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# MOTIVATION AND IDENTITY

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Students' identities influence their motivation in school. Consider some of the identities of a student: athletic, good at math, sister, college student, Black. How might these identities affect that student's motivation? A recent example from social media indicates how social identity shapes students' experiences and behaviors. In 2013, University of Michigan students expressed their experiences using the social media service Twitter with tweets that included the hashtag "BBUM"—"Being Black at the University of Michigan" (Woodhouse, 2013). These experiences included responding to racial stereotypes by working harder (e.g., "Having to work ten times as hard as other students because you're expected to fail"), trying to avoid failure (e.g., "NOT raising your hand in class because you do not want to be THAT black person who just doesn't get it . . . "), and feeling a lack of belonging (e.g., "the only black person in the room half of the time"). These comments show how students' racial identities (and corresponding stereotypes about their social groups) can impact their motivation in school in a variety of important ways. The current chapter examines students' identities and how they shape and are shaped by motivation.

By identity, we mean the collection of personal and social attributes held by all individuals that differentiate them and connect them to others (Brewer, 1991), including who students are and who they do and do not want to be. We consider motivation from a social cognitive perspective (Dweck & Leggett, 1988) to be an interconnected pattern of responses energizing individuals toward particular tasks or activities (see Pintrich, 2003); these patterns involve cognitions (beliefs about efficacy, mindsets, goals, attributions, etc.), behavior (persistence, effort, choice, etc.), and affective responses. In the sections that follow, we discuss two primary types of identity: individual and social identity. We then analyze how social identities influence motivation, including both minimal social identities (as created in laboratory settings) and real-world social identities (e.g., gender and race). We discuss stereotypes about ability and the threat of being judged by others due to negative stereotypes. We then describe how basic research on identity and motivation translates into powerful interventions to improve students' motivation for learning. We describe specific interventions that provide feedback communicating high standards, teach growth mindsets, reduce uncertainty about belonging, and allow students to affirm

important values. We close by articulating future research that may help uncover how identity specifically impacts motivation throughout development.

## ASPECTS OF IDENTITY

Identity addresses the question "Who am I?" Identity is a dynamic set of personal characteristics and social roles and memberships that both interprets and influences experiences and behavior (Markus & Wurf, 1987). The terms "identity" and "self-concept" are often used interchangeably, although "self-concept" can also refer to an individual's most central and essential identities, with the idea that not all aspects of identity may be considered important enough to be included in an individual's core self-concept (Oyserman & Destin, 2010). An individual's identity can be stable over time but also may vary depending on the context (McConnell, 2011; Walton, Paunesku, & Dweck, 2012). When influenced by the situation, it is sometimes referred to as a "working self-concept" (Markus & Nurius, 1986; Tajfel, 1981; for a review, see McConnell, 2011). Identity profoundly affects how new information is interpreted. A student who sees herself as "a good student" may see grades as self-relevant (Markus & Nurius, 1986). A B grade may threaten her view of herself as a good student, while the same grade might be a success to a student who is less identified with academics. Thus, students' sense of identity can both shape and be shaped by academic situations and accumulated experiences.

Future identities also exert influence on current motivation and behavior. These "possible selves" represent what students would like to become or fear becoming (Markus & Nurius, 1986; Oyserman, Gant, & Ager, 1995). A student who wants to attend medical school may have that future identity in mind when taking an organic chemistry course, which can affect her behavior and interpretation of experiences in that course. A poor grade on a test may be threatening (Markus & Nurius, 1986), triggering a cascade of negative cognitions ("I'll never be a doctor"), emotions (sadness), and behaviors (dropping out of the course). Alternatively, her determination to fulfill this future identity may prompt positive cognitions ("I need to work harder") and behaviors (increased effort). Which response is made depends on multiple factors, including the student's mindset about whether science ability is fixed or improvable (Dweck & Master, 2009).

Self-discrepancy theory (Higgins, 1996) predicts that students can be motivated by discrepancies between the actual self and possible selves, either an "ideal" self (a representation of ideal attributes) or an "ought" self (a representation of attributes that the self should possess). Discrepancies between the ideal self and the actual self can cause negative emotions such as disappointment, while discrepancies between the ought self and the actual self can cause negative emotions such as guilt. As the ideal or ought self increases in importance to the individual, discrepancies will become more distressing (Higgins, 1996).

Two aspects of identity are particularly useful for considering effects on motivation: the individual self (different from others) and the social self (connected to others; Ruble et al., 2004). This distinction has led to its own set of terms, such as the "me" self and the "we" self (Eccles, 2009). The individual self includes unique and personal characteristics, preferences, abilities, and goals (Ruble et al., 2004). The social self reflects characteristics relevant to family, peers, and social groups, ranging from broad and enduring social categories like gender to more temporary characteristics like eighth grader (Ruble et al., 2004). It can also include reference groups or "imaginary groups created by social consensus" (Tajfel, 1981, p. 244). Individual traits often link the individual to other people

who share that trait, contributing to a social identity such as "a math person" or "a chocolate lover" (Deaux, 1996). Thus, it may be useful to think of the distinction between the individual self and the social self as a dynamic continuum (see Master, Markman, & Dweck, 2012), ranging from viewing the self as an individual to viewing the self as a member of a social group.

