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**Growth mindset messaging in stigma-relevant contexts:**

**Harnessing benefits without costs**

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### **Abstract**

Growth mindsets are increasingly used to promote learning, development, and health. The increased popularity resulted in scrutiny and disputes about utility. The current work reviews a perspective critical to the debate. Namely, we focus on emerging research that examines both the favorable and potentially adverse consequences of growth mindset messaging in stigma-relevant contexts. This double-edge sword model merges the mindset perspective with attribution theory and the psychological essentialism literature. In stigmatizing contexts and in isolation, growth mindsets can indirectly predict *less* positive outcomes, via personal responsibility for the problem, but *more* positive outcomes, via expectations for the potential to manage conditions in the future. Programmatic research illustrates how to tailor growth mindset messages and interventions, to avoid the potential costs of blame, yet keep the benefits of self-efficacy and weakened essentialism.

**Key Words:** mindsets; stigma; health; attributions; essentialist thinking

### **Tweet**

Beliefs about the changeable nature of attributes such as weight can be simultaneously adverse (increasing blame) and beneficial (increasing efficacy and reducing social essentialism).

Intervention messages can harness the benefits without the costs.

### **Highlights**

- Our double-edged sword model of growth mindsets highlights the complicated nature of beliefs regarding the changeable (vs. fixed) nature of stigmatized attributes.
- Messages about the changeable nature of attributes such as weight can be simultaneously deleterious (increasing blame) and beneficial (increasing self-efficacy and reducing social essentialism).

- Differentiating responsibility for a problem and expectations for potentially managing the problem is critical for mindset-related outcomes, including prejudice, internalized stigma, mental health, and physical health.
- Three studies illustrate how to tailor growth-mindset health interventions to avoid the potential costs of blame, yet keep the benefits of self-efficacy.
- Understanding the downstream implications of growth mindsets can help tailor interventions that avoid shame and blame and instead foster learning, development, and health.
- Leaders in public health can influence, often with low cost, how people think about the nature of stigmatized health attributes with implications for a wide range of health outcomes.

Increasingly, policymakers, practitioners, and scholars interested in student success are harnessing growth mindsets. Although the theory originated in educational contexts (Dweck & Leggett, 1988), it now appears widely, from predicting concessions in the Middle East conflict (Goldenberg, Endevelt, Ran, Dweck, Gross, & Halperin, 2017), to reducing depression in youth (e.g., Schleider, Burnette, Widman, Hoyt, & Prinstein, 2019). Public as well as scientific interest in the concept appears in business creations (e.g., Mindset Works), and in multiple recent meta-analytic reviews summarizing effects on self-regulation (Burnette, O'Boyle, VanEpps, Pollack, & Finkel, 2013), academic achievement (Costa & Faria, 2018; Sisk, Burgoyne, Sun, Butler, & Macnamara, 2018), and mental health (Burnette, Knouse, Vavra, O'Boyle, & Brooks, 2020). The increased scope of mindset theory led to scrutiny, with researchers questioning its impact (e.g., Sisk et al., 2018) and raising the potential for harm in fostering growth mindsets. Although some work shows promise of harnessing growth mindsets to improve academic outcomes, especially for at-risk students (e.g., Dweck & Yeager, 2019; Yeager et al., 2019), blindly and incorrectly promoting growth mindsets can backfire (e.g., Hilton, 2017; Moreau, Macnamara, & Hambrick, 2019).

Here, a new model outlines the psychological processes driving both the potential costs and benefits of growth-mindset messaging. Belief systems closely yoked to growth mindsets can bring unintended effects and render interventions ineffective, especially in stigmatized domains. In the context of obesity—one of the most stigmatized attributes (Puhl & Heuer, 2009)—mindsets have ramifications for a network of allied beliefs. On the one hand, overemphasizing growth mindsets may burden individuals with responsibilities, such as losing weight, that they may not be able to achieve. This could increase blame and prejudice. At the same time, these messages can promote a sense of agency over one's weight. These attributions about weight can

impact stigma and health. Growth mindsets also can reduce essentialism, the idea that groups of people have intrinsic natures, which should undermine prejudice. In short, growth mindsets may increase blame, thereby increasing prejudice and harming health, and simultaneously foster self-efficacy and reduce essentialism, thereby decreasing stigma and improving health—what we term the double-edged sword model. Each belief system in the psychological chain starts with mindset theory.

