

Emotion

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Academic and Emotional Functioning in Middle School: The Role of Implicit Theories

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Adolescents face many academic and emotional challenges in middle school, but notable differences are evident in how well they adapt. What predicts adolescents' academic and emotional outcomes during this period? One important factor might be adolescents' implicit theories about whether intelligence and emotions can change. The current study examines how these theories affect academic and emotional outcomes. One hundred fifteen students completed surveys throughout middle school, and their grades and course selections were obtained from school records. Students who believed that intelligence could be developed earned higher grades and were more likely to move to advanced math courses over time. Students who believed that emotions could be controlled reported fewer depressive symptoms and, if they began middle school with lower well-being, were more likely to feel better over time. These findings illustrate the power of adolescents' implicit theories, suggesting exciting new pathways for intervention.

Keywords: adolescents, implicit theories, emotion, academic achievement, well-being

The philosopher Rousseau wrote of adolescence that, "As the roaring of the waves precedes the tempest, so the murmur of rising passions announces this tumultuous change" (Rousseau, 1762/2007, p. 185). Although this "storm and stress" view of adolescence (see Hall, 1904) has since been revised (Arnett, 1999), adolescence is still widely regarded as one of the most challenging stages of life (Steinberg & Morris, 2001). These challenges are particularly acute during the transition to middle school, where there are both academic (Alspaugh, 1998; Midgley, Anderman, & Hicks, 1995) and emotional (Buchanan, Eccles, & Becker, 1992; Kazdin, 1993) challenges. Here we examine how students' implicit theories about the malleability of traits predict their ability to cope with these academic and emotional challenges.

Challenges Associated With the Transition to Middle School

Academic challenges faced by students during the middle-school transition include changing classes for each subject, higher

teacher expectations and grading standards, more difficult work, and more pressure to perform well (Midgley et al., 1995). Unsurprisingly, during middle school, many students show a decline in grades (Anderson, Jacobs, Schramm, & Splittgerber, 2000; Blackwell, Trzesniewski, & Dweck, 2007), a decrease in intrinsic motivation (Lepper, Corpus, & Iyengar, 2005), and an increase in negative attitudes toward school (Anderman & Maehr, 1994).

Emotional challenges faced by students during this transition include changing peer relationships (Buchanan et al., 1992) and the biological changes of puberty that can powerfully alter emotional experiences (Dahl, 2004). Ironically, at a time when students face increasing social and emotional challenges, they must take on these challenges with less help from teachers. They often have less opportunity to create close relationships with teachers (Simmons & Blyth, 1987), who may be less likely to believe that their role involves social-emotional support (Roeser & Midgley, 1997). As a result of these emotional challenges, adolescents experience increasing levels of negative emotion (Larson, Moneta, Richards, & Wilson, 2002) and a greater likelihood of developing mood disorders such as depression (Dahl & Gunnar, 2009).

What Predicts a Successful Transition to Middle School?

Despite the many challenges faced during adolescence, there are noteworthy individual differences during this period. Although some adolescents disengage from school (Eccles, Lord, & Midgley, 1991), other students are strengthened by the challenges of adolescence (Dornbusch, Petersen, & Hetherington, 1991; Petersen, 1988). For example, although students show a decline in school motivation during adolescence on average, a subset of

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students shows an increase in school motivation (Eccles, 2013). What factors predict how students fare during adolescence?

One factor that has been shown to shape adolescents' academic and emotional functioning is their earlier and contemporaneous environments. For example, students from higher socioeconomic status (SES) homes have an advantage over students from lower SES homes (Sirin, 2005), likely due to factors such as the value parents place on education (Eccles, Vida, & Barber, 2004), the quality of teachers in public schools (Akiba, LeTendre, & Scribner, 2007), and neighborhood norms (Harding, 2003). In the emotional domain, lower SES also predicts lower adolescent well-being (Huurre, Aro, & Rahkonen, 2003) and increased risk of adolescent depression (Goodman, Slap, & Huang, 2003).

Internal factors, such as variations in particular genes or differences in student temperament, also play a role. Twin studies suggest that variance in grades (Johnson, McGue, & Iacono, 2006) and well-being (Bartels & Boomsma, 2009) can be partly attributed to genetics. And research examining the effects of different neurotransmitters in the brain has linked certain alleles in the serotonergic system to depression (Eley et al., 2004).

