

# Chronic Threat and Contingent Belonging: Protective Benefits of Values Affirmation on Identity Development

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Two longitudinal field experiments in a middle school examined how a brief “values affirmation” affects students’ psychological experience and the relationship between psychological experience and environmental threat over 2 years. Together these studies suggest that values affirmations insulate individuals’ sense of belonging from environmental threat during a key developmental transition. Study 1 provided an analysis of new data from a previously reported study. African American students in the control condition felt a decreasing sense of belonging during middle school, with low-performing students dropping more in 7th grade and high-performing students dropping more in 8th grade. The affirmation reduced this decline for both groups. Consistent with the notion that affirmation insulates belonging from environmental threat, affirmed African American students’ sense of belonging in Study 1 fluctuated less over 2 years and became less contingent on academic performance. Based on the idea that developmentally sensitive interventions can have long-lasting benefits, Study 2 showed that the affirmation intervention was more effective if delivered before any drop in performance and subsequent psychological toll could unfold. The role of identity threat and affirmation in affecting the encoding of social experience, and the corresponding importance of timing treatments to developmentally sensitive periods, are explored.

*Keywords:* identity threat, values affirmation, belonging, African Americans, middle school development

Social environments like work or school often expose people to the risk of negative evaluation and rejection. This *social evaluative threat* (Dickerson & Kemeny, 2004) poses threats to the self. For members of intellectually stereotyped groups like African Americans, such threat is heightened by the possibility of being negatively stereotyped. It is also heightened by cues that reinforce marginalization, such as underrepresentation of one’s ethnic group, discrimination, and racially stratified academic tracking (Steele, Spencer, & Aronson, 2002). For students facing negative stereotypes, evaluative threat can thus prove intense and pervasive, and in real-world environments, this threat is often chronic.

Research has most often treated threat from negative stereotypes (i.e., stereotype threat) as a situational factor that contributes to

underperformance on difficult tests (Steele et al., 2002). In long-term environments like school, however, these situational threats recur. Repeated tests, critical feedback, low grades, and real or perceived slights contribute to a chronically stressful environment. This is especially true for many minority students, who may see such events as providing accumulating evidence that stereotypes are in play. Over time, concerns about stereotypes may magnify, and low-performing minority students in particular may increasingly entertain the hypothesis that *people like me do not belong here* (Cohen & Garcia, 2008; Walton & Cohen, 2007).

When people see an environment as threatening rather than safe, they tend to become vigilant—chronically alert to cues that could signal threat (Chen, Cohen, & Miller, 2010; Kaiser, Vick, & Major, 2006; Murphy, Steele, & Gross, 2007; Purdie-Vaughns, Steele, Davies, Ditlmann, & Crosby, 2008). Perceptions of threat, in turn, prompt physiological, cognitive, and emotional coping reactions (e.g., Chen et al., 2010; Miller & Chen, 2010). For example, minority students may be vigilant to the possibility of teacher bias (Brown & Dobbins, 2004; Cohen, Steele, & Ross, 1999; Crocker, Voelkl, Testa, & Major, 1991; Wayman, 2002). If they perceive such bias, they may reasonably wonder if the classroom more generally is an unsafe and unaccepting place for them. This, in turn, could further increase the possibility of perceiving bias in future interactions. Eventually, this heightened vigilance could become self-reinforcing and destabilizing and leave students’ sense of belonging and self-efficacy vulnerable to each passing threat (Aronson & Inzlicht, 2004). Vigilance makes peo-

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ple's sense of belonging contingent on situational cues—continually on trial (Crocker, Sommers, & Luhtanen, 2002)—turning the ups and downs of life into peaks and valleys of the self.

Because work and school are chronically evaluative, and stereotypes pervasive, members of negatively stereotyped groups may benefit from psychological strategies that help reduce the threatening potential of negative experiences in these environments. We propose that self-affirmation offers such a strategy. Self-affirmation refers to behavioral or cognitive events that bolster the perceived integrity of the self, one's overall self-image as competent, effective, and able to control important outcomes (Steele, 1988; see also Sherman & Cohen, 2006). An intervention based on self-affirmation theory has people write about *core values*, such as relationships with friends and family, religion, or music. Studies using these “values affirmation” interventions have found that the small but significant act of writing about one's core values can reduce physiological stress (Creswell et al., 2005; Sherman, Bunyan, Creswell, & Jaremka, 2009) and improve academic performance (Cohen, Garcia, Purdie-Vaughns, Apfel, & Brzustoski, 2009). Indeed, research increasingly suggests that affirmation processes propagate their effects over remarkably long times (Cohen et al., 2009; Epton & Harris, 2008; Sherman et al., 2009; Thomaes, Bushman, de Castro, Cohen, & Denissen, 2009).

How does the simple act of writing about an important value yield such lasting effects? What are the psychological consequences of values affirmation interventions? These are the topics addressed in the present research. In particular, we test the idea that values affirmation interventions have enduring effects because they initiate a self-reinforcing shift in the way negatively stereotyped students construe the level of safety and threat in their academic environment. Affirmations buttress people's self-integrity—their feeling of global competence and adaptiveness in the social world—so that specific threats in the academic environment are less psychologically destabilizing. Whereas nonaffirmed minority students may see a threat such as a poor grade as evidence that negative stereotypes are active and that the environment is unsafe, affirmed minority students may see the same poor grade from a broader perspective (Schmeichel & Vohs, 2009). A bad grade, in the context of all that gives a person integrity, is robbed of its threatening power. Consequently, affirmed minority students should be better able to engage with the environment without suffering from the corrosive effect that adversity might otherwise have on their subjective safety and belonging in school. In summary, affirmation interventions are expected to protect minority students' sense of belonging in school, so that it is more *unconditional* and thus less *tethered* to recent negative feedback. With a greater sense of belonging in school, students may see future negative feedback in a more constructive light.

To illustrate this untethering concept, consider Figure 1. Each panel represents feelings of belonging in a chronically evaluative, stereotype-relevant environment. In the left panel, feelings of belonging are highly contingent. Threatening diagnostic forces, like teacher feedback or peer attitudes, easily penetrate and undermine feelings of belonging, creating psychological vulnerability. In the right panel, a values affirmation intervention fortifies feelings of belonging against potential threats. When affirmed, feelings of belonging become protected and relatively independent (i.e., untethered or uncoupled) from environmental threats. Consequently, legitimate diagnostic feedback can be integrated with-

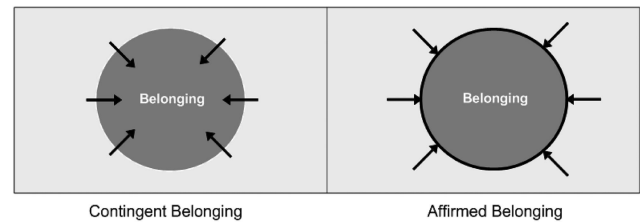


Figure 1. A model of academic belonging in chronically threatening environments for members of negatively stereotyped groups. Background represents threatening diagnostic forces, like teacher feedback, grades, and peer attitudes. In the left panel belonging is contingent, easily undermined by environmental feedback. In the right panel belonging is affirmed, protected against and untethered from environmental threats; affirmed students are secure in their sense of acceptance and their potential to succeed. With a foundation of secure belonging, affirmed students are better positioned to learn and incorporate legitimate performance feedback.

out undermining feelings of belonging. Note that a strategy of disengagement from the environment can also be protective (Major, Spencer, Schmader, Wolfe, & Crocker, 1998), but this protection is short term and ultimately self-defeating. By psychologically shutting oneself off from the environment, opportunities for learning and insight are missed and self-knowledge becomes inaccurate (Aronson & Inzlicht, 2004). Thus, values affirmations offer a way to protect belonging while simultaneously reducing reliance on counterproductive defensive strategies (Sherman & Cohen, 2006).

Given this proposed process of affirmation effects, the earlier belonging is fortified against environmental threats, the more positive should be the outcomes. Early threats to belonging, especially during sensitive transitions, may initiate a self-reinforcing downward spiral. As feelings of belonging in the environment decline, perceptions of threat mount, which undermine grades and further reduce feelings of belonging. This mutually reinforcing pattern of decreased belonging and increased threat may lead to a cascading effect on other negative outcomes (Obradović, Burt, & Masten, 2009) that can interfere with learning and undermine performance (e.g., disruptive behavior, impaired health, school absences). If so, the effects of early affirmation, timed before these processes begin to unfold, should have a lasting impact by preventing the establishment of negative reciprocal patterns, thus buffering belonging and performance.

To test these arguments, we take a two-pronged approach. In Study 1, we use unanalyzed data from a large, multicohort longitudinal field experiment (see Cohen et al., 2009) to establish in a variety of ways that values affirmations uncouple African American middle school students' sense of *academic belonging* from environmental threats. Together these analyses test whether affirmation propagates its effects over time by affecting the encoding of ongoing adversity in school. In Study 2, we conduct an additional field experiment to test whether timing a values affirmation intervention to correspond with a sensitive period (the first week in the transition to seventh grade) promotes even greater benefit than the standard timing of several weeks later. Early intervention should be relatively more effective, we expect, because it untethers belonging from external threat and thus prevents or slows a negative reciprocal relationship between poor grades and low belonging.

Both studies in the current research use longitudinal field experiments to test the benefits of values affirmation in the real-world context of middle school. This type of design supplements previous laboratory work but goes beyond it. The typical laboratory study provides a snapshot of cause and effect. By contrast, our longitudinal designs advance an understanding of how psychological processes related to social identity threat unfold over large time scales to affect people's ongoing psychological development (see Cohen & Garcia, 2008). Such longitudinal designs in field settings can also address how and why psychological interventions work in meaningful ecological contexts (Bronfenbrenner, 1979; Cialdini, 2009; Yeager & Walton, 2011).

### Domain-Relevant Self-Concept in Chronically Threatening Environments

Chronically threatening environments are characterized by the experience of contending with threat *over extended periods of time*, such as months and years, and the *centrality of the domain* as an organizing feature of one's daily life. School and work provide potent examples of such chronically threatening environments. Withdrawal from these settings is often not a viable option, as participation is either mandatory or critically important for material independence. Over time, negative stereotypes about ability and the chronic evaluation inherent in these environments can threaten the self and create uncertainty about belonging in a way that is not true for people without the burden of such stereotypes (Aronson & Inzlicht, 2004; Walton & Cohen, 2007, 2011).