## INDIVIDUAL IDENTITY AND MOTIVATION

Individual identity—students' beliefs and perceptions about themselves as individuals—can have profound effects on students' motivation. Do they view themselves as good students, capable of mastering challenging material? Do they see school and academic achievement as important to their future selves? Motivation can refer to both a *process* (the drive that moves individuals toward a desired outcome) and an *outcome* (such as greater persistence on an academic task), and both aspects of motivation can be affected by individual identity (Pintrich, 2003). We examine how individual identity can affect motivation in terms of both present and future identities: "who I am" and "who I want or do not want to be."

### *Who I Am*

Students' sense of identity in relation to learning and school can affect their motivation and behavior. Most students are motivated to maintain a positive self-image of their academic abilities; they want to feel competent and capable (Covington, 2009; Steele, 1988). To maintain this positive image, older adolescents and adults may use a variety of self-serving strategies (Tesser, 2000), including self-handicapping (Jones & Berglas, 1978) and self-serving attributions (e.g., internal attributions for success, as well as external attributions for failure when improvement is not possible; Duval & Silvia, 2002). Some of these strategies may be purely defensive, but others may push students toward self-improvement. For example, students who believe that ability is a fixed entity may be more likely to compare themselves to others who did even more poorly than they did on a task (Nussbaum & Dweck, 2008). This can help them feel better about their own poor performance since they believe improvement is impossible. In contrast, students who believe that ability can be increased through effort may be more likely to compare themselves to others who did even better in order to learn new strategies. Putting extra effort into learning may help these students feel better about their own poor performance. Thus, individual differences in students' beliefs about their abilities can determine whether the motivation to maintain a positive academic identity causes them to behave in ways that help or interfere with learning.

Children are also motivated by feedback that attributes their behavior to stable personal characteristics. Elementary-school children who were told that they worked hard in math improved their math self-evaluations and performance (Miller, Brickman, & Bolen, 1975). Similarly, preschool children were more willing to take on challenging academic tasks after hearing a story about themselves choosing hard tasks (Master, 2011). However, praising children for their personal attributes (e.g., "You are smart" or "You are a good drawer") may backfire and make children worry that failure means they are not smart or capable (Cimpian, Arce, Markman, & Dweck, 2007; Mueller & Dweck, 1998; see also Gunderson et al., 2013; Pomerantz & Kempner, 2013). While praise is often unnecessary (Brophy, 1981), teachers who feel the need to praise their students should avoid praising personal academic attributes. Instead, the available research suggests that

teacher praise should be contingent, specific, credible, and emphasize effort and process to help students see themselves as committed to hard work (Brophy, 1981; Dweck & Master, 2009).

Students are also motivated by feeling personally connected to the material they are learning, such as when materials are personalized or connected to some valued aspect of students' individual identity. When students internalize the value of school-based activities and incorporate it into their identity (e.g., "This is for me," "I want to do that"), they show more autonomous and self-directed motivation (Brophy, 1999; Ryan & Deci, 2000). For example, college students who wrote about how a new math technique was relevant to their lives showed greater interest in math (Hulleman, Godes, Hendricks, & Harackiewicz, 2010). Similarly, personalizing learning materials can increase students' engagement. Fourth- and fifth-grade students who played a math computer game in which the materials were personalized (e.g., to include their birthday, favorite foods, and friends' names) enjoyed the game more, felt more competent at math, and were more challenge seeking (Cordova & Lepper, 1996). However, the extent to which aspects of individual identity are motivating may be affected by culture (e.g., Iyengar & Lepper, 1999). Highlighting individual identity may be more motivating in an independent culture such as the United States (where uniqueness and autonomy are valued), compared to more interdependent cultures seen in Asian countries (where fitting in and connectedness are more valued; Siy & Cheryan, 2013).

### *Who I Want to Be*

Students can also be motivated by possible selves—by considering the kind of person they want to be (both now and in the future) or the kind of person they want to avoid becoming (Oyserman & Destin, 2010). But establishing that one holds a particular valued identity can be a complicated process; some identities are disputable and have to be proven through behavior or performance. When students want to demonstrate that they possess a particular identity (such as "good student"), they are motivated to perform behaviors associated with that identity. Cues in the environment can often make this link between behavior and identity more salient, thus influencing behavior.

One type of cue that can link behavior to identity is the use of noun wording about an attribute of the self (e.g., "I am a coffee drinker," rather than "I drink coffee"), because nouns signal who we are. For example, in one study, adults were asked how much they cared about *being a voter* (noun wording) in an upcoming election, or how much they cared about *voting* (verb wording) in an upcoming election. Using the noun wording tied the behavior of voting to adults' identity—whether or not they voted would indicate whether or not they were a voter. Those who heard the noun wording were more likely to actually vote in the election (Bryan, Walton, Rogers, & Dweck, 2011). In terms of self-verification theory (Swann, Rentfrow, & Guinn, 2003), this can be interpreted as the display of identity cues to create a social environment that verifies individuals' perceptions of themselves. Even very young children can be affected by this subtle linguistic cue to identity. Three- to six-year-old children who were asked whether they wanted to *be a helper* were more likely to help an adult experimenter than children who were asked whether they wanted to *help* (Bryan, Master, & Walton, 2014). Thus, offering students the opportunity to demonstrate a valued identity can motivate behavior.