### **Theoretical Overview: Double-edged Sword Model of Mindsets**

**Mindset Theory.** Just as scientists develop theories to explain the phenomena they investigate, laypersons develop implicit theories about human attributes (e.g., intelligence), experiences (e.g., stress), and groups (e.g., people in poverty). These beliefs are *implicit* because the assumptions are usually not stated explicitly and *theories* because the cognitive frameworks include generalities about the nature of traits that characterize most people. There are two types of implicit theories or mindsets (e.g., Dweck, 2000, 2012; Molden & Dweck, 2006). A fixed mindset assumes human qualities cannot change; psychologically, they “are carved in stone” (Dweck, 2006, *p.* 6). A growth mindset, in contrast, assumes that human attributes are malleable and can change with experience, education, maturation, and one’s own actions. These mindsets fall along a continuum, are domain specific, and are distinct from intellectual ability, self-presentation concerns, or dispositional optimism (Dweck, Chiu, & Hong, 1995).

Originating within students’ responses to academic setbacks and focused on intelligence, this work highlights how mindsets establish goal setting and striving strategies (Dweck & Leggett, 1988). For example, individuals with growth mindsets set learning-focused goals and use more mastery-oriented learning strategies. In contrast, individuals with fixed mindsets set more performance-oriented goals and are less resilient to challenges, reporting a more helpless

pattern of responses (Burnette et al., 2013). Overall, growth mindsets form the core of a larger meaning system often resulting in psychological and behavioral processes that help individuals achieve their goals. Mindsets not only influence perceptions of one's own qualities and potential, but also the qualities and potential of other people. Growth mindsets about people predict more process-focused judgments (working hard), rather than trait-focused judgments (brilliant) (Chiu, Hong, & Dweck, 1997).

Considering the benefits of growth mindsets, researchers soon extended the theory to interventions seeking to improve outcomes. Although originally focused on promoting academic achievement, more recent interventions leverage growth mindsets to help individuals cope with social exclusion (e.g., Yeager et al., 2014) and address mental health symptoms (e.g., Schleider et al., 2019). Researchers extended the concept to include, for example, other attribute-related mindsets (e.g., entrepreneurship ability; Burnette et al., 2019), or experience-based mindsets (e.g., stress as enhancing or debilitating; Crum, Salovey, & Achor, 2013). Of most relevance here are mindsets in health domains, often involving potentially stigmatizing conditions. (e.g., health, anxiety, addiction, obesity; Burnette, Forsyth, Desmarais, & Hoyt, 2019; Hoyt, Burnette, & Auster-Gussman, 2014; Schroder et al., 2017; Thomas, Burnette, & Hoyt, 2019).

However, growth mindset messages in stigmatized contexts have costs in addition to the typical benefits. Specifically, believing an attribute is changeable, rather than fixed, indirectly predicts *less* positive outcomes by increasing blame attributions, but indirectly predicts *more* positive outcomes by increasing self-efficacy and reducing essentialist thinking (see Figure 1).

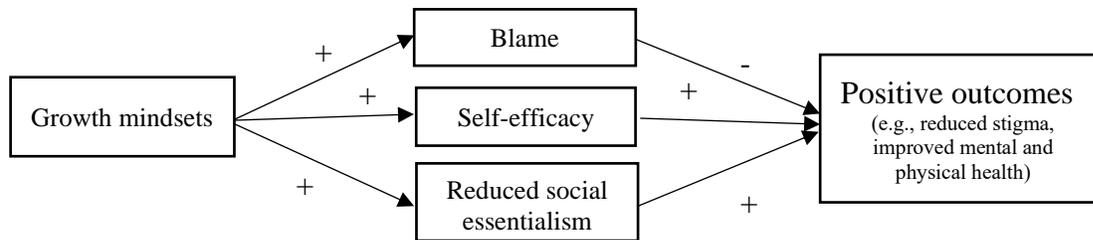


Figure 1. Theoretical representation of the double-edged sword model. Indirectly, growth mindsets serve to both diminish (via blame) and improve outcomes (via self-efficacy and reduced essentialism).