We propose that for members of negatively stereotyped groups, chronically threatening environments can cause feelings of belonging in that environment to become contingent and vulnerable (see left panel of Figure 1). In school, for example, negative feedback from teachers may seem diagnostic for African American students, not only of a need to study more in a particular area, but of a global sense that they may not be seen as capable of intellectual success. Their sense of belonging in school becomes threatened. Over time, this could undermine a host of other psychological processes important for success, like motivation and engagement in school (Connell, Halpern-Flesher, Clifford, Crichlow, & Usinger, 1995). Although the threat of limited-duration evaluative situations may be temporarily neutralized by short-term coping strategies, such as disengagement or attributions of negative feedback to discrimination (e.g., Crocker et al., 1991; Major et al., 1998), recent evidence suggests that in spite of, or perhaps partially because of, these short-term strategies, members of negatively stereotyped groups in chronically threatening environments are vulnerable to adverse psychological outcomes over the long term. For instance, short-term attributions to discrimination in response to poor performance or negative feedback may be immediately protective but ultimately create uncertainty about belonging and ability that intensifies the effect of later negative environmental feedback (e.g., Aronson & Inzlicht, 2004; Cohen & Garcia, 2008; Walton & Cohen, 2007) and further reduces already fragile feelings of belongingness. Thus, contrary to the notion that they steel themselves against marginalization, members of negatively stereotyped groups may in certain ways be psychologically vulnerable in domains that they care about or must contend with over time.

### Values Affirmations Affect the Construal of Social Experience

We propose that values affirmations affect the encoding and construal of social experience such that negative feedback is less likely to be seen as globally threatening and self-diagnostic. For African American middle school students, for example, this means that negative feedback like a bad grade is more likely to be seen as a challenge to learn from rather than an indictment of their belonging in school. If so, this may be an important clue as to how and when affirmation effects persist. Affirmation theory begins with the premise that people are motivated to maintain the perceived worth and integrity of the self (Steele, 1988). When situations are threatening, affirmation theory suggests that reflecting on another valued identity helps fortify self-integrity and reduce feelings of threat (Steele, 1988; see also Sherman & Cohen, 2006). Consequently, affirmed individuals' self-concept related to a domain—in particular their sense of "fit" or belonging in that domain—should be less affected by external threat like negative feedback or poor performance (Schimel, Arndt, Banko, & Cook, 2004). By fortifying self-integrity, affirmation interventions can reduce the psychological threat posed by negative feedback. This may reduce stress and shore up belonging (Creswell et al., 2005; Crocker, Niiya, & Mischkowski, 2008), helping to promote better performance in a threatening environment (Cohen et al., 2009).

People who perceive the most chronic and pervasive threats in the social environment are those who should benefit the most from an affirmation intervention (Sherman & Cohen, 2006). In school or work, these are often the people whose sense of belonging and capability is tenuous because of a marginalized social identity. These include people who perceive themselves as most at risk for negative health outcomes (Sherman, Nelson, & Steele, 2000), those who are the most worried about their academic performance (Sherman et al., 2009), and minority students with low grades (Cohen et al., 2009). Because they face pervasive negative stereotypes that threaten their belonging in school (Steele et al., 2002; Walton & Cohen, 2007), members of negatively stereotyped minority groups should benefit more than members of majority groups from the protective benefits of values affirmation. Further, even among minority students, those experiencing the greatest threat,<sup>1</sup> such as those reporting low grades (Cohen et al., 2009) or a low sense of belonging in school, should benefit the most.

Just as affirmation interventions selectively target people who, by virtue of a group identity or personal attribute, face greater threat, so too should they provide the most benefit during specific transitions or sensitive periods that heighten threat. The first week of middle school, promotions or demotions at work, shifts in friendship networks, and retirement are instances of "ecological

<sup>1</sup> *Threat* here refers broadly to the long-term cumulative effects of operating in an environment where one faces the chronic possibility of devaluation because of one's group membership or personal attribute (Crocker et al., 1991). This contrasts with stereotype threat, which is usually conceptualized as an immediate performance decrement because of stereotype-relevant situational cues. The notion we advance is that people who receive the most negative environmental feedback (e.g., poor grades), and who are at risk of seeing this feedback as evidence that stereotypes are in play, face the greatest long-term risks and should thus benefit most from an affirmation intervention.

transitions” (Bronfenbrenner, 1977) that can create a great deal of uncertainty about how one is viewed and whether one belongs (Lepper, Ross, & Lau, 1986; Simmons, Black, & Zhou, 1991). We suggest that for individuals already attuned to the possibility of negative evaluation, these transitions represent sensitive periods when contextual threats are particularly likely to “get under the skin” and have lasting implications for how people perceive themselves in the environment. During sensitive periods, individuals can take a positive or negative turn that locks them into a long-term academic or life trajectory (Eccles, Lord, & Midgley, 1991; Miller & Chen, 2010; Miller et al., 2009). For students, early failure at a key transition, such as the transition to middle school or college, can have a lasting negative impact on academic self-concept. Such negative self-concepts can persist even in the face of later feedback that invalidates them (see Lepper et al., 1986). Sensitive periods may be especially pernicious for members of negatively stereotyped groups, as they may understandably expect and perceive negative feedback in school more readily (Mendoza-Denton, Downey, Purdie, Davis, & Pietrzak, 2002) and find it more threatening because of the potential for bias in the environment (Steele et al., 2002). Consequently, values affirmation interventions delivered at such sensitive periods offer the opportunity to change how identity-threatened individuals perceive their environment. Because early perceptions shape subsequent encoding of the social environment in a way that is confirmatory and self-reinforcing (e.g., Lepper et al., 1986), an early affirmation intervention may have compounding positive effects on students’ sense of belonging. This could benefit their well-being and performance (Baumeister & Leary, 1995; Baumeister, Twenge, & Nuss, 2002). If early negative events set in motion a mutually reinforcing downward spiral of belongingness and poor grades, even a small intervention, if it breaks this cycle early, should yield large long-term effects.

### Academic Belonging

Academic belonging is the view of oneself as “fitting in” in school—that is, having the qualities necessary to succeed in school and to be accepted by others there (Battistich & Hom, 1997; Furrer & Skinner, 2003; Osterman, 2000). Students’ sense of belongingness positively predicts their school motivation, engagement, and success (Connell et al., 1995). A greater sense of belonging in school is also associated with reduced risk (Battistich & Hom, 1997; Resnick et al., 1997). In a study of over 12,000 adolescents from a nationally representative sample, belonging in school emerged as one of the two most consistent and powerful protective factors (along with family connectedness) against every measured form of adolescent risk and distress, such as emotional distress, suicidal thoughts, violence, and substance use (Resnick et al., 1997).

Given the importance of academic belonging, it is particularly noteworthy that academic settings often undermine belongingness in members of negatively stereotyped minority groups (Mendoza-Denton et al., 2002; Walton & Cohen, 2007). Considering the centrality of the need to belong (Baumeister & Leary, 1995) and our prediction that affirmation should protect academic self-concept against external threats, we hypothesize that a values affirmation intervention should buffer members of negatively ste-

reotyped minority groups against the anticipated erosion of belonging during middle school.

### Overview of the Current Research

The research presented here uses a longitudinal experimental field design in two studies to test five hypotheses about how values affirmation affects African American students’ academic belonging and grades in middle school. The central aim of this article is not to use the zoom lens of short-term laboratory experiments to delineate the multiple cognitive, affective, and motivational mechanisms that underlie values affirmations. Rather, our aim is to use a wide-angle lens to gain a deeper and richer understanding of whether and how values affirmation uncouples academic belonging from environmental threats, such as poor performance, over time. We also examine academic performance and whether the affirmation effects on it are largest among the group at greatest threat, that is, minority students who express the most tenuous sense of belonging. Our hypotheses are tested in the context of a negatively stereotyped group—African Americans—in a chronically threatening environment—2 years of middle school (seventh and eighth grades). The study features multiple assessments of belonging and performance collected over this period.

### Buffering Against Intensifying Threat (Hypothesis 1)

If values affirmation uncouples people’s sense of belonging from environmental threats in a stereotype-relevant domain, then affirmed African American students’ sense of academic belonging should be buffered from the threat of falling grades. Performance declines are common in middle school (Eccles et al., 1991), though they appear to be particularly steep for African American students (Cohen, Garcia, Apfel, & Master, 2006; Cohen et al., 2009; Simmons et al., 1991). For these students, grades are a readily accessible source of information about the possibility of confirming negative stereotypes about intellectual ability in a chronically evaluative setting where intelligence is valued. As their grades deteriorate in middle school, the cumulative weight of these threats for African American students is likely to erode their sense of academic belonging. Affirmations should help neutralize the caustic, threatening effects of negative feedback and thus buffer African American students’ sense of belonging.

The buffering effect of values affirmation should emerge earlier for low-performing African American students—that is, those who enter seventh grade with relatively low grade point averages (GPAs) and who may thus worry most about being stereotyped. Even before performance starts to slip in middle school (Eccles et al., 1991), low performers may already feel a heightened sense of threat due to their grades. Consequently, the buffering effects of affirmation on academic belonging should be immediately apparent. In contrast, high performers begin seventh grade with relatively strong grades. It is not until their grades start slipping in later seventh grade and eighth grade that threats to belonging should accrue sufficiently for affirmation effects to emerge. Support from this idea comes from Cohen et al. (2009), who showed that in the absence of intervention, high-performing African American students dropped from making mostly “A” and “B” grades at the beginning of seventh grade (low threat) to a high “C” range at the end of eighth grade (high threat). Because affirmation benefits

should emerge only for students under threat, buffering effects on belonging should be delayed among high performers relative to low performers.

The longitudinal analysis of belonging for Hypothesis 1 also provides an opportunity to test for two additional patterns. First, we examine whether a booster affirmation, delivered to a randomly selected subset of affirmed students a year after the first set of interventions, confers any additional benefit above the original set of interventions in seventh grade. Second, we test whether any benefit of affirmation for belonging can be explained simply by the affirmation's positive effect on GPA (Cohen et al., 2009) or whether the affirmation effect on belonging is independent of its impact on GPA.

### Stabilizing Academic Belonging (Hypothesis 2)

If affirmations uncouple perceptions of belonging from environmental threats, affirmed African American students' sense of belonging should also be stabilized over 2 years. In other words, their sense of belonging should remain consistent and fluctuate less in the face of the regular ups and downs of school life (e.g., Aronson & Inzlicht, 2004). If true, affirmed African American students' sense of academic belonging should be less variable over time and be relatively more anchored at the end of eighth grade on their sense of belonging in early seventh grade when the study began.