The Role of Implicit Theories About Malleability

In addition to these well-studied determinants of academic and emotional functioning, one additional factor that may have important effects on academic and emotional outcomes is students' implicit theories, or beliefs about whether they can change their own attributes. This factor is a particularly attractive target for investigation because of the potential for change inherent in this factor. Many environmental factors are often the result of long-standing social structures that are difficult to change, and it is of course not possible to intervene at the level of the gene or change the student's past SES. In contrast, students' theories are more amenable to change—even once students reach adolescence—and they may also have important effects on academic and emotional functioning (Blackwell et al., 2007; Cohen, Garcia, Apfel, & Master, 2006; Walton & Cohen, 2011; Yeager, Trzesniewski, & Dweck, 2013).

One type of theory that may determine which students fare well academically during adolescence is *theories of intelligence*—individuals' beliefs about whether intelligence is fixed or malleable. Intelligence theories have been shown to predict students' academic achievement and engagement (Aronson, Fried, & Good, 2002), particularly in challenging subjects like math (Blackwell et al., 2007). Indeed, adolescents often rate math as one of the most challenging courses and are more likely to do so as they reach higher levels (Stodolsky, Salk, & Glaessner, 1991). Students who believe intelligence is malleable are more likely to value learning, believe in effort, and show more resilient reactions to setbacks—this in turn predicts higher math grades (Blackwell et al., 2007). Would these theories predict other important math outcomes as well, such as whether students move from a remedial math track to a more advanced math track? While general math achievement is of course important, being placed into an advanced track can be equally or even more important, since being placed into a remedial track can have negative consequences for interest in school, classroom behavior, and educational attainment (Eccles, 2004).

In the emotional domain, researchers have recently begun to investigate the importance of implicit *theories of emotion*¹—indi-

viduals' beliefs about whether emotions are fixed or malleable. College students who believe emotions are changeable have fewer depressive symptoms and greater well-being than those who do not (Tamir, John, Srivastava, & Gross, 2007). They are also more likely to use effective forms of emotion regulation such as reappraisal (Tamir et al., 2007), which involves changing the way one thinks about a situation in order to feel better (Gross & John, 2003). Although this research with college students provides strong evidence for the predictive power of emotion theories, this construct has not yet been studied in an adolescent population—a time when students often begin to experience more negative emotions. Although emotion theories predicted affective functioning in a sample of college students, neuroscience research shows that emotions function differently in adolescents and adults (Casey, Jones, & Hare, 2008; Monk et al., 2003). This suggests caution in extrapolating these findings to adolescence. However, if they are predictive, this provides another potentially promising target of intervention.

The Present Study

The goal of the present study was to examine the impact of implicit theories about malleability on academic and emotional functioning. We examined academic and emotional functioning throughout the middle-school period and growth trajectories from 6th through 8th grade. In the academic domain, we asked whether believing that intelligence is malleable predicted (a) higher grades on average and over time and (b) enrollment in more challenging math courses over time. In the emotional domain, we asked whether believing that emotions are more controllable predicted (a) fewer depressive symptoms on average and over time and (b) greater well-being on average and over time.

Methods

Participants

One hundred fifteen middle-school students at a suburban public school (48 males, 67 females; 37% white, 36% Asian American, 6% Latino/a, 1% Native American, 2% African American, and 16% multiracial; 2% unreported) completed surveys four times throughout middle school based on the school's availability:² (a) the end of 6th grade ($N = 115$), (b) the middle of 7th grade ($N = 105$), (c) the beginning of 8th grade ($N = 83$), and (d) the end of 8th grade ($N = 101$). We assessed mother's education level as a proxy for SES, as education is one of the most commonly used indicators of SES (Ensminger & Fothergill, 2003), and mother's education correlates highly with father's education and is more likely to be known by adolescents (Entwisle & Astone, 1994;

¹ When we use the term *theories of emotion*, we are specifically referring to the construct developed by Tamir et al. (2007). We recognize that other research groups have studied the relationships between other beliefs related to emotions, such as understanding emotion, and important outcomes (e.g., Cassidy, Parke, Butkovsky, & Braungart, 1992; Hubbard & Coie, 1994; Izard, Fine, Schultz, Mostow, Ackerman, & Youngstrom, 2001; Southam-Gerow & Kendall, 2000).

