as absolute fit of our model in comparison to other conceptually and empirically sensible models. First, model comparison chi-square tests revealed a decrement in fit when the target model was modified to exclude (serially not simultaneously) any of the mediators of downward self-revision. Specifically, results showed a significant decrement in fit when the target model was modified to exclude the direct link from ultimate expectancy changes to the outcome variable of ultimate commitment declines, $\Delta\chi^{2(}1) = 18.24$, $p < .01$. Although only marginally significant, the results also showed a decrement in model fit when the target model was modified to exclude the direct links from either initial doubt or anxiety changes to ultimate declines in commitment, both $\Delta\chi^2$s(1) > 2.73, both *p*s > .10.

As in Study 1, results from the model comparison chi-square tests revealed a significant decrement in fit when the target model was modified to either (1) leave the link between initial self-doubt and anxiety changes unspecified as prior models of goal disengagement have done (Carver & Scheier, 1990), or to (2) exclude initial changes in anxiety as a mediator of the effect of threat on ultimate expectancy declines, both $\Delta\chi^2$s > 21.06, all *p*s < .01. Finally, results showed a significant decrement in fit when the target model was modified to (1) reverse the order of the pathways linking initial self-doubt and anxiety changes so that initial self-doubt elevations did not intervene between threat specificity and initial anxiety elevations, or (2) reverse the order of the pathways linking ultimate expectancy changes and commitment changes so that ultimate expectancy declines no longer intervened between initial anxiety elevations and ultimate commitment declines, both $\Delta\chi^2$s > 13.39, both *p*s < .01.

GENERAL DISCUSSION

Across two studies, the results supported our predictions regarding "how" as well as "when" threats are translated into downward self-revision over time. Relevant to the "when" question, these findings confirmed that downward self-revision is most likely to occur when threats to possible selves are fully specified.

Relevant to the larger question of "how" any given threat is translated into downward self-revision, these findings support the mediating pathways specified in our model to take threats from initial elevations in doubt (link 1), to initial elevations in anxiety (link 2), and, finally, through to the ultimate fall of expectations (link 3) supporting commitment to possible selves. It is worth noting that this

exact mediation sequence was not only found in Study 1 but replicated in Study 2. In fact, the Chi-Square model comparison tests across both studies not only confirmed that we need these mediating pathways through self-doubt, anxiety, and expectations but, more importantly, that we need these pathways specified in the *exact sequence* prescribed by our model to best explain how as well as when threats are translated into downward self-revision over time.

COMPARISON TO PAST MODELS OF POSSIBLE SELF CHANGE

Most past work on possible selves has explored temporary changes in accessibility (Norman & Aron, 2003; Ruvolo & Markus, 1992). By contrast, we explore changes in commitment to possible selves. Second, this work differs from some past work that has explored changes in commitment in terms of the origin and timeline of downward self-revision. For example, the pioneering work of Brandstatter and colleagues focused on *self*-initiated changes that *slowly* occur as people confront the rising challenges of old age (Rothermund & Brandstatter, 2003). Similarly, Klinger's classic work proposed that disengagement gradually emerged over an extended five-phase cycle (invigoration, aggression, downswing into depression, depression, and recovery) in response to the emergence of environmental obstacles that reduced the accessibility of important goal incentives. Although both models have certainly informed our model, this past work still differs from the present work in the sense that we explore *socially* initiated change that *abruptly* occurs in a single interaction.

Third, past work that has examined abrupt changes in commitment primarily focuses on the catalysts and consequences to the relative neglect of the intervening mental process (Atkinson & Birch, 1970; Wrosch, Scheier, Miller, Schulz, & Carver, 2003) whereas we focus squarely on the intervening mental processes as well as the catalysts of change. Although Wrosch and colleagues have explored the mediating process from goal disengagement to physical health outcomes, this work has not explored the temporally precedent psychological process that mediates the effect of threat on goal disengagement as *an outcome* rather than *predictor* variable (Wrosch, Miller, Scheier, & Brun de Ponfet, 2007). Once again, although both models have informed our work, the present model differs from these past models in its primary focus on the precise mediating pathways that translate threats into downward self-revision over time.