### Uncoupling Academic Belonging From Grades (Hypothesis 3)

If values affirmations uncouple African American students' sense of belonging in school from threats issuing out of declining grades, the relation between their belonging and grades should weaken over time. Importantly, the notion that affirmation can untether students' belonging from poor performance does not suggest these students will no longer care about their grades—only that the threat of poor performance is no longer debilitating to their sense of belonging. Just as seasoned researchers do not internalize a rejected grant proposal to mean that they do not belong in academia, we predict that affirmed African American students will maintain a sense of academic belonging even when they perform poorly.

### Students With Initially Low Academic Belonging Should Benefit Most (Hypothesis 4)

We hypothesize that African American students initially low in belonging when they enter seventh grade should also benefit the most from the affirmation in terms of their academic achievement. Affirmations consistently have been found to confer the greatest benefits for those facing the most environmental threats (Cohen et al., 2006, 2009; Sherman et al., 2000, 2009). For African American students who doubt their belonging in school, the classroom may be a particularly threatening place. It is this subgroup, then, that should benefit most from a threat-alleviating affirmation. Thus, Hypothesis 4 predicts that belonging should moderate the effect of affirmation on grades. Because belonging and academic achievement are correlated (Cohen et al., 2009), any test of this moder-

ating effect of belonging on affirmation's effectiveness needs to account for students' earlier grades, which we do.

### Early Intervention During a Sensitive Period Should Yield Improved Outcomes (Hypothesis 5)

Hypothesis 5 predicts that in a separate sample of students, intervening earlier in the school year, before declining grades set students on a negative recursive trajectory, will improve belonging and grades. In a recursive cycle, early outcomes have disproportionate effects, as their consequences compound with time (Caspi, Elder, & Bem, 1987, 1988). If so, then intervening early, before a mutually reinforcing downward spiral of poor grades and low belonging takes hold, should be better. Our fifth hypothesis tests this using data from a new field experiment in which we administered the same affirmation treatment to all students but randomized its timing. Half the students received the affirmation at the standard time, whereas the remaining students received it 4 weeks earlier, during the first week of the fall quarter.

### Contributions of the Current Research

In a recent article, Cohen et al. (2009) tested the effect of affirmation on the middle school performance of African American students. These researchers found that among African American students, those in an affirmation condition had a GPA that was on average 0.24 points higher over 2 years than that of those in a control condition. These benefits were even more pronounced among African American students with the lowest GPAs at the beginning of seventh grade. Because Study 1 uses the same data set as Cohen et al. (2009) and they also examined belonging or "perceived adequacy in school," it is important to highlight the unique contributions of the present research.<sup>2</sup>

Whereas Cohen et al. (2006, 2009) primarily focused on affirmation's effect on minority students' academic performance, the current research uses a variety of convergent analytic methods to zero in on how the intervention affects minority students' *psychological development* in a way that perpetuates long-term beneficial outcomes. In particular, we focus on the important construct of academic belonging to demonstrate how affirmation interventions change the way negatively stereotyped students interact with—and perceive themselves in—a chronically threatening environment. Because causal mechanisms are unclear, the long-term effectiveness of brief social psychological interventions often seems surprising or even magical (see Yeager & Walton, 2011, for a review). The research presented here provides an empirical test of the idea that such a mechanism lies in a fundamental shift in students' psychological relation to their environment, such that negative feedback becomes uncoupled from academic belonging. This is not a mechanism in the sense of mediation, but in the sense

<sup>2</sup> In a separate line of research, Walton and Cohen (2007, 2011) tested the effects of a belonging intervention. Although these two research programs sometimes use similar dependent variables (e.g., academic belonging and academic performance), they differ in the type of intervention (social belonging vs. values affirmation) and in the populations investigated (college students vs. middle school students). Given these differences—and the additional focus on intervention timing in the present research—we consider these research programs to be nonoverlapping.

of the psychological process by which affirmation effects propagate themselves over time. They affect the ongoing encoding of experience. Although this idea is explored briefly by Cohen et al. (2009), it is more rigorously tested here. Methodologically, we examine academic belonging over a full 2 years (four assessment occasions), rather than the previously reported 1 year (two measurement occasions), allowing a more robust test of long-term effects of the affirmation intervention on academic belonging. Moreover, for the first time, we test the following outcomes—all as a function of race and affirmation condition: (a) a longitudinal trajectory of belonging, (b) stability in belonging over time, and (c) how belonging relates to concurrent academic performance. We also test whether the affirmation effect is strongest among students under greatest threat, those minority students with the most tenuous sense of belonging in school at baseline. Taken together, the current research uniquely contributes to the literature by testing in a variety of ways the idea that affirmation interventions sustain themselves psychologically by uncoupling belonging from threat and benefitting those under greatest threat.

The other original contribution of this research is to test the role of timing in the effectiveness of affirmation interventions. As we document, the academic belonging and performance of middle school minority students follows a downward trend, with a drop in belonging and performance prefacing a subsequent drop, in a repeating cycle. If this downward trend arises from a recursive, intensifying process, what may be especially critical in an intervention—perhaps just as critical as the content of an intervention—is its timing. Thus an additional contribution of the current research is to test the effects of a subtle timing difference in the delivery of the affirmation intervention in a separate cohort of students.

### Study 1

Our first study tests four hypotheses about how a values affirmation affects African American students' academic belonging and grades in middle school. As described above, Hypotheses 1–3 test the idea that affirmation shields negatively stereotyped students against external threats to their sense of academic belonging. Hypothesis 4 tests the idea that values affirmation benefits the academic performance of people under the greatest threat, those low in belonging. These hypotheses were tested by collecting longitudinal data from African American and White students during seventh and eighth grades.

In the description of these hypotheses that follows, the relevant comparison is between African American students who are affirmed and those who are not. Although White students may also feel threatened sometimes in academic settings, these feelings should not be as consistently and pervasively distributed as they are among African Americans, for whom academic settings are associated with negative stereotypes. In the absence of consistent identity threat, affirmations should have relatively little impact.

### Participants and Procedure

Data were collected from 361 Black (48.2%) and White students (51.5% female) in three waves from the beginning of seventh grade to the end of eighth grade (see Cohen et al., 2009).<sup>3</sup> Academic belonging was assessed at the beginning and end of each

academic year except for the first wave of students, who for practical reasons were not assessed at the beginning of eighth grade. Students completed assessments in a large auditorium. One to 3 weeks after the first belonging assessment, the experimental values affirmation treatment was introduced in students' classrooms. Interventions were scheduled with teachers to be given before class exams. Teachers were unaware of student condition and research hypotheses. Using a scripted and rehearsed procedure, teachers presented students with sealed envelopes containing intervention materials. The interventions were presented as a regular classroom assignment. Half the children were randomly assigned to complete values affirmation exercises, while the remainder completed neutral control exercises. Intervention and control exercises were repeated an additional two to four times later the same year, with subsequent iterations varying the nature and content of the exercises to avoid repetitiveness.<sup>4</sup> In eighth grade, half the students in the affirmation condition were randomly assigned to an affirmation booster condition, receiving additional affirmations. All other students completed control exercises. Researchers met with teachers before and after interventions to monitor treatment fidelity and respond quickly to any questions or issues that arose.

### Measures

**Demographics and grades.** Data included students' official race and gender and their teachers, as recorded by the school. Academic GPA was calculated using official transcripts from core courses—science, social studies, math, and English/language arts.

**Academic belonging.** To measure students' sense of academic belonging, we used a shortened version of Walton and Cohen's (2007) Social and Academic Fit Scale, modified for younger respondents (Cohen et al., 2009; see Appendix). It measures students' sense that they belong in school—their perceived "goodness of fit" with the school environment. Accordingly, it asks students to assess both the degree to which they have the potential to succeed and socially thrive in school and the degree to which other people in school accept them. These constitute two facets of one's subjective connectedness to school (Walton & Cohen, 2007).

A principal components analysis of the scale's eight items at the first assessment revealed two correlated components ( $r = .43$ ) that accounted for 58% of the variance. These components formed the basis of two subscales. The first included five items assessing social belonging in school (e.g., "People in my school accept me";  $\alpha = .78$ ). The second included three items assessing potential to succeed in school (e.g., "I know what I need to do to succeed at

<sup>3</sup> For ease of presentation, we use the term *Black* instead of African American in the Participants and Procedure and Results sections.

<sup>4</sup> The first wave of students had five interventions in seventh grade, the second had three, and the third had four. Timing of the interventions varied by wave and was driven primarily by the pragmatics of coordinating with the teachers. In all cases the first seventh grade intervention came shortly after the first belonging assessment and the last came in the spring. Participants did not differ by race, condition, or gender as a function of the number of interventions.

[school name]”;  $\alpha = .67$ ).<sup>5</sup> A fourth item, not presented to the third wave of students (“If I wanted to, I could do very well in my school”), was also included in the Potential to Succeed in School subscale for the first two waves because of its high component loading. Given the strong correlation between subscales, the high reliability of the scale in its entirety ( $\alpha \geq .76$  at each assessment), and fact that the scale was originally conceived as measuring the two facets of a single construct (Walton & Cohen, 2007), we combined subscale scores to form a single Academic Belonging Scale. Students responded to each item using a 6-point scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*).

**Affirmation intervention.** Students were presented with the intervention or control materials (randomly assigned) in envelopes printed with their name. The materials contained instructions that had been extensively pretested to ensure that they were self-explanatory, engaging, and easily understood for students at the school site. The instructions informed students that they would be providing written responses to questions about their ideas and beliefs. For the first administration, students in both conditions were presented with a list of values, such as athletic ability, creativity, and religion, and asked to indicate how important these values were to them. Next, they completed a structured writing exercise according to their condition. In the affirmation condition, students were asked to describe why their top rated values from the list were important to them. They were told to focus on their thoughts and feelings and not to be concerned with grammar, spelling, or writing quality. Example excerpts from Black students’ affirmation essays include “I love my friends. I love my family and I never want to lose them”; “I am a very funny person. It’s nice to hear people laughing at my jokes”; and “When I’m creative, I feel smart” (minor grammatical errors corrected). Control participants received the same instructions at the first administration, with one exception; they were asked to write about why their lowest rated values would be important to someone else. Following the writing exercise, students in both conditions completed a short set of additional questions about the value to reinforce the condition assignment (see Cohen et al., 2009, for additional details).

Later administrations focused on a previously endorsed value or varied the set of values or the nature of the writing task (e.g., why a certain value would be important to them over winter break). Later control exercises sometimes focused on writing about a daily routine or a similarly neutral topic (see Cohen et al., 2009).