A similar process can motivate students to avoid undesirable or unwanted identities. College students were less likely to cheat when instructions for a task included the phrase "Please don't be a cheater" compared to the phrase "Please don't cheat" (Bryan, Adams, &

Monin, 2013). Pilot data also suggests that children may persist longer on an academic task to avoid being a "quitter" or "stopper" compared to "quitting" or "stopping" (Bryan, Master, & Walton, 2015). Although further research is desirable to examine how these types of wording can affect students' motivation in school, these findings suggest that teachers should pay careful attention to the language they use and consider how linking behavior to identity might affect students.

The causal arrow may also go the reverse direction, with motivation (e.g., interest in a domain) shaping students' sense of identity. What we do, why we do it, and how we interpret that behavior can affect our sense of identity (Marsh & Craven, 2006; McCaslin, 2009). To illustrate this idea, we use expectancy-value theory, which suggests that students are more motivated in situations in which they expect to succeed and value the task (Eccles, 2009). Individuals who expect to succeed at a task or highly value that task will show more motivation in the task. They may spend more time on that task, become more interested in it, and become better at it; this process can then cause the activity to become a more integral part of their identity (Eccles, 2009). In brief, interest, choices, and effort for a domain of learning can make students become more identified with that domain. For example, an elementary-school student who finds that she is succeeding at math may become more interested in and enjoy math class more; she may decide that she is "a math person." At the same time, activities that are important for identity will become more highly valued, which then leads to higher engagement and more optimal achievement-related choices (Eccles, 2009). Seeing herself as "a math person" may lead her to actively seek out math-related challenges and enroll in higher-level math courses in middle and high school. She may also be more likely to choose a math-related major in college.

The boundary between individual identity and social identity can be somewhat blurry. Although individual identity can have powerful effects on motivation, aspects of individual identity can also be meaningful or motivating due to the way they invoke a sense of group membership (Master & Walton, 2013). Individual characteristics can connect the individual to other people who share that characteristic, transforming "I am a math person" into "I am one of the math people." In addition, past studies on the motivational effects of individual identities often include elements of social identity, such as the inclusion of friends' names in a personalized activity (Cordova & Lepper, 1996). In the next section, we focus in greater depth on the effects of social identities, which can push individuals to work toward the group's goals, reduce motivation for goals that are seen as incompatible with the group identity, or raise the threat of confirming a negative stereotype about the group.

## SOCIAL IDENTITY AND MOTIVATION

When we share an identity with other people, we have a sense of connection to others, which can foster motivation for goals that we share with the group (e.g., succeeding in a team math competition). Social groups may also carry with them stereotypes about the characteristics of the people in that group. These stereotypes can put an added burden on students, which can interfere with learning and achievement (e.g., stereotype threat). A particular identity might offer a motivational boost in certain situations while impeding motivation in others. We first examine how a sense of group identity—that is, a shared sense of connection to a common characteristic or goal—can affect personal effort and behavior, and then examine how complex real-world social identities (e.g., race and gender) can affect motivation.

### *Minimal Group Identity*

In order to understand how belonging to groups affects motivation, it can be helpful to distinguish the effects of belonging to *any* group from the effects of a *particular* group. In laboratory studies, this has been done using "minimal groups" (Tajfel & Turner, 1986), in which participants are assigned to a group based on some small choice or a random event, such as the flip of a coin. Thus, minimal groups are imagined, without any shared history or interactions among group members. The effects of minimal groups provide a window into the effects of social identity itself.

Most previous research on minimal groups has looked at how these groups create ingroup and outgroup bias, even among very young children. Children and adults show implicit and explicit preference for members of their own group and give them more resources, even when they know next to nothing about the group (e.g., Cvencek, Greenwald, & Meltzoff, 2011; Dunham, Baron, & Carey, 2011). Research with adults has found that membership in minimal groups can lead to greater intrinsic motivation (Shteynberg & Galinsky, 2011). For example, college students who were told they were part of a "numbers group" showed greater persistence at a math task than students who were told they were a "numbers person" (Walton, Cohen, Cwir, & Spencer, 2012). This research demonstrates that a sense of social connection can be a fundamental motivator (see Baumeister & Leary, 1995); even minimal cues that individuals are connected to others in a particular domain (such as math) can foster greater motivation in that domain.

Striking effects have been found with young children. For example, being assigned to a minimal group that "does puzzles" made preschool children persist longer on puzzles, compared to being assigned to a minimal individual identity linked to puzzles or being assigned no identity (Master & Walton, 2013). Children with a minimal group identity were more likely to persist for the maximum allowed time, even though all children completed the task alone (with no group members present), and children were explicitly told that they were not competing with other groups. These motivational effects lead to greater learning. Preschool children who were part of a group that learned novel words for "alien toys" showed greater recall of those words than did children who learned the words as individuals. Preschool children also show greater motivation in academic domains (such as math) when the task is linked to a minimal group rather than an individual identity (Master, Meltzoff, & Cheryan, 2015).