² Unfortunately, we had very little choice over when to give the survey during each year. We came in each year on dates and times determined by the school.

Ensminger et al., 2000). Students reported their mother's education as follows: 6% high school degree or below; 31% some college classes or college degree; 56% some graduate classes or graduate degree; and 7% unreported.

Our sample was demographically similar to the overall composition of the school. According to a recent report released by the school's district, students' racial and ethnic backgrounds within the entire school are almost identical to that of our sample. As suggested by the educational attainment of students' mothers in our sample, the school is relatively high achieving, and most students do not come from disadvantaged backgrounds. About 9% of students at the school are classified as socioeconomically disadvantaged. Most students at the school are typical learners—about 13% are English learners and about 14% have a disability.

Measures

Predictors. The intelligence-theories scale consisted of three statements (“You can learn new things, but you can’t really change your basic intelligence [reverse scored];” “Your intelligence is something about you that you can’t change very much [reverse scored];” and, “You have a certain amount of intelligence and you really can’t do much to change it [reverse scored];” Dweck, 1999). Higher scores reflected the belief that intelligence can be changed (6-point scale; Time 1: $\alpha = .87$; $M = 4.42$; $SD = 1.15$; range = 1–6). The emotion-theories scale consisted of four statements (“You can learn to change your emotions”; “If you want to, you can change the emotions that you have”; “The truth is, you have very little control of your emotions [reverse scored];” and “No matter how hard you try, you can’t really change the emotions you have [reverse scored];” Tamir et al., 2007). Higher scores reflected the belief that emotions can be changed (6-point scale; Time 1: $\alpha = .78$; $M = 4.23$; $SD = 1.02$; range: 1–6).³

Academic outcomes. Official grades from the fall of 6th grade through the fall of 8th grade and information about level of math courses taken were obtained from the school. Grading was on a 4-point scale, with 4 being the highest grade. In our analyses, we examined grades in core subjects and placement in basic versus advanced math courses. Core subjects were defined as Social Studies, Science, English, and Math. Level of math course was chosen because math courses are particularly challenging (Blackwell et al., 2007), and this was the only subject that offered different tracks (regular vs. advanced). This information was found on students' official transcripts, which we received from the school. Many factors may influence tracking, such as students' achievement in the previous math course, parents' advocating for their children to take a more advanced math course, standardized test scores, and teachers' determination of students' likelihood of succeeding in an advanced track. Although other factors may also influence student tracking, we hypothesized that intelligence theories would influence tracking because a malleable theory of intelligence may influence a number of these factors. Students who believe that intelligence is malleable may try harder in their previous math class, leading them to earn a higher grade and learn the material better—and thus earn a higher standardized test score. They may also be more likely to seek out help from their teacher, leading their teacher to determine that they have what it takes to succeed in the advanced math course. And they may be more likely to want to take the more advanced math course, leading them to

encourage their parents to advocate for them. It is important to note that the current study cannot tease apart why intelligence theories might lead students to take more advanced math courses, but it can determine if intelligence theories predict the level of math students take.

Emotional outcomes. Depressive symptoms were measured using the 10-item Children's Depression Inventory Short (CDI:S; 3-point scale; Time 1: $\alpha = .80$; $M = 1.27$; $SD = .29$; range = 1–2.2), with higher scores indicating more depressive symptoms (Kovacs, 1992). Well-being was measured by subtracting self-reported negative emotion (6-point scale; Time 1: $M = 2.82$; $SD = 1.45$; range = 1–6) from positive emotion (6-point scale; Time 1: $M = 4.66$; $SD = 1.23$; range = 1–6). Self-reported negative emotion and positive emotion were each measured with one item, “I am someone who feels a lot of negative emotion (such as sadness, anger, and nervousness),” and “I am someone who feels a lot of positive emotion (such as happiness, joy, and excitement).” Students received a difference score between -5 and 5 ($M = 1.83$; range = -5 – 5). We created this difference score because previous work has suggested that examining positive emotion relative to negative emotion may be more informative than measuring either positive or negative emotion alone (Diener, 1994; Harding, 1982). For example, the Bradburn Affect Scale used in well-being research rests on the assumption that examining both negative and positive emotion is the preferred way to measure well-being (Harding, 1982).