## Results

Most students provided belonging data at all four measurement occasions (58.7%), but some provided data only three times (33.2%). This occurred primarily because, as noted, one wave could not be assessed at the third measurement occasion for logistical reasons. A small number of students were absent at a particular assessment and therefore provided belonging ratings only twice (6.6%) or once (1.4%). The number of assessments did not differ by race, condition, or gender.

**Analytic strategy.** Longitudinal analyses were conducted with HLM 6 (Raudenbush, Bryk, Cheong, & Congdon, 2004). Missing data qualify as missing at random (MAR) and are easily handled by maximum-likelihood estimation without biasing model parameters (Raudenbush & Bryk, 2002; Schafer & Graham, 2002;

Singer & Willett, 2003). The repeated measures of Level 1 were nested within students at Level 2. Student-level variables included race, affirmation condition, preintervention (baseline) seventh grade GPA, and all interactions. Categorical variables were contrast coded (for race,  $-1 = \text{White}$ ,  $+1 = \text{Black}$ ; for condition,  $-1 = \text{control}$ ,  $+1 = \text{affirmation}$ ; for gender,  $-1 = \text{female}$ ,  $+1 = \text{male}$ ), while quantitative variables were grand-mean centered (Raudenbush & Bryk, 2002). Gender and the two-way interactions of gender with race and condition were included as covariates. All student-level variables and interaction terms were included as a common set in Level 2 equations (Raudenbush & Bryk, 2002), and all Level 2 error terms were allowed to randomly vary. We included a third level to control for potential nesting effects based on students’ wave and teacher team (each student’s discrete groups of teachers). No predictors were entered at this third level, and all error terms were fixed except for the intercept. To explore non-linearity in belonging scores, we tested the effect of a polynomial change model with quadratic and cubic terms (i.e., the square and cube of the linear term) against a linear-only model. Results revealed a better fit to the full model than the linear-only model,  $\chi^2(25) = 53.59$ ,  $p < .001$ . Thus, the quadratic and cubic terms were retained (except where noted). In the results that follow, unstandardized effect sizes are presented for multilevel models (Baguley, 2009; Wilkinson & the Task Force on Statistical Inference, 1999).

Regression-based models contained relevant covariates consistent with previously published work (Cohen et al., 2009). In Study 1, covariates included dummy codes for students’ wave in the study and their seventh and eighth grade team of teachers. Other than these dummy-coded variables, the centering strategy was the same as for the multilevel models and also controlled for gender and the two-way interactions of gender with race and condition.<sup>6</sup> Preintervention belonging and GPA from the fall of seventh grade before the intervention began were included in all models except as noted.

**Buffering against intensifying threat (Hypothesis 1).** We predicted that affirmed African American students would feel a greater sense of academic belonging during 2 years of middle school relative to their control peers and that this difference would emerge earlier for low-performing students, for whom environmental threats should be greatest at the beginning of seventh grade. These predictions were supported.

We first examined change in belonging over time (see Table 1 for coefficients). Results revealed significant linear,  $\gamma = -.34$ ,  $t(350) = -3.96$ ,  $p < .001$ ; quadratic,  $\gamma = .31$ ,  $t(350) = 3.90$ ,  $p < .001$ ; and cubic,  $\gamma = -.07$ ,  $t(1217) = -4.06$ ,  $p < .001$ , trends in

<sup>5</sup> This pattern was consistent for both White and Black participants. In separate analyses by race, the same two components with similar correlations emerged ( $r = .42$  and  $r = .45$  for White and Black participants, respectively). Reliability was also similar (Social Belonging in School,  $\alpha = .82$  and  $\alpha = .72$  for White and Black participants, respectively; Potential to Succeed in School,  $\alpha = .67$  and  $\alpha = .68$  for White and Black participants, respectively).

<sup>6</sup> Neither gender nor its interaction with race and condition was a significant predictor of belonging. In the multilevel model of grades for Hypothesis 4, boys had lower preintervention GPA than did girls ( $p = .002$ ).

Table 1  
Polynomial Model of Academic Belonging as a Function of Race, Condition, and Academic Performance (N = 361)

Variable	Model intercept: Fall 7th grade		Linear polynomial		Quadratic polynomial		Cubic polynomial	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Intercept	5.10	0.03***	-0.34	0.09***	0.31	0.08***	-0.07	0.02***
Gender	0.02	0.03	0.03	0.08	-0.02	0.08	-0.00	0.02
Condition	-0.01	0.03	-0.05	0.08	0.10	0.08	-0.03	0.02
Race	0.07	0.03*	0.05	0.09	-0.09	0.08	0.02	0.02
Preintervention GPA	0.26	0.04***	0.04	0.10	-0.08	0.09	0.02	0.02
Gender × Condition	0.05	0.03	-0.14	0.08	0.08	0.08	-0.01	0.02
Gender × Race	0.03	0.03	-0.04	0.08	0.04	0.08	-0.01	0.02
Condition × Race	0.06	0.03*	0.02	0.09	-0.04	0.08	0.01	0.02
Condition × Preintervention GPA	-0.05	0.04	0.01	0.10	-0.04	0.09	0.01	0.02
Race × Preintervention GPA	0.04	0.04	-0.04	0.10	0.11	0.09	-0.03	0.02
Condition × Race × Preintervention GPA	0.05	0.04	-0.34	0.10***	0.28	0.09***	-0.06	0.02**

Note. Unstandardized coefficients are followed by standard errors for the estimates. Race, gender, and condition were contrast coded; scores of -1 would indicate a White female student in the control condition. Grade point average (GPA) was centered at the sample mean.  
\*  $p \leq .05$ . \*\*  $p \leq .01$ . \*\*\*  $p \leq .001$ .

belonging. This suggests a cyclical pattern (see Figure 2).<sup>7</sup> Feelings of belonging in school declined within school years but rose between school years.

However, all three effects of time were further moderated by the three-way interaction of Condition × Race × Preintervention GPA: linear coefficient,  $\gamma = -.34$ ,  $t(350) = -3.47$ ,  $p = .001$ ; quadratic coefficient,  $\gamma = .28$ ,  $t(350) = 3.09$ ,  $p = .003$ ; and cubic coefficient,  $\gamma = -.06$ ,  $t(1217) = -2.81$ ,  $p = .005$ . No other moderators of time were significant (see Table 1). The general pattern, described in detail below, suggests that affirmation buffered minority students against a downward trend in belonging and that this effect occurred early for low-performing minority students and later for high-performing minority students. This conclusion is suggested by separate analysis for each racial group. Our approach tested simple effects at each of the four assessment occasions. Low and high GPA (GPA prior to intervention) refer to 1 SD below and above the mean within each racial group, respectively.

**Black students.** Figure 3 displays the relevant data. Prior to the intervention, Black students with higher GPA had higher

belonging,  $\gamma = .30$ ,  $t(168) = 4.33$ ,  $p < .001$ , but as expected because of randomization, there were no baseline differences in belonging as a function of affirmation condition. By the spring of seventh grade, condition effects emerged among Black students with low preintervention GPAs, such that affirmed students were protected against the decline in belonging evident in the control condition. For these historically low-achieving students, academic belonging was higher in the affirmation than control condition,  $\gamma = .21$ ,  $t(168) = 3.29$ ,  $p = .002$ . High-achieving students (i.e., those with high baseline GPAs) continued to feel high belonging overall,  $\gamma = .31$ ,  $t(168) = 6.13$ ,  $p < .001$ , and did not differ by condition,  $\gamma = .00$ ,  $t(168) = 0.02$ ,  $p = .99$ , in seventh grade (Condition × Baseline GPA interaction,  $\gamma = -.11$ ,  $t[168] = -2.25$ ,  $p = .03$ ).

In eighth grade,<sup>8</sup> high-achieving Black students in the control condition now displayed a decline in belonging. However, those in the affirmation condition did not (see Figure 3). Although high-achieving Black students continued to have higher belonging than low-achieving Black students,  $\gamma = .29$ ,  $t(168) = 5.11$ ,  $p < .001$ , a main effect of condition now emerged. Students in the affirmation condition, regardless of prior achievement, felt greater belonging than students in the control condition,  $\gamma = .14$ ,  $t(168) = 2.65$ ,  $p = .009$  (the Condition × Baseline GPA interaction was nonsignificant,  $p \geq .45$ ).

By the spring of eighth grade, there was still a main effect of condition (higher belonging for affirmed students),  $\gamma = .13$ ,  $t(168) = 2.66$ ,  $p = .01$ , that was not moderated by baseline GPA ( $p > .70$ ). Strikingly, by the end of eighth grade, this effect of condition on belonging ( $\gamma = .13$ ) was almost as great as the effect

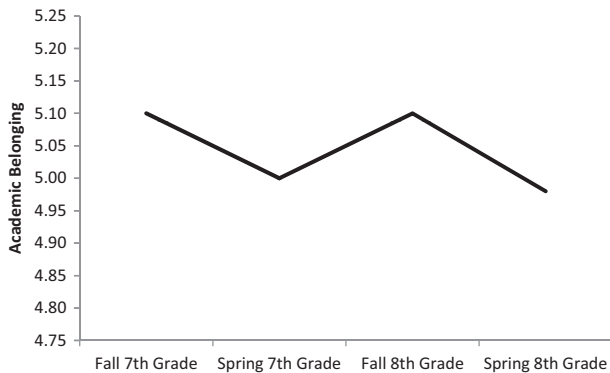


Figure 2. Longitudinal trajectory of academic belonging. Values are predicted means at each measurement occasion. See Table 1 for coefficients.

<sup>7</sup> Because of the high correlation among powered vectors, “only the test of . . . the highest-degree polynomial in the equation is meaningful” (Pedhazur, 1997, p. 528; see also Singer & Willett, 2003). In the current analysis, the highest degree polynomial is cubic, accounting for the cyclical pattern with two bends shown in Figure 2.

<sup>8</sup> Eighth grade analyses include two students who repeated seventh grade in the second year of the study.