**Attribution Theory.** Attribution theory (Weiner, 1985) helped inspire mindset research, and contributes to a better understanding of the complicated relationship between mindsets and outcomes in stigmatized domains. Attribution theory differentiates between two related yet distinct attributions that people make when they search for greater meaning about their own or others' stigmatizing attributes: to what extent are individuals responsible for acquiring the stigmatizing condition (onset attributions of blame) and to what extent can they potentially change it in the future (offset attributions of self-efficacy; Brickman et al., 1982; Weiner, Perry, & Magnusson, 1988). This distinction is critical as it differentially links mindsets to outcomes in stigmatized domains.

*Blame.* First, growth mindsets can increase prejudice as well as diminish physical and mental health via their association with attributions of responsibility—namely, onset blame. According to attribution theory, the more people perceive others to be responsible for their stigma, the more prejudice they exhibit toward them (Weiner et al., 1988). Blame attributions for a stigmatizing condition predict anger, rather than pity, which in turn leads to a proclivity to punish rather than help (e.g., Weiner et al., 1988). This steadfast link between blame and intolerance is demonstrated widely across stigmatized domains ranging from weight to sexual orientation (Crandall & Reser, 2005; Haider-Markel & Joslyn, 2008). Blame has consequences not only for perceptions of others but also for self-judgments. For example, blame is associated with internalized stigma (Burnette, Hoyt, Dweck, & Auster-Gussman, 2017). Additionally, self-

blame for contracting a disease (e.g., cancer) is associated with negative emotions, feelings of inferiority, and difficulty adjusting. In contrast, decreasing self-blame improves self-esteem and optimism (Moulton, Sweet, Temoshok, & Mandel, 1987). Although taking responsibility can, at times, lead to more adaptive coping (e.g., Taylor, Lichtman, & Wood, 1984), overall, self-blame may be strongly tied to shame with negative implications. In the double-edged sword model, growth mindsets predict greater onset blame, with downstream implications for greater prejudice, reduced well-being, and unhealthy cognitions and behaviors.

*Self-efficacy.* Second, growth mindsets predict stronger offset self-efficacy attributions, which can reduce internalized stigma and can increase well-being. Believing in one's abilities to accomplish goals is critical for realizing that nothing is inherently wrong with one's core characteristics, and it creates a sense of agency. Additionally, self-efficacy (Bandura, 1986) is closely tied to hope (Snyder, Rand, & Sigmon, 2002) and optimism (Scheier & Carver, 1985), all cornerstones of well-being. A belief in one's own potential and aptitude is a fundamental human need and a key predictor of self-esteem, with implications for health. For example, self-efficacy is closely tied to feeling good about oneself, diminishing internalized stigma (e.g., Corrigan, Watson, & Barr, 2006). Hope and optimism are positively related to well-being across the lifespan (Peterson, 2000). Offset self-efficacy encapsulates hope and optimism that one has the agency, competency, and skills to reach a future goal. Research from other fields, predominantly psychopathology, shows that believing in the potential to offset the stigmatized attribute is associated with less prognosis pessimism (Lebowitz & Ahn, 2015). Believing the attribute can change creates a solvable problem, rather than an everlasting deficiency. In the double-edged sword model, growth mindsets predict greater offset self-efficacy, improving well-being and health.