Analyses

We explored the effects of intelligence and emotion theories on academic and emotional outcomes both on average and over time. We used hierarchical linear models to ask whether students who had a malleable view of intelligence earned higher grades and whether students who believed emotions could be controlled showed fewer depressive symptoms and greater well-being. To explore these relationships over time, time-point measurements were nested under each subject by specifying subject as a random-effect intercept (level). Models were conducted using the lme4 package in the R environment for statistical computing. To test the significance of the predictors, we used the languageR package to obtain empirical p values based on 10,000 Markov Chain Monte Carlo simulations. The estimates provided by lme4 mixed-effects models are robust to missing data (Baayen, Davidson, & Bates, 2008), so its use enabled us to retain participants in hierarchical analyses even if they were missing individual data points. Course grade hierarchical analyses included 111 participants, and depression and well-being analyses included 113.

We also examined whether students with more malleable views of intelligence took more challenging math courses over time, using a mixed-effects logistic regression model to predict whether students would take the easy (coded as 0) or challenging (coded as 1) math course. Intelligence theories in 6th grade, time, and their interaction were specified as fixed effects, and subject was specified as a random effect (level).

³ We focus on Time 1 theories because we were interested in how students' theories as they confront the first year of middle school influenced their trajectories in middle school.

Results

Preliminary Analyses

There were no significant gender differences in average intelligence theories, emotion theories, well-being, depressive symptoms, or GPA. The only between-race differences were found in intelligence theories, GPA, and math level taken. However, because our sample included only 115 students, there were relatively few students in each racial/ethnic group, and these differences should be interpreted with caution. See Table 1 for overall and subgroup means.

As expected based on prior work, intelligence and emotion theories were correlated—but separable—constructs, $r(113) = .43, p < .001$.

Students' average grades did not correlate with depressive symptoms or well-being scores, $ps > .20$. Unsurprisingly, depressive symptoms and well-being scores were significantly correlated, $r(109) = -.41, p < .001$, and students who had higher grades in 6th grade were significantly more likely to take advanced math classes in 7th or 8th grade, odds ratio = 1.98, $z = 4.078, p < .001$. See Table 2 for correlations between key variables.

Intelligence Theories and Academic Outcomes

Grades. The mixed-effect model with intelligence theories, time, and their interaction as fixed predictors showed a simple effect of intelligence theories on grades, such that students who believed intelligence was malleable in 6th grade earned higher grades at all time points, $t = 3.77, p_{MCMC} < .001$. This effect held when controlling for emotion theories, $t = 3.48, p_{MCMC} < .001$. There was no effect of time on grades, $p_{MCMC} > .20$, and no interaction between intelligence theories in 6th grade and time on grades, $t < 1, p_{MCMC} > .40$. Thus, students who viewed intelligence as malleable earned higher grades, and this effect remained constant over time.

Enrollment in challenging math courses. There was a significant interaction between intelligence theories at Time 1 and time on enrollment in challenging courses, $z = 2.16, p = .03$. Over time, the more students believed that intelligence was malleable at Time 1, the more likely they were to take the more challenging

math courses (see Figure 1). This pattern remained even when controlling for students' grades, $p = .09$ (although now marginally significant) or emotion theories, $p = .03$. This suggests that over and above the grades students earned, students' intelligence theories tended to predict the level of math course students took. This association between intelligence theories and course enrollment over time suggests the importance of implicit theories in predicting academic advancement throughout this period.

Emotion Theories and Emotional Outcomes

Depressive symptoms. The mixed-effect model with emotion theories, time, and their interaction as fixed predictors showed a simple effect of emotion theories on depressive symptoms such that students who believed emotions were malleable in 6th grade reported fewer depressive symptoms overall, $t = 2.87, p_{MCMC} = .004$. This effect held when controlling for intelligence theories, $t = 2.87, p_{MCMC} = .004$, suggesting that emotion theories are separable from intelligence theories and predict different, but equally important, outcomes. However, there was no interaction between emotion theories and time on depressive symptoms, $t = 1.15, p_{MCMC} > .20$. Thus, the effect of emotion theories on depressive symptoms remained consistent over time.