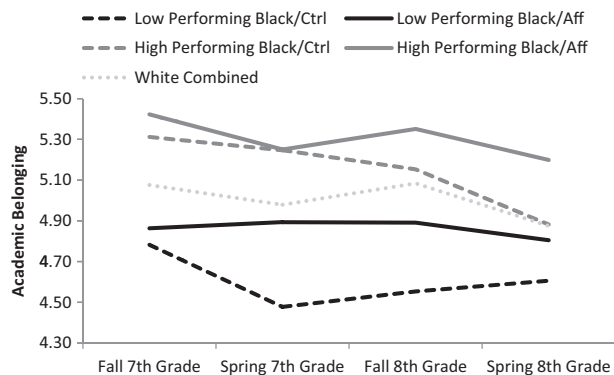


Figure 3. Longitudinal trajectory of academic belonging for Black students as a function of grade point average (GPA) and condition and for White students combined. Values are predicted means, computed 1 *SD* below (low performing) and above (high performing) the mean for GPA in the control (Ctrl) and affirmation (Aff) conditions for Black students and averaged across preintervention performance and condition for White students.

that students' history of achievement (baseline GPA) had on their belonging,  $\gamma = .19$ ,  $t(168) = 3.34$ ,  $p = .001$ .

Across seventh and eighth grade, affirmed Black students were able to maintain their sense of belonging, while nonaffirmed Black students were not. A test of the linear trend in belonging over the assessment occasions (i.e., without the higher order polynomial terms) indicated that Black students in the affirmation condition did not decline over time,  $\gamma = -.03$ ,  $t(168) = -1.55$ ,  $p = .12$ , whereas Black students in the control condition did,  $\gamma = -.09$ ,  $t(168) = -4.02$ ,  $p < .001$ . This difference was not moderated by baseline GPA ( $p \geq .30$ ).

A booster affirmation was also randomly administered in the eighth grade to half the students affirmed in the seventh grade. The purpose of this booster was to explore whether additional treatments would yield benefits above and beyond the earlier treatments in the seventh grade. Condition was recoded into two orthogonal contrasts. The second contrast, comparing Black students treated only in seventh grade to those who also received the booster, was nonsignificant at both eighth grade measurement occasions ( $ps \geq .45$ ) and did not interact with GPA ( $ps \geq .15$ ), while the first contrast, representing the overall affirmation effect compared to the control condition, remained significant at both times. The buffering effects of the affirmation into eighth grade did not depend on reexposure to affirmation treatment but rather arose from the long-term effects of the initial affirmations in seventh grade.<sup>9</sup>

**White students.** White students also showed a positive correlation between GPA and belonging before the intervention,  $\gamma = .22$ ,  $t(181) = 4.10$ ,  $p < .001$ , but did not vary in academic belonging as a function of condition or Condition  $\times$  Baseline GPA at subsequent assessments (condition  $ps \geq .35$ , Condition  $\times$  GPA  $ps \geq .14$ ). White students decreased somewhat in belonging, particularly during the school year (linear, quadratic, and cubic coefficients  $ps < .01$ ; see Figure 3).

**Does the effect on Black students' belonging remain even after controlling for their academic performance?** Cohen et al. (2006, 2009) have previously shown that values affirmation im-

proves minority students' academic performance. A natural question was whether affirmed Black participants' elevated belonging was simply an artifact of the intervention's effect on performance. To address this question we conducted a regression analysis predicting Black students' belonging at the end of eighth grade. The goal of the analysis was to see whether the beneficial effect of the affirmation intervention on eighth grade belonging would remain after controlling for any improvement in GPA resulting from the affirmation.

Importantly, the independent effect of affirmation on Black students' eighth grade belonging remained significant,  $t(133) = 2.52$ ,  $p = .01$ , even after additionally including GPA averaged across the four semesters and the interaction of GPA with condition.<sup>10</sup> This suggests that the intervention's effect on academic belonging was independent of any improvement in performance. Indeed, the lack of an interaction between condition and GPA during seventh and eighth grade suggests that among nonaffirmed Black students, even those who improved their GPA remained low in belonging relative to the level they would have attained had they been affirmed.

**Summary.** Our first hypothesis was supported. During their 2 years of middle school, affirmed Black students were buffered against a decline in academic belonging relative to their nonaffirmed peers. This difference emerged earliest for low-performing students, who presumably face greater threat early in middle school, and later for high-achieving students, who presumably face greater threat later, when their performance declines to a threateningly low level. This time-release quality of the affirmation for high-achieving students is interesting and is addressed in the General Discussion. As expected, the affirmation had no effect on White students.

**Stabilizing academic belonging (Hypothesis 2).** We predicted that affirmed Black students would have a more stable sense of academic belonging over 2 years relative to nonaffirmed Black students. Such a finding would suggest that the affirmation buffered students against the highs and lows of external evaluation. We further expected no effect for White students.

If affirmed Black students had a more stable sense of belonging across seventh and eighth grades, but not affirmed White students, we would expect to find a significant Race  $\times$  Condition interaction

<sup>9</sup> The number of times Black students completed seventh grade affirmation interventions (three, four, or five) did not affect belonging. Among affirmed Black students, we tested in a regression model whether the number of interventions—on its own and interacting with preintervention GPA—contributed additional variance over a basic model. The two variables as a block did not contribute to the model predicting belonging at any postintervention assessment ( $\Delta R^2 \leq .010$ ;  $ps \geq .44$ ), suggesting that increasing the number of interventions from three to five does not yield an incremental benefit. However, given the correlational nature of these findings, in contrast to the findings involving the randomized booster in eighth grade, these results should be interpreted with caution.

<sup>10</sup> The effect of condition also remained if instead of GPA average we used change in GPA between the final semester of eighth grade and the preintervention measure. A test of whether GPA mediated the affirmation's effect on long-term belonging among Black students (Sobel, 1982) was not significant using either GPA average ( $p \geq .40$ ) or change ( $p \geq .20$ ), suggesting that the affirmation's effect on belonging was independent of its effect on performance.

for variability in belonging over time. This was, in fact, the case (see Figure 4). We specified a multiple regression model where the outcome was students' standard deviation in belonging across measurement occasions (five participants with belonging data at only one assessment were excluded). Because preintervention belonging contributes to the standard deviation calculation, it is not a covariate in the variability models. Belonging variability did not differ by condition,  $t(340) = -1.21, p = .23$ , but it did by race, such that Black students generally had less variability in their sense of belonging than White students,  $t(340) = -2.61, p = .01$ . However, there was also the predicted Race  $\times$  Condition interaction,  $t(340) = -2.76, p = .01$ . As seen in Figure 4, the reduced variability in Black students' sense of belonging held only in the affirmation condition. Simple effects tests revealed that for Black students, there was less variability in belonging during middle school in the affirmation than control condition,  $t(340) = -2.73, p = .01$ . There was no effect of condition for White students,  $t(340) = 1.14, p = .26$ .

Affirmed Black students might show less variability simply because their belonging scores dropped less over time. This was not the case. We conducted the analysis again, except that we calculated a linear within-subject contrast for each participant, which represents each student's change from the first to the last belonging assessment (Judd, McClelland, & Ryan, 2009), and included this contrast as a covariate. This approach provides a conservative test of the variability hypothesis. If affirmed Black students' sense of belonging was more stable primarily because it dropped less over time, then controlling for change (i.e., the within-subject contrast) should make the Race  $\times$  Condition interaction nonsignificant. Conversely, if reduced variability among affirmed Black students was largely independent of the affirmation's tendency to lessen the drop in belonging over time, then the Race  $\times$  Condition interaction should remain significant. The latter was true. Even after controlling for the linear term, the Race  $\times$  Condition interaction remained,  $t(305) = -3.18, p < .01$ . Given that affirmation buffered the belonging of Black students but not White students, we further controlled for the within-subject contrast's interaction with race, condition, and Race  $\times$  Condition. Even with this more conservative approach, the Race  $\times$  Condition effect remained ( $p = .03$ ).

In summary, these results suggest that beyond the buffering effect of affirmation, there was a stabilizing effect. Not only did

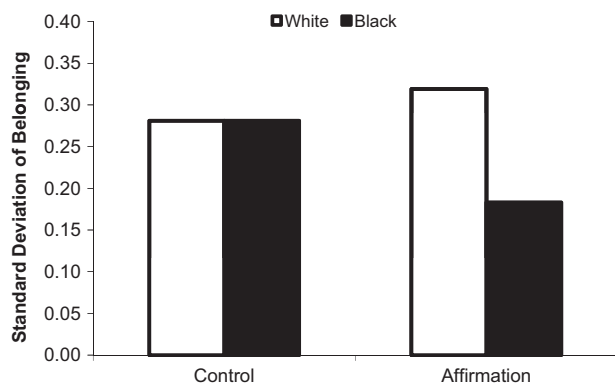


Figure 4. Standard deviation of academic belonging as a function of race and condition.

affirmation buffer belonging against poor performance (Hypothesis 1), it also prevented it from vacillating over time (Hypothesis 2).

Indeed, affirmed Black students' belonging was based not on the ups and downs of their performance but on the felt belonging they had had when they entered seventh grade, as if the affirmation had crystallized their belonging and made it less vulnerable to subsequent threat. This conclusion is illustrated by test-retest reliability analyses. Black students in the affirmation condition had significantly higher test-retest reliability in belonging between the first and last assessments ( $r = .69$ ) than did Black students in the control condition ( $r = .41; z = 2.43, p = .02$ ). In fact, the test-retest reliability of Black students in the affirmation condition was also higher than that of White students in both the affirmation condition ( $r = .28; z = 3.43, p < .001$ ) and the control condition ( $r = .43; z = 2.38, p = .02$ ). Thus, affirmed Black students remained relatively stable and anchored to their baseline sense of belonging, while their nonaffirmed Black peers' sense of belonging dropped and vacillated more over time.

### Uncoupling academic belonging from grades (Hypothesis 3).

Our third hypothesis addressed the question of whether, for Black students, affirmation untethered belonging from external threats. Such a finding would suggest that affirmation changed the way students encoded their academic experience.

We tested this hypothesis using two different strategies. Each addresses the same predicted shift in psychological state but from a different perspective. First we tested how belonging covaries with proximal past performance. If the affirmation shields Black students' sense of belonging from poor academic performance, we would expect to find a diminution in the relation between belonging and GPA measured in temporal proximity. To examine this, we specified a regression model to test the relation between GPA and belonging at the end of eighth grade, when the affirmation affected the belonging of both low and high performers alike, as reported above. Because belonging was assessed at year's end, it was assessed after most of the performances that contributed to student GPA that year had occurred.