Fourth, the little work that has bothered to address the intervening process tends to overly restrict the focus to single mediators or only a small subset of potentially relevant mediators to fully account for, what is likely, a complex and multiply determined process that cannot be reduced to such a simple set of mediating mechanisms. For example, although Klinger's classic model of the incentive-disengagement cycle specified an orderly sequence of events associated with disengagement, this work focused primarily on reactive depression as the critical *mediator* of the psychological process that turned threats into goal disengagement.

In fact, for all its descriptive complexity, this model is surprisingly vague regarding the potential contribution of variables at other stages (e.g., aggression, invigoration) in mediating the effect of threat on depression and, in turn, disengagement over time. For example, although the aggression stage precedes the downswing into depression, this model never clearly specifies if (a) aggression actually *medi-*

ates the link from goal obstacles and invigoration to later stages of the process (depression and disengagement) or, alternatively, if (b) aggression merely precedes the these later stages (depression and disengagement) but plays no mediating role in the process.[4]

Although more recent work has attempted to better understand the intervening mechanisms that translate threats into downward self-revision, these models continue to overly restrict the focus to one or two potentially relevant mediators to fully explain this time-dependent process of self-change that is more likely to be driven by a complex series of multiple mediating mechanisms. Unfortunately, moreover, there is more disparity than consensus across these contemporary accounts as different models advance *different* mediators (or subset of mediators) to best explain the *same* intervening process of change in desired selves. For example, some claim that meta-cognitive variables such as self-doubt (vs. self-confidence) mediate the process of self-change (Briñol et al., 2008; Oyserman, Bybee, & Terry, 2006); others claim that expectations, anxiety, or both mediate this process (Bandura, 1997; Gregory et al., 1985; Oettingen et al., 2001). We attempt to unify these previously disparate models by proposing that changes in self-doubt, anxiety, and expectations *all* play critical mediating roles in the intervening process that turns threats into downward self-revision over time.

Last, but not least, we extend past work by specifying the precise time-dependent pathways (see Figure 1) that take threats from initial doubt (1), to initial anxiety (2), through to the ultimate fall of expectations (3) supporting commitment. To our knowledge, only one other model has gone so far to specify that threatening setbacks evoke anxiety and doubt, which, in turn, trigger declines in expectations supporting goal commitment (Carver & Scheier, 1990). However, even this model did not specify the exact temporal link between doubt and anxiety in the process of self-change.

The value of precise accounts that fully explain the exact time-dependent sequence by which any process unfolds cannot be overstated. To draw an analogy, a complete understanding of how a car works requires more than the simple, yet parsimonious, account that turning a car key starts an engine or even the simple, yet parsimonious, process account that the battery, alternator, and plugs work together, in some mysterious way, to translate the turn of a car key into the firing of engine pistons. A *complete* understanding of how a car operates requires the more *precise*, albeit complex, account of the *exact* time-dependent sequence by which these intervening devices (battery, starter, alternator, ignition, distributor/distributor caps, cables, and plugs) translate the physical act of turning a car key into a running engine.

Similarly, a complete understanding of downward self-revision requires more than a simple, yet parsimonious, account that threats induce change or even a crude process account that self-doubt, anxiety, and expectations work together, in some mysterious and magical way, to translate threats into downward self-revision over time. As in automotive mechanics, a *complete* understanding of the psychological mechanics that govern downward self-revision requires a more *precise*, even if complex, account of the *exact* time-dependent sequence by which these variables (self-doubt to anxiety to expectations) translate threats into down-

4. Of course, it is difficult to make the claim that aggression is a *psychological* mediator of the *mental* process of self-change given that aggression is a *behavioral* rather than *psychological* variable.

ward self-revision. Although past models of the process governing possible self change may be more parsimonious, our model provided the *best fitting* account of the precise psychological mechanics that governed the translation of threat into downward self-revision across two data sets. Thus, this work extends past work by providing a more precise, albeit complex, account of e*xactly* how as well as when downward self-revision unfolds over time in response to threats.