Well-being. There was a significant three-way interaction between emotion theories, well-being in 6th grade, and time on well-being, $t = 2.30, p_{MCMC} = .01$. This effect appears to be driven by students who began middle school with initial lower well-being (see Figure 2). Among students who began middle school with lower well-being, those who believed emotions could be controlled showed improved well-being over time, although this same improvement was not seen for students who believed emotions could not be controlled. This effect held when controlling for initial depressive symptoms, $t = 2.25, p_{MCMC} = .02$, and importantly, when controlling for intelligence theories, $t = 2.28, p_{MCMC} = .02$, again suggesting separable effects of these two different types of theories about malleability. This suggests that emotion theories can have an important influence on how students who struggle emotionally relative to their peers might overcome this struggle over time.

Table 1
Means of Primary Variables by Ethnicity and Gender

Ethnicity	Theories		Well-being	Depressive Symptoms	GPA	Advanced Math
	Emotion	Intelligence				
Overall	4.17	4.30	0.13	1.23	3.40	0.56
White	4.24	4.56 ^a	-0.01	1.26	3.43 ^a	0.58 ^a
Asian	4.24	4.37 ^{a,b}	0.04	1.26	3.78 ^b	0.81 ^b
Black	3.88	2.34 ^b	0.75	1.14	2.29 ^c	0 ^{a,c}
Latino	4.36	3.95 ^{a,b}	0.32	1.26	1.60 ^d	0 ^c
Other	4.07	4.63 ^a	0.31	1.22	3.50 ^a	0.38 ^{a,c}
Male	4.33	4.38	0.18	1.22	3.33	0.65
Female	4.12	4.46	0.09	1.27	3.51	0.51

Note. Values with different letters in the same column significantly differ by ethnicity. See the Measures section for information on each measure. Higher numbers indicate more malleable beliefs about emotions and intelligence, greater well-being, more depressive symptoms, and higher grade point averages (GPAs). Advanced math is a proportion of students in each group taking the more difficult math course.

Table 2
Correlations Between Primary Variables

	Intelligence theories	Emotion theories	Well-being	Depression	GPA
Emotion theories	0.43***				
Well-being	-0.03	0.22*			
Depression	-0.11	-0.32***	-0.41***		
GPA	0.33***	0.13	-0.1	-0.09	
Advanced Math	0.23*	0.12	-0.16	-0.03	0.62***

Note. Advanced math is the proportion of math classes taken that were in the advanced math track. GPA = grade point average. Intelligence and emotion theories are from Time 1 only. * <.05. *** <.001.

Secondary Analyses

Using the same analytic methods, we examined whether intelligence theories predicted emotional outcomes and whether emotion theories predicted academic outcomes. Controlling for emotion theories, intelligence theories did not predict depressive symptoms or well-being, $t_s < 1$, $p_s > .20$. Similarly, controlling for intelligence theories, emotion theories did not predict grades or enrollment in challenging math courses, $p_s > .20$. There were no interactions between emotion and intelligence theories on the key outcomes, $p_s > .20$.

In the four primary analyses, we tested for moderation by SES (mother’s education level), gender, and race. Only one of the major analyses was significantly moderated by a demographic characteristic—mother’s education level moderated the interaction between time and 6th grade intelligence theories on the likelihood of taking a challenging math course. Students with malleable theories of intelligence in 6th grade were more likely to subsequently take a difficult math class if their mothers were more highly educated, $z = 1.99$, $p = .05$. We are reluctant to put forward an explanation for this finding because of the high probability that it is a false positive: Twelve demographic moderation analyses were performed (four outcomes and three moderators tested), and the likelihood of obtaining at least one effect with $p < .05$ by chance was therefore 46%.