**Social Essentialism.** Third, growth mindsets have implications for essentialist thinking about social groups and, in turn, prejudice. Offset self-efficacy beliefs are directly linked to social essentialism (Ryazanov & Christenfeld, 2018). Whereas offset self-efficacy is a belief about the potential for the self to enact the needed behaviors to reach future goals, social essentialism is a way of thinking about social groups. More specifically, social essentialism is a belief that categories of people that differ on socially relevant attributes, such as race or gender, have underlying, inherent, essences and clearly defined boundaries that make members similar to each other and different from other groups. The power of essentialist thinking to offer meaning frameworks was inferred by Dweck and colleagues when they first explored the role of mindsets in social perception. Their initial studies focused on the broadest of social essentialist beliefs: person mindsets, or lay theories regarding the nature of people (Chiu et al., 1997). A key distinction between those with growth versus fixed person mindsets is adopting a process focus versus a trait focus when making social judgments (Molden & Dweck, 2006). Those with fixed person mindsets are more likely to infer traits from behavior and to endorse and use stereotypes (Hoyt & Burnette, 2013; Plaks, Stroessner, Dweck, & Sherman, 2001). The more bounded people view the social category and the more they view the attribute as a stable, intrinsic aspect of the person, the more stigma they express (Haslam & Kvaale, 2015; Hegarty, 2010). In the double-edged sword model, growth mindsets predict less social essentialist thinking, with implications for reducing stigma.

### **Double Edge Sword Model: Empirical Support**

This theoretical foundation has empirical support across mindset domains, stigmatized contexts, methodological approaches, and outcomes.

**Mindsets of weight.** We originally examined the double-edged sword effect of mindsets in the context of weight. The initial research examined how the American Medical Association's declaration of obesity as a disease might impact prejudice against those with overweight or obesity (Hoyt, Burnette, Auster-Gussman, Blodorn, & Major, 2017). Specifically, across three experimental studies, messages about the changeable nature of weight, relative to the message that obesity is a disease, both (a) fostered blaming those with obesity, and in turn increased prejudice, and simultaneously (b) weakened the belief that those with obesity have a devalued and unchanging essence, and through this mechanism decreased prejudice. Then, follow-up research replicated these double-edged sword effects on prejudice and extended the findings to include internalized stigma (i.e., body-shame). Shifting the outcome to self-evaluations also shifted the focus from essentialist thinking to offset self-efficacy beliefs. A correlational study associated growth mindsets with both greater body shame through onset blame and less body shame through offset self-efficacy (Burnette et al., 2017). Additional studies showed weight-related indirect effects of efficacy on other outcomes including improving mental and physical health (Hoyt, Burnette, Thomas, & Orvidas, 2019).

**Mindsets of social class.** The double-edged sword model also applies to social class with a focus on those in poverty. Meritocracy beliefs incorporate the fundamental principle that social class is changeable, which can increase prejudice against those in poverty (Hoyt, Burnette, Forsyth, Parry, & DeShields, 2020). Meritocracy simultaneously indirectly predicted (a) greater prejudice through blaming those in poverty for their economic situation and (b) lower prejudice through believing in individual social mobility and opportunity, and thus a capacity to change one's status in the future. In addition, the meritocracy belief system is associated with perceiving those in poverty as a naturalized social category, which also predicted greater prejudice. Related

studies demonstrated that believing in social class mobility, or growth mindsets of social class, has double-edged sword effects on prejudice against those in poverty. Stronger growth beliefs predicted more prejudice through greater blame but less prejudice through reduced class-based essentialism (Hoyt, Burnette, Babij, & Thomas, 2020). Thus, consistent with the double-edged sword, both the larger meritocracy belief system and the narrower belief in social-class malleability affect prejudice against those in poverty.

**Compensatory growth mindset messaging: Harnessing benefits without costs.** The double-edged sword model suggests that growth mindset-related messaging should be delivered in a way that maximizes the benefits of self-efficacy and reduces essentialist thinking but also minimizes blame. This model inspired such a public health message, termed a compensatory growth mindset message. Our compensatory growth messaging explicitly articulated that people are not to blame, yet have the potential to reach their goals. Across studies and contexts, initial promising evidence supports the potential of this messaging to eliminate the harm but keep the advantages of growth mindsets in stigmatized domains.