LIMITATIONS & FUTURE DIRECTIONS

Upward Self-Revision? Although we focused on the *downward revision* of possible selves, upward self-revision should occur when favorable feedback is specified into the explicit prospect of the desired self as greater than the undesired self if the person continues to pursue the possible self. The study of upward self-revision may seem unnatural given that most people appear quite adept at spontaneously specifying the implications of favorable feedback into optimistic expectancy support for desired selves (Kunda, 1987, 1990). However, there are at least two reasons why the social-initiation of upward self-revision merits empirical attention.

First, the capacity to specify the implications of favorable feedback into expectations for desired selves may not be spontaneous or even natural in some populations. For example, evidence suggests that clinically depressed individuals have trouble spontaneously specifying the implications of favorable feedback into optimism for desired future selves (Penland, Masten, Zelhart, Fournet, & Callahan, 2000; see also Dunkel, 2000).

Second, from a theoretical perspective, downward self-revision represents only one side of a larger story of self-revision. To fully explain self-revision, the focus must be expanded to account for upward as well as downward self-revision. One question that has profound implications for existing models of self-change and, thus, deserves immediate attention concerns the potential symmetry of processes that govern upward and downward self-revision. Specifically, do positive emotions (e.g., excitement) and expectations drive upward self-revision in the same way that negative emotions (e.g., anxiety) and expectations drive downward self-revision?

Although affect and expectations play a central role in downward self-revision, we suspect that they may play a lesser role in the process of upward self-revision due to the link between counterfactual emotions (e.g., disappointment, elation) and expectancy-violations (Carroll et al., 2006; Carroll, Shepperd, Sweeny, Carlson, & Benigno, 2007). In downward self-revision, anxiety was evoked when the specified threat described the undesired prospect of disappointment that would arise when the student's positive expectations for the desired possible self were shattered and disconfirmed by inevitable failure. Given that people typically hold positive expectations (Carroll et al., 2006; see also Sweeny, Carroll, & Shepperd, 2006), the "hot" affective reactions that accompanied the *anticipated disconfirmation* of positive expectations in downward self-revision may not accompany the *anticipated confirmation* of these expectations in upward self-revision.

Re-Revisions? We have proposed downward self-revision as a change in commitment to a desired possible self. One question that deserves attention is just how permanent these changes are. Some cognitive scientists have suggested that behavioral choices which appear permanent may ultimately drift back to their ini-

tial ambient position over the course of time (Lovett, 1998). At a descriptive level, future research could examine whether changes in commitment to a desired self persevere or whether the ambient level of commitment recovers over time. At an experimental level, if downward self-revisions do decay over time, research could identify and manipulate factors that accelerate or delay the recovery of commitment to possible selves.

The Specification of Threat. We have proposed that downward self-revision is most likely to occur when threats become fully specified. We have proposed that the procedure for fully specifying threats involves gradually progressing through three interrelated levels of threat specificity to unpack the implications of an undesired discrepancy into the prospect of a specific undesired self as more likely than the desired self if the person continues to pursue the possible self. Although important, we propose that simply specifying a vivid undesired self will not maximize the likelihood of downward self-revision unless the threat has been partially specified to discredit the initially expected desired self. Moreover, we propose that it will be difficult to discredit the initially expected desired self unless evaluators present an undesired discrepancy on which to base that discreditation.

Nonetheless, future research should empirically test the claim that downward self-revision is most likely to occur when the presentation of threat progresses through earlier levels of threat specificity before advancing to later levels. For example, future research could orthogonally manipulate the levels of threat specificity to test whether the likelihood of downward self-revision is reliably higher when the highest level is preceded by the first two levels compared to when it is not preceded by the second level (discreditation of the desired self), the first level (creation of a threatening discrepancy), or both (discrediting the desired self based on the threatening discrepancy).