Although minimal groups do not contain the richness of experiences with real-world social groups, they provide a glimpse into how social influences can shape the self (Walton, Cohen, et al., 2012). They reveal that an important part of this process is simply sharing goals with others (Master & Walton, 2013). However, social motivation may be even stronger for real-world groups that have more meaning for students.

### *Real-World Group Identity*

#### *Identity-Based Motivation*

How do particular social identities affect students' motivation? Children are eager to learn about the way the world works, especially the social world, and they readily pick up on cues about who does what starting from infancy (Meltzoff, 2007). Social identities such as gender can often affect whether children view activities and behaviors as "for me" or "not for me." For example, preschool children who identify with their gender more strongly show more gendered play (Cvencek, Greenwald, et al., 2011). In that study, identification was measured both explicitly, with preferences for pictures of girls

or boys, and implicitly, with the Preschool Implicit Association Test (IAT). The Preschool IAT measures the implicit links children hold between a social category (such as "girl" or "boy") and an attribute (such as "good" or "bad"). An implicit own-gender preference is exhibited when a girl responds more quickly to the pairing girl = good than to girl = bad. The simple act of linking specific activities to social groups or categories can have powerful effects on children's motivation (for a review, see Martin & Dinella, 2002). For example, when activities (e.g., tracing figure outlines) are given gender category labels, children show higher performance, liking, expectations of success, and value for own-gender activities compared to other-gender activities (e.g., Stein, Pohly, & Mueller, 1971). Even without labels, children may pick up on real-world associations between gender and particular activities. For example, children and adolescents show more interest in careers that tend to be performed by members of their own gender (Weisgram, Bigler, & Liben, 2010).

Identity-based motivation theory suggests that students prefer identity-congruent rather than identity-incongruent actions (Elmore & Oyserman, 2012). Oyserman and colleagues argue that students are motivated to act and make sense of the world in terms of what feels compatible with identities that are important to them. This theory has three core components: (a) action-readiness, (b) dynamic construction, and (c) interpretation of difficulty. First, identities cue students' readiness to act and interpret the world in terms of what matters to those identities. Second, identity is dynamically constructed—the situation or context can determine which identities are most salient and most likely to affect behavior. Third, identity congruence or incongruence can change how students interpret difficulty. If academic success is congruent with identity, the student may see putting forth extra effort to overcome difficulty as meaningful. If academic success is incongruent with identity, the student may see the difficult domain as "not for people like me" (Oyserman & Destin, 2010). For success to be congruent with identity, the difficulties must be construed as showing the importance of academic success (rather than the impossibility of it). This has implications for how students from minority or low-income backgrounds often approach school success, because cultural stereotypes can imply that these identities are not congruent with school success. For example, students who were reminded of their racial-ethnic identities before a math task worked harder on the task only if they perceived doing well in school as congruent with their identity (Oyserman et al., 1995).

This theory also suggests that identity can be leveraged to improve students' motivation. In particular, outcomes may be better for students who have multiple important identities (Oyserman, Kemmelmeier, Fryberg, Brosh, & Hart-Johnson, 2003). Racial-ethnic minority students who identified as members of both their racial group and broader society performed better on a math test when reminded of their group membership (compared to students who identified only as members of their racial group), because academic success was seen as compatible with their broader in-group identity (Oyserman et al., 2003). Similarly, reminding female students of their identity as college students helped protect against the negative effects of stereotypes about females and math ability, because their gender identity became less salient (Rydell, McConnell, & Beilock, 2009; see also Gresky, Ten Eyck, Lord, & McIntyre, 2005).

### *Ability-Based Stereotypes*

Groups are often not merely associated with *activities* but associated with *ability* at those activities. For young children, generic statements about who is good at an activity or

domain (e.g., "boys are good at this game," which suggests a link between social group and ability) can have negative effects on motivation, regardless of whether the child's ingroup or outgroup is tied to the underlying ability (Cimpian, Mu, & Erickson, 2012). These types of ability statements may make children infer that ability is something that is fixed and unchangeable, leading them to devalue the importance of effort on that task (and even other tasks; Cimpian, 2013).

Beyond brief statements in a laboratory about who is good or bad at a novel task, cultures have pervasive stereotypes about which social groups are good or bad at academic domains (e.g., "girls are bad at math") that can influence students' choices and interests to align with culturally prescribed roles. When do children become aware of these stereotypes? Knowledge of math-gender stereotypes is already evident in first and second graders (Cvencek, Meltzoff, & Greenwald, 2011), and explicit endorsement of math-gender stereotypes (agreement with stereotypes above and beyond having knowledge about them) increases throughout elementary school (Muzzatti & Agnoli, 2007). An implicit stereotype is exhibited when a child responds more quickly to the pairing math = boy than to math = girl. Implicit endorsement of math-gender stereotypes predicts lower academic achievement in elementary- and middle-school girls (Steffens, Jelenec, & Noack, 2010).

