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Harnessing growth mindsets to help individuals flourish

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Abstract

Psychologists are uniquely positioned to help with our collective obligation to advance scientific knowledge in ways that help individuals to flourish. Growth mindsets may offer one such tool for improving lives, yet some research questions the potential to replicate key findings. The aims in the current work are to help explain mixed results and outline ways to improve intervention impact. To reach these goals, we first offer a brief overview of the links between growth mindsets and psychological flourishing. Second, we outline key theories of causal mechanisms and summarize sources of meaningful heterogeneity in growth mindset interventions, with a focus on those designed to improve mental health. Third, we provide cautionary notes that highlight nuances of growth mindset messaging in contexts with stigmatized social identities. Fourth, to conclude, we suggest areas for future research aimed at understanding how to most powerfully harness growth mindsets to help individuals reach optimal psychological functioning.

1 | INTRODUCTION

"We respond not to reality as it is but to reality as we construe it."—David Myers

People's core beliefs create the lens through which they construe reality. As philosophers and sages long realized, people do not passively absorb the world around them. Rather, they are mentally prepared to engage in a complex world, interpreting life experiences within a framework of pre-existing expectations, goals, identities, and more. Like scientists who advance theories to explain the phenomena they explore, lay people also develop implicit notions or beliefs about the meaning of life experiences. (Burnette et al., 2013). A rich literature calls attention to an especially consequential set of core beliefs, known as mindsets, which are implicit theories about

the fixed versus malleable nature of attributes, traits, people, groups, emotions, and experiences (Dweck, 2016; Dweck & Leggett, 1988; Molden & Dweck, 2006). An individual with a stronger fixed mindset believes human qualities remain stable over time; psychologically, these qualities "are carved in stone" (Dweck, 2016, p. 6). An individual with a stronger growth mindset believes that human qualities such as intelligence, personality, and morality are malleable. To illustrate this idea more fully, a person who adopts a stronger growth, relative to a fixed mindset, of the nature of people would agree that "you can always change basic things about the kind of person you are" (Dweck, 2016, p. 13).

These opposing ways of viewing human potential are relevant to multiple disciplines and social issues. Although initial research focused on beliefs about the extent to which personal abilities, such as intelligence, are changeable or innate (Dweck, 2016), the scope of mindset research broadened to include traits such as morality (Chiu et al., 1997) and health (Conner et al., 2019; Crum & Zuckerman, 2017; John-Henderson et al., 2020; Thomas et al., 2019), experiences such as stress (Crum et al., 2013) and negative emotions (Babij et al., 2020), as well as personality (Plaks et al., 2009) and intergroup relations (Rattan & Georgeac, 2017)—to name a few extensions (also see Zedelius et al., 2017 for a review).

As mindset research expanded in scope and popularity, so did an interest in developing growth mindset interventions to address a host of social issues ranging from reducing achievement gaps to improving mental health to confronting bias (e.g., Dweck & Yeager, 2019; Murphy et al., 2011; Rattan, 2019). Growth mindset interventions seek to foster stronger beliefs in the malleable nature of attributes. For example, in initial work designed to improve academic performance, these interventions stress the malleable nature of intelligence. To encourage the growth mindset, writings as well as videos that incorporate memorable metaphors and neuroscientific evidence supporting the plasticity of intelligence are often incorporated into online modules (e.g., Mui & Yeager, 2015; Schleider & Weisz, 2018). To further help participants endorse the growth mindset, attitude change tactics are used, such as the saying-is-believing approach (e.g., Aronson et al., 2002). This strategy asks treated participants to reflect upon and internalize the malleability message, typically by having them write a pen-pal letter to a struggling student that stresses the potential to learn and develop despite challenges.

These growth mindset interventions, although originally and most often used to enhance academic performance, are also leveraged to reduce psychological distress and improve social functioning (e.g., Yeager & Dweck 2012). With the broadening applications and potential to address a multitude of social issues, scientists and policy makers alike are asking: Are these interventions impactful? A number of studies suggest that growth mindset interventions can close achievement gaps, when implemented with targeted populations and in environments that provide the soil for the growth mindset seed to germinate (Dweck & Yeager, 2019). However, some researchers question the capacity of growth mindset interventions to impact academic achievement (e.g., Sisk et al., 2018). Early work in the context of psychological wellbeing offers more robust support. For example, two cumulative reports provide evidence for meaningful links between growth mindsets and reduced psychological distress (Burnette et al., 2020; Schleider et al., 2015). Yet, other research only found effects for the link between growth mindsets and reduced rates of depression when implemented with eight grade students, but effects failed to replicate in ninth grade students (Calvete et al., 2019).