Expanding the Field of Revisions. Caution should be exercised when attempting to generalize the current findings on change in experimentally induced possible selves to change in firmly established possible selves. Of course, concerns over the generality of research findings obtained from college students using minimal-stimulus experimental designs have repeatedly surfaced across areas of social and personality psychology. For example, critics question whether findings showing changes in experimentally induced attitudes or beliefs really generalize to changes in firmly established political attitudes or religious beliefs that people will zealously defend and, in some cases, even die for. Some theorists have addressed this concern by asserting that, despite superficial differences, the same basic processes that govern change in firmly established attitudes or beliefs should govern change in newly established attitudes or beliefs (Petty & Krosnick, 1995; Schlenker, 1974). In the same way, we assert that the present findings regarding change in new possible selves enable us to see how and when change might occur in established possible selves.

Moreover, although new, there are a few reasons to believe that the changes we observed in participant commitment to the business psychology possible self may have closely approximated the changes that occur in commitment to established possible selves. First, the mean initial commitment to pursuing this possible self was above the mid-point (mean range between 2.8 and 3.6) on the 5-point scale across every condition. Second, as noted earlier, the decision to voluntarily par-

ticipate in this study over the alternate research option that required less time for the same compensation suggests that participants came into this study with some initial, intrinsic motivation and commitment to pursuing their career possibilities in business psychology.

In our view, the relatively high Time 1 commitment scores coupled with the initial interest and commitment implied by the voluntary choice to participate in this study suggests that commitment to the business psychology possible self may have at least approximated, albeit imperfectly, commitment to an established possible self. Although admittedly speculative, participants may have expressed such high levels of initial commitment to pursuing business psychology because it tapped the enduring concern of most students to quickly derive a desired career self from their current competencies (Markus & Wurf, 1987; Ogilvie, 1987). Given that the participants were upper-division business or psychology majors, the business psychology program offered a unique training opportunity that would quickly prepare them (in 1 year) for a specific desired career self in their chosen field of study (current competencies). Despite these reasons to believe that commitment to the business psychology possible self approximated commitment to established possible selves, more work is needed to generalize these findings beyond the downward revision of new possible selves to firmly established possible selves.

IMPLICATIONS AND SUMMARY REMARKS

This article attempted to shed light on the initial questions of how (process) as well as when (moderators) threats to possible selves translate into downward self-revision. Regarding the question of "when," the results suggest that downward self-revision is most likely to occur when threats are fully specified. Regarding the question of "how," these results supported the temporal pathways specified in the mediation model to take threats from initial elevations in doubt, to initial elevations in anxiety, through to ultimate declines in expectations supporting commitment to possible selves.

Of course, we recognize the value of parsimony. We also recognize that specifying the exact time-dependent pathways of change in our model adds complexity at the expense of parsimony. As noted earlier, however, complex models should not be blindly forsaken for greater parsimony if a more complex model provides a better fitting, more precise, account of empirical evidence than more parsimonious alternatives. Although past models of downward self-revision may be more parsimonious, the findings across *two* studies clearly demonstrated that our mediation model is the *better fitting, more precise* account of the exact time-dependent process that translated threats into the downward revision of commitment to possible selves. To conclude, then, the present work extends past work by providing a more precise, albeit complex, model of *exactly* how as well as when threats translate into downward self-revision over time.

APPENDIX 1.

REFERENCES

Atkinson, J. W., & Birch, D. A. (1970). *A dynamic theory of action*. New York: Wiley.

Bandura, A. (1997). *Self-efficacy: The exercise of self-control*. New York: Freeman.

Brandtstadter, J., & Renner, G. (1990). Tenacious goal pursuit and flexible goal adjustment: Explication and age-related analysis of assimilative and accommodative strategies of coping. *Psychology and Aging, 5*, 58–67.

Brandtstadter, J., & Rothermund, K. (2002). The life-course dynamics of goal pur-

suit and goal adjustment: A two-process framework. *Developmental Review, 22,* 117–150.

Briñol, P., DeMarree, K. G., & Petty, R. E. (2008). Processes by which confidence (vs. doubt) influence the self. In R. Arkin, K. Oleson, & P. Carroll (Eds.), *The uncertain self: A handbook of perspectives from social and personality psychology*. Mahwah, NJ: Erlbaum.

Briñol, P., & Petty, R. E. (2003). Overt head movements and persuasion: A self-validation analysis. *Journal of Personality and Social Psychology, 84*, 1123-1139.