Our analyses indicate that when they left middle school, affirmed Black students' sense of belonging was relatively uncoupled from their past proximal performance. At the end of eighth grade, a significant three-way interaction between race, condition, and end of eighth grade GPA emerged,  $t(300) = -2.44, p = .02$ . Among White students, there was a positive relation between belonging at the end of eighth grade and GPA from the same time period,  $t(300) = 2.71, p = .01$ , that did not vary by condition ( $p \geq .30$ ). For Black students, however, the positive relation between belonging and GPA at the end of eighth grade,  $t(300) = 2.42, p = .02$ , was moderated by condition,  $t(300) = -2.33, p = .02$ . Specifically, a positive relation between belonging and GPA emerged for Black students in the control condition,  $t(300) = 3.33, p = .001$ , but not for those in the affirmation condition,  $t(300) = 0.26, p = .79$ . This uncoupling primarily benefitted low-performing students. Black students 1 *SD* below the mean in GPA at the end of eighth grade had a greater sense of belonging in school in the affirmation condition than the control condition,  $t(300) = 3.01, p < .01$ . There was no condition difference for high performers (i.e., 1 *SD* above the mean in GPA at the end of eighth grade),  $t(300) = -0.25, p = .80$ .

Another way to test whether the affirmation helped neutralize external threats to belonging is to look for group differences in the

within-subject correlations between belonging and proximal GPA. Hypothesis 3 would suggest that the average of these within-subject correlations would be lower for Black students in the affirmation condition than those in the control condition. This hypothesis was supported. We created a correlation between each student's academic belonging at the four assessments and their GPA from the same term (participants with fewer than three measurements on either variable were omitted). Each participant's correlation was then transformed using Fisher's  $r$ -to- $z'$  formula, and this  $z'$  score was the dependent variable in a 2 (White vs. Black)  $\times$  2 (affirmation vs. control) analysis of variance. The typical block of covariates was excluded from this analysis because their inclusion did not improve the explanatory power of the model ( $p = .23$ ) and did not change the pattern of significance for race, condition, or their interaction.

Results revealed a significant condition effect,  $F(1, 318) = 6.51$ ,  $p = .01$ , indicating that the mean within-subject correlation between belonging and GPA (after transforming the mean  $z'$  score back to  $r$ ) was higher in the control condition ( $r = .36$ ) than the affirmation condition ( $r = .06$ ). Neither the race effect,  $F(1, 318) = 1.25$ ,  $p = .26$ , nor the Race  $\times$  Condition interaction,  $F(1, 318) = 1.13$ ,  $p = .29$ , was significant. However, the lack of a significant interaction was due to a nonsignificant affirmation effect for Whites in the same direction. Analysis of simple effects within each racial group indicated that the condition effect was, as expected, primarily driven by Black students, for whom the within-subject correlation was significantly higher in the control condition than the affirmation condition,  $F(1, 318) = 6.11$ ,  $p = .01$ . The condition difference among White students was not significant,  $F(1, 318) = 1.19$ ,  $p = .28$  (see Figure 5). Thus, for students in the affirmation condition, particularly Black students, their sense of academic belonging was independent of ongoing academic performance.

**Students with initially low academic belonging should benefit most (Hypothesis 4).** Affirmations have been found to confer the greatest benefits for people facing consistent psychological threat. This is seen, for example, in results presented for Hypothesis 1, where historically low-performing Black students' sense of belonging benefitted immediately from an affirmation intervention, but historically high-performing Black students benefitted only later when their GPA declined substantially. It is also

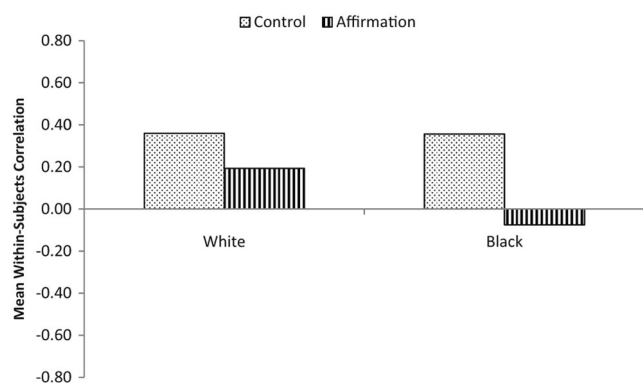


Figure 5. Mean within-subject correlation between belonging and grade point average as a function of race and affirmation condition.

seen in Cohen et al.'s (2009) finding that low-performing Black students' academic performance benefitted the most from intervention. The analyses in this section further test the idea that affirmation effects on performance are greatest for people under the most threat. Specifically, we test the hypothesis that academic performance is most improved among Black students initially low in belonging. This hypothesis was also supported.

We specified a longitudinal model, where GPA was nested within students. In particular we specified a discontinuity model, which tests for a change in slope following a particular event (Singer & Willett, 2003). In this case the event was the implementation of the affirmation intervention. We expected an upward change in GPA trajectory for low-belonging Black students receiving the affirmation.<sup>11</sup>

To test for a discontinuity in GPA trajectory, we modeled two linear slopes of time. The first represents students' rate of GPA change from sixth grade to the end of eighth grade. The second coefficient tests whether the affirmation intervention altered students' GPA trajectory beginning from the first semester after the intervention started (i.e., the discontinuity effect). If the intervention changed the trajectory of students' GPA, this second coefficient should be significant. Also, to the extent that low-belonging Black students benefit more from the affirmation, this second coefficient should be moderated by the interaction of race and belonging. Predictor variables for the slopes of time were gender, race, belonging, and Race  $\times$  Belonging. Variance components for time slopes were nonsignificant, so they were fixed for these analyses, causing higher degrees of freedom.

Results revealed a general decline in GPA from sixth grade, the baseline measurement, over 2 years,  $\gamma = -.12$ ,  $t(2044) = -15.33$ ,  $p < .001$ . This decline was moderated by race, with Black students displaying a steeper decline than White students,  $\gamma = -.02$ ,  $t(2044) = -2.54$ ,  $p = .01$ .

The affirmation did not result in an overall change in GPA trajectory,  $\gamma = .03$ ,  $t(2044) = 1.61$ ,  $p = .11$ , but the treatment's discontinuity effect was significantly moderated by race,  $\gamma = .05$ ,  $t(2044) = 3.23$ ,  $p = .002$ ; belonging,  $\gamma = -.05$ ,  $t(2044) = -2.05$ ,  $p = .04$ ; and Race  $\times$  Belonging,  $\gamma = -.05$ ,  $t(2044) = -2.09$ ,  $p = .04$ . The first two effects suggest that the intervention introduced an upward change in trajectory for Black (but not White) students and for students with lower belonging. More important is the third effect—the treatment's interaction with race and belonging. Figure 6 displays the relevant predicted means (for ease of presentation, White students in the two experimental conditions are combined; they did not differ significantly). As the figure shows, the trajectory of low-belonging Black students was deflected upward by the affirmation.

In a follow-up regression analysis, the critical three-way interaction between condition, race, and belonging remained even after controlling for students' preintervention GPA,  $t(310) = -2.32$ ,  $p =$

<sup>11</sup> We excluded the third level of nesting (students' wave and teacher team), partly because it accounted for only 0.01% of variance in GPA. Moreover, in addition to baseline GPA from the beginning of seventh grade, it was helpful to also include students' sixth grade GPA for modeling preintervention trajectory. Because students' wave and teacher team were not a source of sixth grade clustering, their exclusion is appropriate.

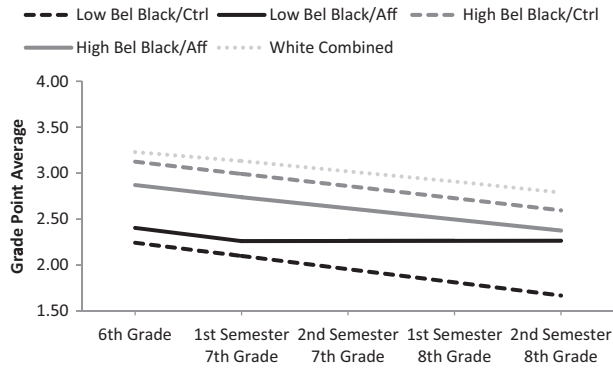


Figure 6. Grade point average for Black students as a function of preintervention academic belonging (Bel) and condition and White students combined. Values are predicted means, computed 1 *SD* below (low belonging) and above (high belonging) the mean for belonging in the control (Ctrl) and affirmation (Aff) conditions for Black students and averaged across belonging and condition for White students.

.02.<sup>12</sup> Importantly, the interaction also remained significant when limiting GPA at the end of eighth grade to math and science courses,  $t(310) = -2.24, p = .03$ . Thus, even accounting for baseline differences in GPA, which affect the impact of the affirmation (Cohen et al., 2006, 2009), low-belonging Black students remain the primary beneficiaries. Moreover, in a separate model with baseline GPA interacting with other terms, rather than as a covariate, a simple effect of condition emerged for low-belonging, low-GPA Black students,  $t(303) = 4.32, p < .001$ , but no others (all  $ps \geq .15$ ). Limiting the analysis to math and science courses yielded the same outcome: a positive effect of condition for low-belonging, low-GPA Black students,  $t(303) = 3.93, p < .001$ , but no others (all  $ps \geq .20$ ). The four-way interaction of Condition  $\times$  Race  $\times$  Belonging  $\times$  Baseline GPA was not significant for overall GPA ( $p = .23$ ), but it was significant for math and science GPA ( $p = .05$ ). The difficulty of obtaining such higher order interactions in a field study, especially with limited sample sizes, is well documented (McClelland & Judd, 1993) and should not preclude the reporting of the theoretically motivated simple effect. Indeed, the coefficient associated with the treatment effect for this group was sizable, 0.85 GPA units. Thus, it appears that the affirmation selectively benefited those students who entered seventh grade who were most at risk—those with the most uncertainty about their belonging in school.<sup>13</sup>

## Discussion

School can be a threatening place for middle school students. Our finding of a general erosion of academic belonging during each school year, pausing only over the summer vacation, gives witness to this reality and is consistent with other research on the transition to middle school (Eccles et al., 1991; Simmons et al., 1991). Study 1 provides a textured picture of the middle school experience for negatively stereotyped minority students. These students increasingly felt that school was not a place where they belonged, a feeling that deepened over their 2 years of middle school. Moreover, their sense of belonging was contingent on

academic experience, falling and rising with failure or success (see Aronson & Inzlicht, 2004; Walton & Cohen, 2007).