Knowledge of societal stereotypes about racial groups can be seen by age six and increases through age ten (McKown & Weinstein, 2003; see also Murdock, 2009). Children as early as elementary school report some awareness of the stereotype that Asian students are good at math, but explicit endorsement is not seen until middle school (Cvencek, Nasir, O'Connor, Wischnia, & Meltzoff, 2015). Some evidence with a small sample suggests that children's performance can be affected by both positive stereotypes (e.g., Asian American girls perform better when their Asian identity is subtly highlighted) and negative stereotypes (e.g., Asian American girls perform worse when their female identity is highlighted), but these effects are inconsistent as a function of age (Ambady, Shih, Kim, & Pittinsky, 2001; see also Tomasetto, Alparone, & Cadinu, 2011). Cultural stereotypes can also affect some teachers' expectations about their students' performance—independent of students' actual ability—to create self-fulfilling prophecies, when teachers expect lower performance from members of academically stigmatized groups compared to members of unstigmatized groups (McKown & Weinstein, 2008). These expectations can change teachers' behavior (e.g., less autonomy and fewer challenging activities for students perceived to be low achievers), which can affect students' academic outcomes and (for older elementary-school students) academic self-perceptions (Kuklinski & Weinstein, 2001).

Positive stereotypes about the ingroup can increase adults' motivation and performance (Shih, Pittinsky, & Ambady, 1999). Performance can also increase when negative stereotypes about an outgroup are salient, even when the ingroup is not positively stereotyped in that context (Walton & Cohen, 2003). Interestingly, in certain circumstances positive stereotypes can have negative consequences for adults. Pressure to live up to a positive stereotype (e.g., that Asians excel at math) can negatively affect performance by reducing students' ability to concentrate when they are reminded of public expectations of the group's success (Cheryan & Bodenhausen, 2000). Overall, positive stereotypes may boost performance for adults when they are activated in subtle ways, such as through priming, and may harm performance when activated in more blatant ways, such as by explicitly telling participants that an exam was designed to test the stereotype that Asians are good at math (Cimpian, 2013; Shih, Ambady, Richeson, Fujita, & Gray, 2002).

### *Social Identity and Stereotype Threat*

Social identity threat is the concern about being viewed negatively due to group membership (Steele, Spencer, & Aronson, 2002). Stereotypes create uncertainty, as members of stereotyped groups question how other people are viewing them in contexts where the stereotypes are salient. Identity engagement theory proposes that, when students enter a new academic environment, they first look for cues as to whether their identity might be relevant in that situation (Cohen & Garcia, 2008). If it is, they become more vigilant to cues (e.g., teachers' nonverbal behavior) that confirm or disconfirm social identity threat. If the student is unable or unwilling to attempt to cope with this threat, this can lead to lower performance. The kinds of cues that members of negatively stereotyped groups are particularly sensitive to include the social identities of other people in the immediate environment such as teachers (Master, Cheryan, & Meltzoff, 2014), the social identities of other people in a *potential* environment (Murphy, Steele, & Gross, 2007), stereotypes about who belongs in particular domains (Cheryan, Master, & Meltzoff, 2015), the behavior of other people (Logel et al., 2009), the physical environment itself (Cheryan, Plaut, Davies, & Steele, 2009; Master, Cheryan, & Meltzoff, 2015), social media (Davies, Spencer, Quinn, & Gerhardstein, 2002), and linguistic cues such as masculine words or gender-exclusive language (Gaucher, Friesen, & Kay, 2011).

The most commonly studied type of social identity threat is stereotype threat. Stereotype threat is the concern about being seen through the lens of a negative stereotype about one's group (Shapiro, 2011; Steele, 1997). It can be considered an aversive cognitive imbalance between the self-concept, the academic domain, and the social group (Schmader, Johns, & Forbes, 2008). When the self is linked to a social group ("me = female") but the group is stereotyped as poor at the domain ("math ability = male"), it can create conflict between the self-concept and domain ("me ≠ math ability") that harms performance (Nosek, Banaji, & Greenwald, 2002; Schmader et al., 2008). Stereotype threat may be operative as early as elementary school (Cvencek, Meltzoff, et al., 2011).

Numerous studies have shown that, for members of groups that are negatively stereotyped in a domain, making group membership salient (e.g., checking a box for gender) leads to decreased performance (Steele & Aronson, 1995; for a meta-analysis, see Nguyen & Ryan, 2008, but see also Stoet & Geary, 2012). For example, having "solo" status (being the only member of a salient group in a setting) can have negative effects on performance. Women who take a math test as the only woman in a group of men perform more poorly than do women who take the test in a group of all women, and this effect may be due at least in part to the activation of negative stereotypes and lower expectations that they will succeed (Sekaquaptewa & Thompson, 2003). Stereotype threat effects have been found for elementary-school girls who draw a gendered picture (Tomasetto et al., 2011), elementary-school boys who were told that boys perform more poorly on a test (Hartley & Sutton, 2013), and high-school girls taking the AP Calculus test (Danaher & Crandall, 2008; see also Good, Aronson, & Inzlicht, 2003).