Briñol, P., Petty, R. E., & Wheeler, S. C. (2006). Discrepancies between explicit and implicit self-concepts: Consequences for information processing. *Journal of Personality and Social Psychology, 91,* 154-170.

Carroll, P. J., Shepperd, J. A., Sweeney, K., Carlson, E., & Benigno, J. P. (2007). Disappointment for others. *Cognition and Emotion, 21,* 1565-1576.

Carver, C., & Schier, M. (1981). *Attention and self-regulation. A control-theory approach to human behavior.* New York: Springer-Verlag.

Carroll, P. J., Sweeny, K., & Shepperd, J. A. (2006). Forsaking optimism. *Review of General Psychology*, *10*, 56-73.

Carver, C., & Schier, M. (1990). Origins and functions of positive and negative affect: A Control-Process view. *Psychological Review*, *97*, 19-35.

Dunkel, C.S. (2000). Possible selves as a mechanism for identity exploration. Journal of Adolescence, 23, 519–529.

Einhorn, H. J., & Hogarth, R. M. (1986). Judging probable cause. *Psychological Bulletin, 99*, 3-19.

Epstein, S. (1973). The self-concept revisited, or a theory of a theory. *American Psychologist*, *28*, 404-416.

Forgas, J. P., & Ciarrochi, J. V. (2002). On managing moods: Evidence for the role of homeostatic cognitive strategies in affect regulation. *Personality and Social Psychology Bulletin, 28*, 336-345.

Greenwald, A. G. (1980). The totalitarian ego: Fabrication and revision of personal history. *American Psychologist*, *35*, 603-618.

Gregory, W. L., Burroughs, W. J., & Ainslie, F. M. (1985). Self-relevant scenarios as an indirect means of attitude change. *Personality and Social Psychology Bulletin*, *11*, 435-444.

Hermann, A., Leonardelli, G., & Arkin, R. M. (2004). Self-doubt and self-esteem. A threat from within. *Personality and Social Psychology Bulletin, 28*, 395-408.

Higgins, E. T. (1987). Self-discrepancy theory: A theory relating self and affect. *Psychological Review*, *94*, 319-340.

Higgins, E.T. (1997). Beyond pleasure and pain. *American Psychologist*, 52, 1280-1300.

Jones, E. E., & Berglas, S. (1978). Control of attributions about the self through self-handicapping strategies: The appeal of alcohol and the role of underachievement. *Personality and Social Psychology Bulletin*, *4*, 200-206.

Klinger, E. (1975). Consequences of commitment to and disengagement from incentives. *Psychological Review, 82*, 1-25.

Koehler, D. (1991). Explanation, imagination, and confidence in judgments. *Psychological Bulletin, 110*, 499-519.

Kunda, Z. (1987). Motivated inference: Self-serving generation and evaluation of causal theories. *Journal of Personality & Social Psychology*, *53*, 636-647.

Lockwood, P., & Kunda, Z. (1997). Superstars and me: Predicting the impact of role models on the self. *Journal of Personality and Social Psychology, 73*, 91-103.

Lovett, M. (1998). Choice. In J. Anderson and C. Lebiere (Eds.), *Atomic components of thought* (pp. 297-342). San Diego, CA: Academic.

Maddux, J., & Rogers, R.W. (1983). Protection motivation and self-efficacy: A revised theory of fear-appeals and attitude change. *Journal of Experimental Psychology, 19*, 469-479.

Markus, H., Cross, S. E., & Wurf, E. (1990). The role of the self-system in competence. In R. J. Sternberg & J. Kolligan, Jr. (Eds.), *Competence considered* (pp. 205-226). New Haven, CT: Yale University Press.

Markus, H., & Kunda, Z. (1986). The stability and malleability of the self-concept. *Journal of Personality & Social Psychology*, *51*, 858-866.

Markus, H., & Nurius, P. (1986). Possible selves. *American Psychologist*, *41*, 954-969.

Markus, H., & Ruvolo, A. (1989). Possible selves: Personalized representations of goals. In L. S. Pervin (Ed.), *Goal concepts*

in personality and social psychology (pp. 211-241). Hillsdale, NJ: Erlbaum.