A brief values affirmation intervention buffered minority students against the accumulating corrosive effects of a threatening environment. Results from Hypothesis 1 showed that affirmed African American students' sense of belonging was buffered against decline during middle school, even after controlling for academic performance during the same period. Results from Hypothesis 2 indicate that these students' belonging was also less variable. This is reflected by their relatively small standard deviation in belonging across measurement occasions, even when controlling for their shallower downward trend in belonging, and by their relatively high correlation between baseline belonging and the belonging they expressed 2 years later. These results suggest that values affirmation uncoupled academic belonging from environmental threats. This conclusion is further supported by the results of Hypothesis 3, which revealed that by the end of middle school, affirmed African American students' sense of belonging was less tied to their proximal past performance, at either the group level or the individual level in terms of the within-subject correlation between GPA and concurrent belonging. Taken together, Hypotheses 1–3 provide converging evidence that for affirmed African American students, belonging became more unconditional. As a result, they were more likely to leave middle school with their sense of belonging intact.

As affirmations should help people whose self-integrity is under threat (Steele, 1988; see also Sherman & Cohen, 2006), Hypothesis 4 predicted that the intervention would benefit the academic performance of low-belonging African American students most of all. Results supported this hypothesis. African American students with the lowest baseline belonging experienced the greatest improvement in GPA during middle school, even after controlling for preintervention GPA. Indeed for the lowest performing members of this group, the effects of the intervention on GPA were almost a full grade point. This result suggests that the affirmation confers not a small benefit to many but a large benefit to a subgroup, the most at-risk and dispossessed children.

Results from Study 1 suggest the developmental sensitivity of early seventh grade, particularly for African American students with relatively low academic performance. In the absence of an affirmation at this transition, these students saw a steep decline in their belonging that never recovered. This was true even if these students subsequently performed well, as evidenced by the robustness of decline even after controlling for subsequent performance (and its interaction with condition). This finding is consistent with other research documenting deteriorating outcomes for middle

<sup>12</sup> Due to missing belonging data for 10 students at the first assessment and missing GPA at the final semester for 21 students, the data set was reduced to 330 participants for these analyses.

<sup>13</sup> The number of Black students' seventh grade affirmation interventions (three, four, or five) did not affect performance. Among affirmed Black students, we tested in a regression model whether the number of interventions—on its own and interacting with preintervention GPA and preintervention belonging—contributed additional variance over a basic model. The addition of the block of variables did not contribute to the model predicting GPA at any postintervention semester ( $\Delta R^2 \leq .010; ps \geq .41$ ), suggesting that increasing the number of interventions from three to five does not yield an incremental benefit.

school students, especially negatively stereotyped minority students (Eccles et al., 1991; Simmons et al., 1991). Declining belonging and grades at this time can feed off each other in a mutually reinforcing downward cycle. As their grades fall, African American students may increasingly feel the threat of confirming negative stereotypes, and this can cause their sense of belonging to fall further. Later poor grades may then be seen to confirm suspicions of not belonging in school, which further erodes belonging and reduces the possibility of improved performance. Such a process seemed to occur among nonaffirmed minorities, whose sense of belonging was continually tethered to their ongoing performance. Once such a process is set in motion, negative consequences may be difficult to undo. This suggests the importance of timing affirmation interventions early to have their maximum impact on students' psychological and performance outcomes before such negative recursive cycles begin to take hold. We test this line of reasoning in Study 2.

## Study 2

If a values affirmation alters students' relationship to their academic environment—buffering and stabilizing belonging and improving performance—it should be better to intervene early before a self-reinforcing downward spiral of poor performance and low belonging becomes entrenched. To the extent that early performance matters disproportionately and seventh grade is an important ecological transition, even a few weeks' difference in timing may prove consequential. Preliminary support for this idea is found in the absence of booster effects in Study 1. The benefit of affirmation seemed to emanate from earlier intervention, as subsequent booster affirmations in eighth grade had no additional effect. This suggests that, at least in this context, timing is more important than “dosage.” Intervening early seems to confer long-term benefit by bolstering the self before chronically evaluative environments have the chance to “get under the skin.”

Accordingly, Hypothesis 5 predicts that students with low preintervention grades should have a greater sense of belonging and higher grades if the affirmation is given earlier in the school year than if it is administered later. Our focus on baseline performance as the key moderator follows from our theoretical perspective that a history of poor performance is the most accessible indicator for African American students that they may be at risk of confirming stereotypes about intellectual ability. A history of poor performance as students enter seventh grade—a key sensitive period—should precipitate uncertainty about belonging and lead to worse future performance.

Unlike in Study 1, all students received the affirmation, but half received it on their third day of seventh grade, whereas the rest received it approximately 4 weeks into the school year, consistent with the typical timing from Study 1. On the basis of the reasoning above, we expected early affirmation to yield improved belonging and grades at the most proximal measurement occasions, again especially for low-performing minority students for whom our earlier results suggest a downward recursive cycle is most likely to affect.

## Participants, Procedure, and Measures

Data were collected from a new cohort of 121 Black (51.2%) and White seventh grade students (58.7% female). Procedures

followed those in Study 1 with the following differences. In contrast to Study 1, all participants received the affirmation intervention. However, half the students were randomly assigned to complete it approximately 3 days after the beginning of the school year, in late August—the early affirmation condition. The remainder received it approximately 4 weeks later, at the end of September—the standard affirmation condition—consistent with the timing of the intervention in Study 1. Students assigned to the standard affirmation condition completed control exercises during the early intervention period. Likewise, early affirmation students completed control exercises during the period for the standard affirmation.

Because the first affirmation was administered so close to the beginning of the school year, our measures of preintervention belonging and grades had to be taken exclusively from the previous year, in sixth grade. All measures were the same as in Study 1. Neither sixth grade belonging ( $p = .21$ ) nor sixth grade GPA ( $p > .50$ ) differed by timing condition. Postintervention belonging ( $\alpha = .80$  for the five-item Social Belonging in School subscale and  $\alpha = .67$  for the three-item Potential to Succeed in School subscale) was assessed in January of seventh grade, approximately 18 weeks after the early affirmation intervention. Postintervention grades were assessed at the end of the first quarter of seventh grade. If affirmation breaks a recursive cycle for minority students, where early poor performance sets them on a trajectory of decreasing belonging and lower grades, we would expect to see higher postintervention belonging and grades among low-performing Black students who were affirmed early in the academic year rather than later. Assessing a relatively subtle timing difference of 4 weeks provides a conservative test of our fifth hypothesis—that an affirmation intervention delivered earlier in seventh grade should yield greater effects than the “standard” affirmation delivered later in the school year. Four participants were missing data from one or both of the belonging assessments, reducing the degrees of freedom for these analyses.

## Results and Discussion

Covariates were the same as in Study 1, except there was no covariate representing wave given that the study was run with only one wave of participants. To test for the effect of timing condition (early vs. standard) on academic belonging, we conducted a multiple regression analysis, with timing condition, race, preintervention GPA (from sixth grade), and their interactions as the primary predictors. As in Study 1, categorical predictors were contrast coded (except the dummy codes for teacher team), and quantitative predictors were centered by subtracting the sample mean.

If early affirmation differentially affects the belonging of low-performing Black students, we would expect to find a significant three-way interaction between timing condition, race, and preintervention GPA. Results support this hypothesis. Early affirmation conferred more benefit to belonging than standard affirmation, especially for low-performing minority students. More specifically, the three-way interaction was statistically significant,  $t(103) = 3.71, p < .001$ . Follow-up analysis revealed that among Black students, early affirmation resulted in significantly higher belonging for low performers (i.e., 1 *SD* below the group mean),  $t(103) = -2.34, p = .02$  (see Figure 7), but not high performers (i.e., 1 *SD* above the group mean),  $t(103) = 0.46, p = .65$ .

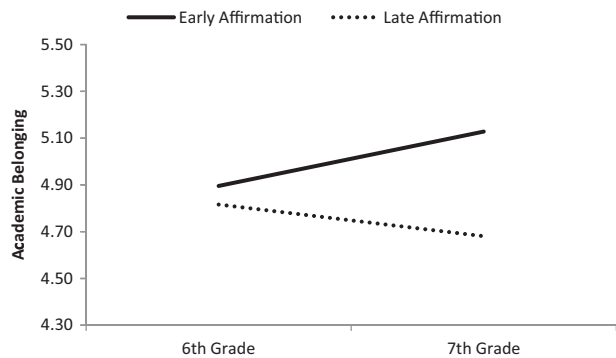


Figure 7. Academic belonging among low-performing Black students as a function of timing condition.

In fact, by January of seventh grade, low-performing Black students' sense of belonging in the early affirmation condition was even slightly higher (predicted  $M = 5.13$ ) than that of high-performing Black students (predicted  $M = 5.03$ ). Although results followed expectations for Black students, among White students there was an unexpected pattern, such that low performers felt a greater sense of postintervention belonging in the standard affirmation condition (predicted  $M = 5.07$ ) than the early affirmation condition (predicted  $M = 4.52$ ),  $t(103) = 2.77$ ,  $p = .01$ , whereas high performers felt marginally more belonging in the early affirmation condition (predicted  $M = 5.21$ ) than the standard affirmation condition (predicted  $M = 4.84$ ),  $t(103) = -1.91$ ,  $p = .06$ .

We also tested for the effect of early affirmation on first quarter grades in the intervention-targeted course, the most proximal measure of GPA following the timing manipulation. Given that all students received the affirmation, we expected the difference based on the timing manipulation to be relatively subtle. To increase power, the interactions of gender with race and condition, which did not contribute to the model ( $p \geq .50$ ), were removed.

Results revealed that students in the early affirmation condition had significantly higher grades than those in the late affirmation condition,  $t(113) = -2.11$ ,  $p = .04$ . Although the interaction of race and condition was not significant,  $|t| < 1.25$ , this was because of a slightly positive (but not significant) effect of affirmation timing on White students. Simple effects tests revealed the main effect of condition to be limited to Black students,  $t(113) = -2.31$ ,  $p = .02$ . Although White students also had a trend toward higher GPA in the early affirmation condition, the effect did not approach significance,  $t(113) = -0.70$ ,  $p = .49$ . Further analysis indicated that the effect of early affirmation did not differ for low and high performers for either racial group ( $ps \geq .50$ ).

Given that the affirmation affected belonging and grades, it was again informative to assess whether the effect on belonging remained even after controlling for improved grades. It did. When the model predicting belonging included grades from the first quarter, the aforementioned Race  $\times$  Condition  $\times$  Preintervention GPA interaction remained virtually unchanged (the unstandardized coefficient was .26 in both models). The same was found when grades and their two- and three-way interactions with condition and race were included. These analyses suggest that, as in Study 1, the affirmation had independent effects on belonging and grades.