*Compensatory weight messaging.* First, a compensatory growth message eliminated the costs of stigma and blame but kept the benefits of offset self-efficacy in the context of weight (Burnette et al., 2017). This message emphasized not blaming oneself or others for the onset of their current weight, coupled with the idea that effort combined with the right strategies can aid weight-loss goals. Relative to an obesity-is-a-disease message, the compensatory-growth message eliminated the indirect stigma-increasing effects of onset blame but kept the stigma-decreasing benefits of offset self-efficacy. A compensatory message demonstrably can manipulate mindsets about the malleability of weight, without the harmful effect of blame on both body shame and anti-fat prejudice. Next, the scope of the investigation expanded to include

physical and mental health as outcomes (Hoyt et al., 2019). Furthermore, enhanced ecological validity focused on public health messages about weight often seen in the media. Capitalizing on popular messaging, this research tested whether compensatory messaging could have the benefits without the costs, compared to an increasingly common message that highlights why diets are futile. In support of hypotheses, a compensatory growth message, relative to a diets-don't-work message, indirectly decreased eating disorder risk, unhealthy weight control behaviors, and prejudice through increased offset self-efficacy, as well as decreased social essentialism—all without increasing blame. Once again, the compensatory growth mindset message can eliminate blame but maintain efficacy, including the downstream benefits of the increased efficacy.

*Compensatory addiction messaging.* The beneficial effects replicate in another health domain: addiction (Burnette et al., 2019). Given that growth mindsets can encourage adaptive self-regulatory strategies, such as substance users pursuing treatment for depression (Salem, Winer, Jordan, & Dorr, 2019), we explored effects on self-regulatory outcomes—namely, treatment intentions. In this experimental study, participants who screened positive for probable substance use viewed one of two messages: either a fixed message describing the underlying brain mechanisms associated with the disease of addiction, or a compensatory-growth message acknowledging the many reasons for becoming addicted and the potential to offset the addiction in the future. The compensatory, relative to the disease, message promoted growth mindsets and greater offset self-efficacy, all without increasing blame. The compensatory message fostered intentions to engage in effective therapies, specifically counseling and cognitive behavioral therapy. These findings underscore the theoretical underpinnings of the double-edged sword model. Differentiating between responsibility for a problem and expectations regarding the

potential to manage future health conditions is critical for understanding outcomes related to mindsets in stigmatized contexts.

### **Theoretical Applications**

The contradictory implications of believing in attributes' changeability can apply in domains other than weight, addiction, and social class that are associated with stigmatized social groups. For example, beliefs about sexual orientation vary along the dimensions of growth mindsets and social essentialism—termed immutability and fundamentality (Haslam & Levy, 2006). These beliefs have contradictory implications for prejudice that parallel blame and essentialism in our model. Similarly, in mental health, the mixed-blessings model is consistent with our double-edged sword model (Haslam & Kvaale, 2015). Biogenetic explanations of mental illness, relative to malleable beliefs, suggest that individuals are not to blame for their illness. But, biogenetic explanations also encourage essentialist thinking, which exacerbates stigma against those with mental illness and can also induce pessimism and helplessness. Thus, the double-edge sword model has theoretical parallels with and shows the potentially opposing effects of changeability beliefs about sexual orientation and mental illness.

### **Public Policy Implications**

The double-edged-sword theoretical model provides a foundation for developing interventions, crafting communications, and ultimately fostering belief systems that maintain the self-regulatory and health benefits of growth mindsets without the blame-inducing costs. Public health messaging and other interventions seeking to foster growth mindsets should consider adding compensatory components that highlight the complexity of the *onset* of conditions such as being overweight or struggling with mental health but also remind people of their own potential to *offset* the problem and find a solution in the future.

**Applications for mindset interventions.** Our compensatory message discusses external influences on health but also reminds people that health conditions do not indicate a core, unchanging essence—there are ways to improve health in the future. This type of messaging is critical for growth-mindset interventions and for teachers, parents, and leaders communicating about many attributes and social groups. For example, growth mindset interventions designed to foster more beneficial belief systems about addiction might describe the varied reasons people become addicted, with an emphasis on not blaming those who become addicted, while simultaneously emphasizing that one has the capabilities to reach their goals in the future. Attention should be paid to the potential for certain growth messages to foster unrealistic expectations and false hope (Polivy & Herman, 2002). A fine line separates empowerment stemming from increased efficacy and control versus frustration resulting from multiple failed attempts to improve.