We also examined whether students’ theories changed over time. In general, students reported more malleable theories over time (intelligence theories: $t = 2.64$, $p_{MCMC} = .014$; emotion theories: $t = 4.13$, $p_{MCMC} < .001$). However, this tendency to report more malleable theories over time is often seen when people complete surveys about malleability multiple times (Dweck, 2006). Therefore, it could represent simply increased exposure to the idea of malleability; however, it may also represent a true change in theories, perhaps contributed to by students’ improving metacognitions about emotions (Harris, Olthof, & Terwogt, 1981; Harris, 1989).

Discussion

What predicts differences in how adolescents respond to the many academic and emotional challenges of middle school? Our findings demonstrate that students’ theories about the malleability of attributes—whether intelligence and emotions can be changed—predict multiple markers of academic and emotional functioning.

In the academic domain, intelligence theories predicted not only students’ grades, but also the difficulty level of the math courses they took over time, indicating the potential for even longer-term effects on students’ academic trajectories. Middle-school math courses typically impact high-school math courses, which may, in

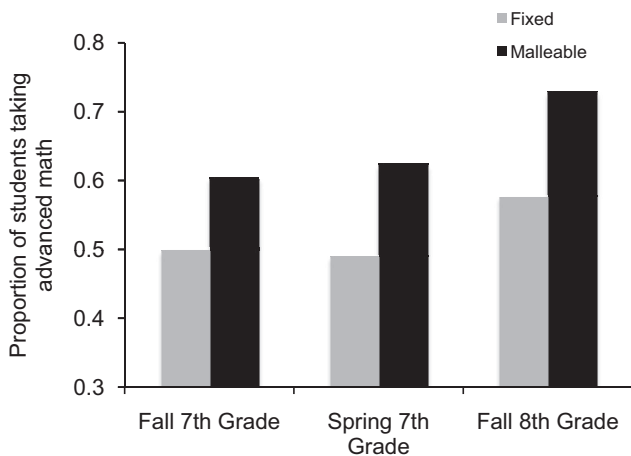


Figure 1. The impact of intelligence theories in 6th grade on advanced math course placement over time. For purposes of clarity, students were categorized based on a median split.

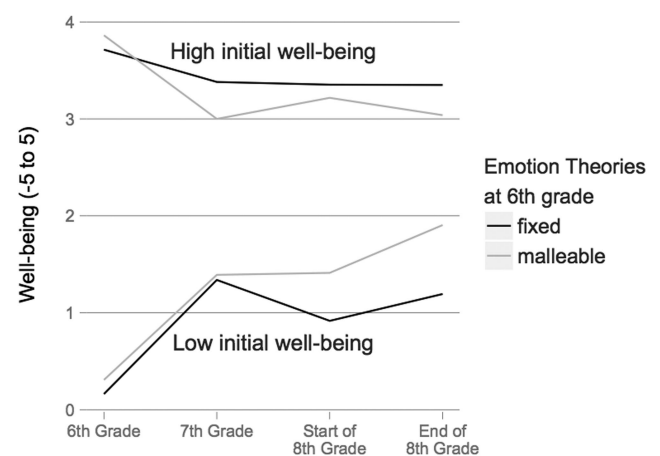


Figure 2. The impact of emotion theories in 6th grade on well-being over time. For purposes of clarity, students were categorized based on a median split.

turn, predict college and career outcomes (Updegraff, Eccles, Barber, & O'Brien, 1996). In addition, it is striking that intelligence theories predicted students' grades, given that students who believed intelligence was malleable were also more likely to take advanced (and thus more difficult) courses.

This study is the first to show that students' theories about the malleability of emotions play an important role in predicting emotional functioning during adolescence. Furthermore, it is the first to show longitudinal effects of these emotion theories on emotional outcomes over the course of several years, tracking students outside the lab as they experience real emotional challenges and varying degrees of well-being. The three-way interaction between emotion theories, initial well-being, and time on well-being suggests that students with lower levels of well-being in 6th grade are more likely to feel better over time the more they believe that emotions are malleable. However, students with higher levels of well-being continue to function well emotionally throughout middle school, regardless of their theory of emotion. This suggests that in the same way that intelligence theories are particularly important when students face academic challenges, emotion theories are particularly important when students are experiencing emotional challenges. This has implications for the focus of future intervention efforts. It may be best to target students when they begin to experience challenges and would benefit from beliefs that promote resilience, making adolescence an especially attractive time.