While most stereotype threat research has examined effects on performance, some research has looked specifically at motivation-related variables. For example, stereotype threat may lead to performance-avoidance goals, which involve a focus on avoiding poor performance (Ryan & Ryan, 2005; Taylor & Walton, 2011). This is in contrast to either mastery goals (which involve a focus on learning) or performance-approach goals (which involve a focus on performing well). Stereotype threat can also lead to loss of interest or avoidance of a domain (Master, Cheryan, et al., 2015; Murphy et al., 2007), internal attributions for failure (Koch, Müller, & Sieverding, 2008), mind-wandering during a

test (Mrazek et al., 2011), impaired learning and note-taking (Taylor & Walton, 2011; for a review, see Appel & Kronberger, 2012), and less motivation to improve (Fogliati & Bussey, 2013). Stereotypes can also affect teachers' attributions for students' poor performance, by causing teachers (and students) to attribute minority students' failure to low ability rather than low effort (Graham & Williams, 2009).

Stereotype threat can differentially affect individuals depending on specific aspects of their identity. People who identify more strongly with their negatively stereotyped group show stronger stereotype threat effects (Schmader, 2002; Wout, Danso, Jackson, & Spencer, 2008). This is especially true when negative stereotypes about the group (rather than negative stereotypes about the individual) are the target of threat (Shapiro, 2011). For example, women who are highly identified with their gender group show stronger stereotype threat effects when taking a test that would supposedly be used to assess their gender's ability at math.(Wout et al., 2008).

In addition, stereotype threat effects are stronger among those who are more strongly identified with that particular domain (Steele et al., 2002). For example, in one study, stereotype threat was activated in White male students by telling them that the study was investigating why Asians were superior to Whites in math (Aronson et al., 1999). Only males who were highly identified with math performed more poorly on a subsequent math test. However, stereotype threat can lead to disengagement or disidentification from the domain over time, when poor performance leads individuals to question their belonging in that domain. Disengagement is defined as a brief withdrawal of the connection between the self and the domain and represents the first step toward disidentification, which is defined as a complete dissociation of the self from the formerly valued social identity or domain (Steele et al., 2002; Woodcock, Hernandez, Estrada, & Schultz, 2012). When individuals disengage from a domain, their sense of self-worth becomes independent of whether they succeed in the domain (Major & Schmader, 1998), weakening the connection between performance and how they perceive themselves (Steele et al., 2002). Over time, chronic disengagement can lead to disidentification (Steele, 1997; Steele et al., 2002). For example, over time, experiences of stereotype threat may cause many Black and Latino students to disidentify from academic domains and become less interested in scientific careers (Major, Spencer, Schmader, Wolfe, & Crocker, 1998; Woodcock et al., 2012; but see also, Nussbaum & Steele, 2007, for how situational disengagement can promote persistence).

Interestingly, very young children's identification with a social group or academic domain is also influenced by prevailing cultural stereotypes. As early as elementary school, American girls identify less strongly with math than do boys (Cvencek, Meltzoff, et al., 2011). Members of stereotyped groups may also perceive poorer treatment (including racial discrimination) from teachers, leading to more negative teacher-student relationships, which in turn can lead students to disengage from school (Murdock, 2009; Wong, Eccles, & Sameroff, 2003). However, under certain conditions, negative stereotypes can sometimes lead to greater identification with the social group, with positive consequences for motivation. For example, racial identification and awareness of discrimination can act as a buffer to protect the motivation and achievement of Black students (Sanders, 1997; Wong et al., 2003).

### *Interventions to Reduce Social Identity Threat*

What can teachers do to help transform students' identity-based vulnerabilities into strength and determination? Many of the most successful interventions are designed

to be "wise" interventions, which involve a sensitive and precise understanding of students' identities and experiences (Walton, 2014). These interventions are designed using social-psychological theories to create practical real-world improvement for students' motivation and performance. Many of these interventions highlight the importance of providing "identity-safe" cues (Murphy & Taylor, 2012). Wise interventions involve two important components: (a) the message that students will not be judged negatively based on their social identity and (b) concrete strategies for taking advantage of learning opportunities. Below we describe four types of interventions that have succeeded in providing identity-safe cues: high standards plus assurance feedback, growth mindsets, belonging, and values affirmation.

### *High Standards Plus Assurance Feedback*

One challenge that many educators face is how to effectively give critical feedback to students. Indeed, rather than explicitly giving negative feedback, one effective method for protecting students' motivation is to pose questions that lead students to discover their own errors (Lepper & Woolverton, 2002); another effective method is to explain the source of errors and how to avoid them so that students can monitor their own responses (Brophy, 1999). However, giving critical feedback becomes particularly challenging when teachers are members of a majority group and students are members of a racial minority group. Educators must communicate critical feedback carefully so that students do not feel threatened or attribute the criticism to racial bias (Cohen, Steele, & Ross, 1999). Black students who receive negative feedback often attribute it to an evaluator's prejudice. This protects their self-esteem (Crocker, Voelkl, Testa, & Major, 1991), but these students miss out on the opportunity to accept that feedback and use it to learn and improve. In addition, many educators may deliberately withhold criticism from minority students if they fear appearing prejudiced (Croft & Schmader, 2012).