**Applications for interventions to reduce prejudice.** Stigmatization and prejudice, in domains ranging from weight, to sexual orientation, to mental health, is damaging to mental and physical health (Dovidio, Penner, Calabrese, & Pearl, 2018; Link, Phelan, & Sullivan, 2018). The double-edged sword model offers insight for interventions aimed at curbing prejudice and discrimination against members of devalued social groups. Given the robust link between blame and prejudice, many bias interventions have sought to decrease controllability beliefs in order to reduce this blame, and in turn, stigma. Messages designed to eliminate blame by highlighting the lack of control people have over their stigmatizing condition can also unwittingly diminish self-efficacy and increase social essentialism—with implications for increased stigma—resulting in a net null effect on bias. The double-edged sword model can help explain why many such interventions have had little or no effect on prejudice, discrimination, or stigmatization in

domains such as weight (Daníelsdóttir, O'Brien, & Ciao, 2010) and mental health (Schomerus et al., 2012). Our model and empirical findings for compensatory growth messaging provide a path forward for improving the potential impact of these interventions.

**Applications for public health communications.** The conclusion from the double-edged sword approach is *not* that we should stop fostering growth mindsets of health. Rather, distinct processes promote positive and negative outcomes, especially in stigmatized contexts. This establishes a way forward for crafting nuanced public health messaging related to the changeable (not fixed) nature of health conditions. The double-edged sword model can aid policymakers developing messages with implications for how people think about the malleability or fixedness of health attributes. For example, when the American Medical Association, a leader in public-health policy, declared obesity a disease, supporters of this contentious decision hoped that this would help reduce obesity stigma by reducing blame. In our work, the message did decrease blame, but it also had the unintended consequence of increased essentializing. Thus, considering these countervailing effects, contrary to some medical leaders' expectations, disease messaging failed to change prejudice. In addition to no net change in prejudice, disease messaging can undermine motivation (Hoyt et al., 2014) by decreasing efficacy and the value individuals place on their health—both cornerstones of persistence and goal achievement.

What message then should leaders be sending? We are not advocating for specific messages, as our model omits many goals and outcomes. For example, public health experts have many reasons to conceptualize biomedical conditions (such as obesity) as diseases, from more accurately representing the opinion of the medical community to commanding more funding for research, treatment, and prevention. And the disease label has blame-reducing benefits. However, as our work outlines, disease messaging may also lead to unintended

consequences. The current paper outlines initial evidence of the potential for compensatory messages to eliminate these deleterious effects. Although our empirical work focused on compensatory growth mindset messages, disease messaging might add language designed to foster efficacy and reduce essentialism. Additional theoretical and empirical work on the double-edged sword model can continue to help inform evidence-based decisions.

**Policy insights.** The recommendations from our double-edged sword research are relevant for public health practitioners, community leaders, advocacy groups, and local, state, and national policy makers whose work has implications for how people think about the nature of stigmatized health attributes and conditions. These stakeholders can promote growth mindsets that reduce stigma but at the same time foster motivation to improve health. These policy changes should be accompanied with mechanisms for monitoring and evaluating effectiveness. For example, an issue to consider before implementing these ideas widely is the potential for excessive persistence to lead to false hope. It is possible that too strong of a growth mindset can lead individuals to engage in unhealthy over-regulated behaviors. Knowing when to abandon goals can be just as important as understanding when to persevere.

Initial evidence for compensatory messaging is promising and the implications for intervention development span a variety of health conditions including obesity, addiction, and mental health. The minimal contact procedures and short duration make it easy and inexpensive to deliver these health communications. Furthermore, small changes in how people think about health attributes and conditions may be all that is needed. And, even small effects on health and stigma are meaningful and worth the investment. The double-edged sword model offers a clear path forward for public health policy and programs in stigmatized contexts that are focused on promoting health without the costs of stigma.



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