## General Discussion

Using a longitudinal field-study design, the present research provides insight into real-world identity processes over time for negatively stereotyped adolescents. Our results suggest that in the absence of intervention, middle school was distressing for African American students, as they increasingly felt that they did not belong and could not succeed. This decline in belonging is particularly notable given the importance of academic belonging to motivation, engagement, success, and intellectual capacity (Baumeister et al., 2002; Connell et al., 1995). A poor sense of belonging in school is among the strongest predictors of a variety of risks for adolescents, including emotional distress, violence, and substance abuse (Battistich & Hom, 1997; Baumeister & Leary, 1995; Resnick et al., 1997). In the current study, low baseline belonging among nonaffirmed African Americans was also a risk factor for worse academic performance over time.

Importantly, the present research also documents the effectiveness of a brief values affirmation intervention in helping to prevent this erosion of belonging for negatively stereotyped students. African American students who were affirmed in the first term of seventh grade were buffered against the decline in belonging experienced by nonaffirmed African American students. In fact, the decline was eliminated, such that affirmed African American students left middle school with a similar sense of belonging to what they had had in the beginning of seventh grade. The positive effect of the affirmation on students' sense of belonging remained even after controlling for grades during seventh and eighth grades, attesting to the robustness of the effect. It remained even after accounting for any beneficial effects of the affirmation on performance.

The affirmation intervention had additional salubrious effects. First, affirmed African American students' sense of belonging was stabilized. Relative to African American students in the control condition, feelings of belonging among affirmed African American students vacillated less over the 2 years of the study. This finding of increased stability was robust, remaining statistically significant even after controlling for the affirmation's buffering effect on the downward trend in belonging over the same period.

The affirmation intervention also changed the relation between ongoing academic performance and belonging for African American students. By the end of eighth grade, nonaffirmed African American students' sense of belonging was correlated with their concurrent GPA, suggesting that their sense of belonging was on trial, falling and rising with proximal performance. Their sense of belonging—at least during this relatively early developmental period—was contingent, not disidentified (Steele, 1997). This tethering of belonging to poor performance was eliminated by affirmation. African Americans who were performing poorly at the end of eighth grade maintained their sense of belonging in school if they had been affirmed. Thus, negative feedback in the form of grades no longer had the same psychological impact. At the individual level, within-subject correlations between belonging and GPA throughout seventh and eighth grades revealed a similar outcome. The relation between African American students' belonging and GPA during seventh and eighth grades was significantly lower when they had been affirmed.

### **Affirmation Changes the Psychological Environment for Minority Students**

These results suggest that affirmation affected the ongoing encoding of experience in school. It untethered environmental threats from self-integrity, preventing the sting of poor performance and continual environmental threats from undermining minority students' sense of academic belonging. For African American students, contending with an environment that chronically raises questions about their belonging may cause even minor setbacks in performance to feel particularly threatening. Results in our control condition suggest that contrary to the notion that members of stigmatized groups can effectively neutralize threat with coping mechanisms, chronic threat in an important domain can erode belonging. Our values affirmation intervention may have been successful in part because it helped alter the meaning of poor performance, making it feel less like an indictment of students' self-integrity and sense of belonging. In a sense, affirmed African American students switched from a conditional source of self-integrity (e.g., academic performance) to a more unconditional source based on their personal values. As a consequence, they were protected when the school environment became threatening, remaining stable and secure in their sense of belonging even in the face of poor performance. With this critical foundation of belonging stabilized and secure, students were better positioned to learn and to incorporate legitimate feedback from teachers.

The idea that affirmation can stabilize students' belonging is also supported by research showing that affirmation increases the clarity and stability of self-concept (Wakslak & Trope, 2009). Affirmed African American students in Study 1 left middle school as they had entered it—with a strong sense of belonging. By contrast, nonaffirmed minorities' sense of belonging dropped with the corrosive effects of the threatening 2 years of middle school. Their belonging was less tied to its original level and more tied to poor performance. This suggests that affirmation can help maintain people's belonging at the early stages of a stressor, making them less vulnerable to the ups and downs of later experience (see Aronson & Inzlicht, 2004). A question for future research is the extent to which these beneficial effects are tied to the context of the classroom and to students' sense that their perspective was valued by school officials, as suggested by the affirmation exercise.

### **Affirmation Benefits Are Greatest With Consistent Identity Threat**

Because values affirmations buffer against threats to self-integrity, people who face chronic identity threats may benefit most from being affirmed. Those not experiencing consistent threat may benefit little. This helps explain why African American students disproportionately benefit from values affirmation, both in academic belonging as reported here and in grades as reported previously (Cohen et al., 2006, 2009). Consistent with theory, the buffering effects of affirmation on grades in Study 1—including grades in math and science courses—were most pronounced among low-belonging African American students, particularly those whose performance was lowest, a group often hardest to reach (Ceci & Papierno, 2005). This suggests that as an intervention, values affirmation can be targeted to students whose academic difficulties often seem the most intransigent.

Further evidence that the affirmation has its greatest effects on people under the most threat comes from the correlational findings in Study 1, which showed that belonging and proximal performance became untethered primarily for low-performing African American students in the affirmation condition. For African American students with relatively low eighth grade performance, belonging at the end of eighth grade was higher in the affirmation condition than the control condition. Among African American students with relatively high eighth grade performance, there was no condition difference in belonging. This suggests that the relation between belonging and proximal performance in Study 1 was untethered because low performers in the affirmation condition maintained their belonging, not because high performers in the control condition dropped. Thus, it was the most threatened students whose belonging was protected by the affirmation.

Results of the longitudinal analysis of belonging in Study 1 suggest that the affirmation had a time-delayed effect on belonging for African American students with a history of high achievement. This analysis revealed that African American students' sense of belonging dropped as a function of their previous level of academic performance—seventh grade for low performers and eighth grade for high performers. This difference may have arisen from perceived environmental threat. Low performers began seventh grade with a sense that they did not belong and could not be successful in school. For these students, affirmation's benefits on belonging were conferred immediately. High-performing African American students began seventh grade relatively secure in their academic belonging, likely in large part due to their past success as students. As the performance of these previously high achievers began to drop in eighth grade (Cohen et al., 2009), environmental threat presumably began to rise. This increased threat triggered the emergence of affirmation effects. Thus, the affirmation provided a buffer for both groups when it was needed most, suggesting that the affirmation became psychologically embedded and interacted with ongoing experience, benefitting belonging as external threats mounted.

### **Affirmation Timing Can Be More Important Than Dosage**

Importantly, the positive effects of affirmation for African American students were heightened by early intervention over the "standard" affirmation timing used previously (Cohen et al., 2009). Support for this was found in both Study 1 and Study 2. In Study 1, correlational analyses suggested that completing more interventions in seventh grade, beyond the minimum of three, was not associated with increasing benefit (see footnotes 9 and 13). Furthermore, subsequent affirmation boosters randomly assigned in eighth grade had no effect, suggesting that the benefits of affirmation came from intervention in seventh grade. Increasing dosage had little additional benefit. But early timing did—consistent with a recursive cycle where early outcomes yield compounding impacts (Cohen et al., 2009). In Study 2, African American students who were affirmed earlier in seventh grade subsequently had better grades in the following quarter. Moreover, low-performing African American students in Study 2 who received the early affirmation intervention felt a greater sense of belonging later in the year than those who were affirmed later. These findings suggest that a well-timed affirmation intervention delivered at a key develop-

mental stage can have lasting positive benefits. Timing matters. This idea is consistent with other research showing that early negative experiences are more important than later ones in the longevity and magnitude of their impact (e.g., Bosma, van de Mheen, & Mackenbach, 1999; Heckman, 2006; Lepper et al., 1986; Miller et al., 2009). It is also consistent with the idea that seventh grade is a natural ecological transition where interventions that target identity processes may be particularly effective. This may be because the beginning of seventh grade is a time when people's sense of identity and belonging may be highly ambiguous or uncertain. Consequently an intervention delivered at this sensitive time should be more impactful than one delivered later, after identity is more established. In particular, values affirmation interventions delivered in the early stages of adolescence can help break recursive cycles, lessening the impact of early setbacks and preventing a decreasing downward spiral in psychological and performance outcomes that are especially pernicious during periods of identity flux (Cohen et al., 2009).

### Affirmation and Majority Students

As expected, White students were relatively unaffected by the values affirmation. The only exception to this pattern comes from Study 2, which revealed a main effect of early affirmation on subsequent grades and on belonging. The former result suggests that both African American and White students benefitted from early affirmation in terms of grades. However, follow-up tests indicated this pattern to be limited to African American students. With respect to belonging, low-performing White students had lower academic belonging when they had been affirmed early, whereas high-performing White students felt marginally more belonging when affirmed early. We can only speculate as to why the belonging of White students might be affected by affirmation timing. It is possible that giving a nonthreatened group an opportunity to reflect on important values provides them with an alternative domain besides school in which to invest. Recall that the early affirmation was given in the first few days of seventh grade, before students may have become invested in the new school year. For White students who were affirmed early, the memory of poor performance in the previous year may have led them during the affirmation intervention to devalue academics, which subsequently lowered academic belonging. For negatively stereotyped students, in contrast, poor performance may more likely be associated with threat rather than devaluation, leading to a more beneficial effect of affirmation through threat reduction. For high performers, memories of strong previous performance might feed into values affirmation and increase belonging through positive association. These admittedly speculative possibilities highlight the need for more research to determine when, how, and why affirmation interventions affect nonthreatened students.

### Conclusion

Bolstering and stabilizing academic belonging can have important long-term effects. African American students may understandably feel uncertain about their sense of fit in academic settings (Walton & Cohen, 2007). A stressor, such as low grades, can exacerbate this uncertainty, causing a negative feedback cycle that further reduces belonging. Consistent with work showing that

affirmation fosters social connectedness (Crocker et al., 2008), affirmation interventions may disrupt this downward cycle, setting threatened individuals on a new trajectory of sustained academic belonging and providing protection against environmental threat. Even when consequences are not immediately apparent, affirmation interventions can trigger a process that perpetuates itself over time. This process then produces long-term effects on psychological and behavioral outcomes that endure long after an intervention's administration.

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## Appendix

### Academic Belonging Scale

#### Social Belonging in School

- People in my school accept me.
- I feel like I belong in my school.
- I feel like an outsider at [school name]. (R)
- I feel comfortable in classes in my school.
- People at [school name] are a lot like me.

#### Potential to Succeed in School

- I know what I need to do to succeed at [school name].
- I do not know how to get a teacher at [school name] to like me. (R)
- I am the kind of person that does well in my school.
- If I wanted to, I could do very well in my school.
- (R) = reverse scored.

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