Previous research has found a way for teachers to overcome this dilemma and provide constructive criticism effectively. Along with the criticism, the teacher can also constructively communicate that he or she has high standards but believes the student can meet those high standards (Cohen et al., 1999). This type of message reassures students that the teacher is not prejudiced and can be trusted (Cohen & Steele, 2002) and motivates students to learn from the feedback. In one study, Black college students who were reassured that critical feedback was not caused by a professor's prejudice were more responsive than White students to feedback from that professor (Cohen et al., 1999). A field experiment with middle-school students found that Black students were more likely to revise an essay and improve its quality when their teacher's feedback communicated high standards plus assurance about meeting those standards (Yeager et al., 2014). Similar effects are also obtained for women in science, technology, engineering, and math (STEM) classes. Female science and engineering majors who were given high standards plus assurance feedback from a male science professor performed better on a revised science presentation compared to males and to females who were given other types of feedback (Cohen & Steele, 2002). This type of feedback alleviates students' concerns about identity threat and allows them to make the most of critical feedback.

### *Growth Mindsets*

Mindsets—students' perceptions about the nature of their abilities—also play an important role in motivation (Dweck & Master, 2009). Some students hold a *fixed*

*mindset*—the belief that abilities such as intelligence are fixed and unchangeable. In contrast, other students hold a *growth mindset*—the belief that abilities such as intelligence are malleable and can be changed through effort. The fixed mindset typically leads to negative motivational outcomes, such that these students prioritize looking smart over learning in school, and they often view effort as something negative that indicates lack of ability, attribute failure to low ability, and give up after encountering failure. The growth mindset typically leads to positive motivational outcomes, such that growth-mindset students prioritize learning as the most important goal in school, view effort as something positive that aids in improvement, attribute failure to low effort, and persevere after encountering failure. Interventions that teach a growth mindset to students lead to increases in achievement and teacher-reported motivation (Blackwell, Trzesniewski, & Dweck, 2007).

Group stereotypes may be particularly threatening to students who hold a fixed mindset (Dweck & Master, 2009). For a student who believes ability is fixed, poor performance carries the risk of confirming the stereotype, with no possibility of improvement. The stakes are higher, so stereotype threat may have strong and demotivating effects. In contrast, for a student who holds a growth mindset and believes that ability is something that can be improved through effort, the prospect of poor performance is not as threatening. Even if the student performs poorly now, there will always be more opportunities to learn, improve, and disprove the stereotype. Interventions that teach a growth mindset have been successful at reducing social identity threat (Aronson, Fried, & Good, 2002). In one study, Black college students were assigned to be a pen pal to younger students and teach them that intelligence is malleable (and grows "like a muscle" with effort and hard work). Compared to those who were assigned to teach their pen pals about multiple intelligences or those in a control group, the growth mindset group reported greater academic enjoyment, engagement, and earned higher GPAs. The growth mindset is particularly important for students who face negative stereotypes because it helps students realize that social identities will not prevent them from achieving success and that it is possible to overcome stereotypes (Good, Rattan, & Dweck, 2012).

### *Belonging*

Belonging is another important source of motivation that can be affected by identity. Social relatedness is argued to be one of three basic needs (along with competence and autonomy) that supports the development of intrinsic motivation (Ryan & Deci, 2000). Students who feel a strong sense of belonging and connectedness in school show improvement in academic motivation and achievement over time (Juvonen, 2007; Wentzel, 1998; for a review, see Osterman, 2000). However, many students from negatively stereotyped groups may have doubts about their belonging in academic settings. In particular, they may show extra vigilance for cues about whether they belong (Walton & Cohen, 2007, 2011). This is known as "belonging uncertainty," and minority students who are uncertain of whether they belong may base their current sense of belonging on their most recent experiences in that setting. On good days, they may feel that they belong, but minor incidents (such as being excluded from social events by other students) can threaten their sense of fit in that environment (Cohen & Garcia, 2008).

One effective intervention reduced belonging uncertainty by framing social adversity as normal, something experienced by all students that gets better with time (Walton &

Cohen, 2007). This changed minority students' interpretation of social adversity: such events could be interpreted as normal and temporary, instead of indicating that the student did not belong in that environment. Black students in the intervention condition were more interested in challenging courses and reported studying longer compared to students in a control condition. Over the next three years, they showed improved GPAs and had better health outcomes (Walton & Cohen, 2011). Thus, sense of belonging may be a key mechanism for increasing the motivation of students who commonly confront negative stereotypes (Master, Cheryan, et al., 2015).

### *Values Affirmation*

Students strive to maintain a positive image of their own worth and ability, and they often go to great defensive lengths to protect their positive self-image (Covington, 2009; Steele, 1988). One effective way to help students overcome threats to their social identity is through the use of values affirmation (which is one type of "self-affirmation," an activity that demonstrates the adequacy of the self; Cohen & Sherman, 2014). In this type of intervention, students write about a value that is important to them. This exercise helps to affirm their self-integrity, or the sense of being a globally worthy person, making the sense of threat less psychologically disruptive (Cohen & Sherman, 2014). In an intervention study, values affirmations reduced the achievement gap between Black and White middle-school students by 40%, and Black students who completed values affirmations had higher GPAs even two years later (Cohen, Garcia, Apfel, & Master, 2006; Cohen, Garcia, Purdie-Vaughns, Apfel, & Brzustoski, 2009). A values affirmation also reduced the GPA gap between men and women in a college physics course (Miyake et al., 2010). Values affirmation may be particularly effective when the self (rather than the group) is the target of threat, and the individual fears being personally seen through the lens of the negative stereotype (Shapiro, Williams, & Hambarchyan, 2013).