In addition to the challenges that adolescence brings, the cognitive advances that students undergo during this time may also make it an ideal time to intervene. Students gain the ability to use metacognition to maximize their learning (Schneider & Lockl, 2002) and improve their understanding of their own emotions (Harris et al., 1981; Harris, 1989). Perhaps this may even explain why some students developed more malleable theories about intelligence and emotions throughout middle school.

Although emotion theories predicted well-being differentially over time, emotion theories predicted depressive symptoms consistently with no effects of time, perhaps because there was less variation in depressive symptoms. The mean score for depressive symptoms at Time 1 (on a scale from 1 to 3; higher numbers indicate greater depressive symptoms) was 1.27 ($SD = 0.29$), comparable to previous research (Twenge & Nolen-Hoeksema, 2002), while students' self-reported well-being varied widely at Time 1 (on a scale from -5 to 5 ; $M = 1.83$, $SD = 2.28$). Perhaps a larger and more heterogeneous sample would reveal a longitudinal effect of emotion theories on depressive symptoms. Importantly, the effects on depressive symptoms and well-being held when controlling for intelligence theories, and only emotion theories predicted emotional functioning, showing the specificity of these two types of implicit theories.

Intelligence and emotion theories showed specificity in the outcomes they predicted. However, it seems likely that they each exert their effects through similar mechanisms. Intelligence theories are found to predict students' mastery versus helpless responses to academic challenges. That is, students who believe intelligence is malleable are more likely to work harder or try new strategies when faced with a challenge (Blackwell et al., 2007). Similarly, emotion theories are found to predict students' emotion regulation strategies. Students who believe they can change their emotions are more likely to respond adaptively to emotional chal-

lenges by engaging in effective strategies, such as reappraisal (Tamir et al., 2007). Both types of theories lead to some form of mastery-oriented action to influence a future outcome—academic achievement in the case of intelligence theories or one's emotional state in the case of emotion theories. Future research may seek to directly explore relationships between emotion theories and additional adaptive and maladaptive responses to emotional challenges in adolescents.

Although the findings are promising, there are several important limitations. First, the results should be replicated in other schools to ensure that the results are generalizable. We chose the school in the current study because it had several desirable characteristics, such as its racial and ethnic diversity. However, the sample is by no means a representative sample of middle school students and represents only a first step in understanding the importance of emotion theories in middle school. Second, although we followed these students over several years, the timing of the surveys was constrained by the schedules imposed by the school, and not all students were available at each time point. Third, we collected only self-report measures of emotional outcomes. Future studies should collect additional measures of emotional functioning, including teacher or parent reports of emotional functioning.

Finally, the correlational design leaves open questions about whether these theories cause better academic and emotional functioning. The fact that implicit theories predicted change over time in course difficulty and well-being is consistent with a causal relationship. Moreover, previous research shows that—at least in the academic domain—the relationship is causal (Blackwell et al., 2007). Future research should manipulate emotion theories to explore the causal relationships between emotion theories and long-term emotional functioning. Knowing that emotion theories are predictive at this time suggests that we may be able to intervene to teach students that emotions can be controlled and how to control them. Although students' theories are likely influenced by the external and internal factors discussed in the introduction, previous research suggests that targeted, carefully designed interventions can successfully change beliefs (Aronson et al., 2002; Blackwell et al., 2007).

In addition to addressing the specific limitations of the present research, future studies should also examine the relationships between emotion theories and emotional outcomes within clinical populations of adolescents. For example, it is possible adolescents with mood disorders may recover more quickly from an anxiety episode or experience fewer depressive symptoms if they believe they have some control over their emotions. However, this population is much more vulnerable than the population surveyed in the current research. With a clinical population it may also be important to recognize factors outside of one's control. Perhaps believing that emotions are entirely under one's control may lead certain populations to feel more responsible for negative emotions.

In summary, this work demonstrates the power of believing that one can change important attributes in predicting important life outcomes, including grades, depressive symptoms, and well-being. Adolescence is a pivotal and characteristically challenging time in development, and these beliefs may provide an important tool in helping improve students' lives.

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