Markus, H., & Wurf, E. (1987). The dynamic self-concept: A social psychological perspective. *Annual Review of Psychology*, *38*, 299-337.

Norman, C. C., & Aron, A. (2003). Aspects of possible self that predict motivation to achieve or avoid it. *Journal of Experimental Social Psychology, 39*, 500-507.

Oettingen, G., & Mayer, D. (2002). The motivating function of thinking about the future: Expectations versus fantasies. *Journal of Personality and Social Psychology, 83,* 1198-1212.

Oettingen, G., Pak, H., & Schnetter, K. (2001). Self-regulation of goal setting: Turning free fantasies about the future into binding goals. *Journal of Personality and Social Psychology, 80,* 736-753.

Ogilvie, D. M. (1987). The undesired self: A neglected variable in personality research. *Journal of Personality and Social Psychology, 52,* 379-385.

Oyserman, D., Bybee, D., & Terry, K. (2006). Possible selves and academic outcomes: How and when possible selves impel action. *Journal of Personality and Social Psychology*, *91*, 188-204.

Oyserman, D., & Saltz, E., (1993). Competence, delinquency, and attempts to attain possible selves. *Journal of Personality and Social Psychology*, *65*, 360-374.

Penland, E.A., Masten, W.G., Zelhart, P., Fournet, G.P., & Callahan, T.A. (2000). Possible selves, depression and coping skills in university students. Personality and Individual Differences, 29, 963–969.

Petty, R. E., & Krosnick, J. A. (Eds.). (1995). *Attitude strength: Antecedents and consequences* (p. 243). Hillsdale, NJ: Erlbaum.

Rothermund, K., & Brandstadter, J. (2003). Coping with deficits and losses in later life: From compensatory action to accommodation. *Psychology & Aging, 18*, 896-905.

Rottenstreich, Y., & Tversky, A. (1997). Unpacking, repacking, and anchoring: Advances in support theory. *Psychological Review*, *104*, 406-415.

Ruvolo, A. P., & Markus, H. R. (1992). Possible selves and performance: The power of self-relevant imagery. *Social Cognition, 10*, 95-124.

Sanitioso, R., Kunda, Z., & Fong, G. T. (1990). Motivated recruitment of autobiographical memory. *Journal of Personality and Social Psychology*, *59*, 229-241.

Schlenker, B. R. (1974). Social psychology and science. *Journal of Personality and Social Psychology*, *29,* 1-15.

Shepperd, J. (1993). Student derogation of the scholastic aptitude test: Biases in perceptions and presentations of college board scores. *Basic and Applied Social Psychology, 14,* 455-473.

Shepperd, J. A., Ouellette, J. A., & Fernandez, J. K. (1996). Abandoning unrealistic optimism: Performance estimates and the temporal proximity of self-relevant feedback. *Journal of Personality and Social Psychology*, *70*, 844-855.

Sweeny, K., Carroll, P. J., & Shepperd, J. A. (2006). Is optimism always the best? Future outlooks and preparedness. *Current Directions in Psychological Science, 15,* 302-306.

Taylor, K. M., & Shepperd, J. A. (1998). Bracing for the worst: Severity, testing, and feedback timing as moderators of the optimistic bias. *Personality and Social Psychology Bulletin, 24*, 915-926.

Tversky, A., & Koehler, D. J. (1994). Support theory: A nonextensional representation of subjective probability. *Psychological Review*, *101*, 547-567.

Weiner, B. (1986). *An attributional theory of motivation and emotion.* New York: Springer-Verlag.

Wrosch, C., Miller, G. E., Scheier, M. F., & Brun de Pontet, S. (2007). Giving up on unattainable goals: Benefits for health? *Personality and Social Psychology Bulletin, 33*, 251-265.

Wrosch, C., Scheier, M. F., Miller, G. E., Schulz, R., & Carver, C. S. (2003). Adaptive self-regulation of unattainable goals: Goal disengagement, goal reengagement, and subjective well-being. *Personality and Social Psychology Bulletin, 29*, 1494-1508.