By affirming a valued aspect of the self, values affirmation makes the working self-concept broader in that particular context, making positive aspects of the self more accessible and reminding students of other important sources of self-worth (Walton, Paunesku, et al., 2012; see also Gresky et al., 2005). Once students are relieved of the burden of wondering whether they are "good enough," they can feel more comfortable admitting vulnerability (e.g., taking a harder class, asking questions when they do not understand, or emailing an intimidating professor).

Although some identities make students vulnerable to the threat of negative stereotypes, creating identity-safe learning environments can improve their motivation and performance. Students who are more motivated in school may incorporate academic interests and success into their identity, creating a virtuous cycle. When concerns about identity are removed, motivational pushes can strengthen students' academic motivation and set them on a more positive academic trajectory. These interventions mirror what successful educators already do: create an identity-safe environment where motivation can thrive (Cohen, Purdie-Vaughns, & Garcia, 2012). However, different interventions may be most effective in relieving different concerns (Master, Cheryan, et al., 2014; Shapiro et al., 2013; see also Cheryan et al., 2015). These interventions offer helpful ideas to educators about how to reduce their students' sense of threat, but it remains important to thoughtfully test these interventions on larger scales to understand when and for whom they are most effective (Yeager & Walton, 2011).

## FUTURE DIRECTIONS

In addition to scaling up social-identity-related interventions to gain a more complete understanding of how they work, other future directions remain for research on motivation and student identity.

### *Motivation and Identity in Children*

To advance both psychological theory and educational practice, we need a more detailed understanding of how identity affects motivation in children (particularly young children; e.g., Bryan et al., 2014; Master & Walton, 2013). Research has investigated how children develop an academic sense of identity (Heyman, Dweck, & Cain, 1992; Marsh, Ellis, & Craven, 2002) using explicit measures (Harter, 2012); more recently, the field has been advanced through the development of newer, implicit measures of identity using a child-friendly version of the IAT (Cvencek et al., 2011). Other research has examined the development of the salience of social categories, especially race and gender (Bennett & Sani, 2011; Ruble et al., 2004).

There remains a need for more comprehensive experimental research about how identity develops and transforms throughout childhood using both explicit and implicit measures (with the same participants) and examining developmental change through longitudinal designs (Cvencek et al., 2015; McConnell, 2011; Ruble et al., 2004). When and how are young children motivated or demotivated by their current sense of self or their desired sense of self? At what age do children develop a future self, and how does that affect their current behavior (Atance & Meltzoff, 2005)? How can social identities be leveraged in the classroom to increase motivation without creating barriers between different groups?

### *Longitudinal Research*

We need more longitudinal research demonstrating how identity and motivation influence each other over time (Cohen et al., 2009; Yeager et al., 2014). How can teachers break the cycle of disengagement and poor performance to foster students' academic identity and motivation? Once students are shifted into a more adaptive cycle of motivation and performance, what does it take to keep students on that positive trajectory? In addition, most experimental lab studies on motivation examine only short-term effects, while most research in school settings examines only correlational effects (Reinhart, Haring, Levin, Patall, & Robinson, 2013). Future research should aim to combine the best of both approaches, with more longitudinal field experiments in schools to establish causal relationships between identity-based interventions and improved academic achievement.

### *Implicit Identity*

Most of the research described here has focused on explicit conceptions of the self. However, implicit measures can offer additional insights about perceptions of the self and others that do not rely on conscious self-report. Important advances are likely to be made by further examining the relationship between implicit identity development and motivation (e.g., Cvencek, Greenwald, et al., 2011; Cvencek, Meltzoff, & Kapur, 2014). When does implicit identification with groups or domains align with explicit identification, and what are the consequences when they are not aligned? How does *changing*

implicit identification with academic domains affect students throughout development (e.g., Kawakami, Steele, Cifa, Phills, & Dovidio, 2008)?

### *Other Important Identities*

Although gender and race are two of the most salient social categories for many students, researchers should broaden their samples to explore effects of other types of identities, such as socioeconomic status or first-generation status, as well as the intersectionality between multiple identities (Riegle-Crumb, 2006). For example, recent research suggests that values affirmation can reduce the gap between first-generation college students and continuing-generation students in college science grades and course retention (Harackiewicz et al., 2014).

## CONCLUSION

The effects of a student's identity on motivation often depend on the context and how the student construes that context. Although a given academic setting can seem to provide an identical situation for all of the students within that setting, it can actually be experienced quite differently for students with different identities. A close examination of students' identities reveals the profound importance of factors other than intellectual ability on students' achievement in school. By connecting motivation to identity, we can widen our perspective on the psychological mechanisms underlying achievement and consider how motivation unfolds continuously over time, intertwined with identity. Motivation can thrive when students feel that their identities support their academic goals and that their identities are valued. When school = me, students can achieve their full potential.

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