In the current work, to help explain these mixed results and to strengthen intervention effectiveness, our goals are fourfold. First, we offer a general overview of research linking growth mindsets to psychological flourishing, including engagement, goal achievement, and wellbeing. This brief overview of broader outcomes related to flourishing offers necessary historical and theoretical context. Second, our primary goal is to review growth mindset interventions designed to reduce psychological distress, with a focus on key mediators as well as sources of meaningful heterogeneity. Third, we outline the potential downsides of growth mindset messaging in stigmatized contexts such as mental health. Fourth, we conclude by integrating these synopses to provide a platform for future research.

2 | MINDSETS AND FLOURISHING: A GENERAL OVERVIEW

Growth mindset research developed with the goal of understanding why some individuals flourish, whereas others languish. Although flourishing encompasses many aspects of daily life such as healthy relationships and career attainment (Seligman, 2011), growth mindset research has typically focused on three aspects of psychological flourishing: persisting despite obstacles, obtaining personal success, and feeling good about the self. For example, early mindset research sought to understand why some students persevere, whereas others disengage when intellectual challenges arise, as well as how these motivational differences relate to performance. A cumulative analysis of 20 years of mindset research found that mindsets predict motivation and self-regulatory strategies, especially in the face of threats to one's positive sense of self—also called ego-threats (e.g., Burnette et al., 2013). For example, individuals with growth mindsets tend to use adaptive learning strategies and have more positive expectations about future outcomes after facing setbacks. In contrast, individuals with fixed mindsets are more likely to report negative emotions, to be cynical when evaluating the potential for future success, and thus to disengage from the task (e.g., Yeager et al., 2019). Overall, individuals with growth, relative to fixed, mindsets remain affectively, cognitively, and behaviorally engaged in their goal pursuits, despite obstacles, with such strategies contributing to goal achievement (Burnette et al., 2013).

In addition to goal engagement and success, positive affect and mental health are also components of psychological flourishing. Growth mindsets contribute to such thriving, in part, by serving as a buffer in the face of psychological distress, anxiety, depression, and languishing. For example, growth mindsets of people can help individuals cope with stressful life events (Seo et al., 2021) and promote more adaptive emotion regulation strategies (e.g., Tamir et al., 2007). Moreover, there is a direct, and fairly robust, link between believing that anxiety is manageable (i.e., holding a growth mindset of anxiety) and greater wellbeing (e.g., Schroder et al., 2015, 2017, 2019). A recent cumulative analysis summarizing this emergent body of literature reports meaningful effects for links between growth mindsets and treatment-seeking motivation, active coping behaviors, and reduced psychological distress (Burnette et al., 2020).

In light of the correlational evidence suggesting growth mindsets are related to flourishing, research seeks to foster stronger growth mindsets. The goal is to deliver effective, efficient and scalable growth mindset interventions that produce sizable and sustained effects on outcomes. For example, a short online growth mindset of intelligence intervention among lower-achieving students in the United States found strong evidence of treatment effects on academic performance (Yeager et al., 2019). In a rigorous randomized controlled trial, with a sample of nearly 600 participants, a growth mindset of personality intervention, relative to a control, reduced depressive symptoms, with results holding at 9 months post-intervention (Miu & Yeager, 2015). This work has been replicated using a single session intervention that also taught a growth mindset of personality. Relative to the control group, youth receiving the growth mindset intervention exhibited fewer anxiety and depressive symptoms (e.g., Schleider & Weisz, 2018).

In contrast to these studies reporting effects on primary flourishing-related outcomes, another large-scale intervention with high statistical power, appropriate analyses, and low attrition rates, failed to find significant effects for school performance, reporting an effect size of roughly zero for all academic-related outcomes (Foliano et al., 2019). Furthermore, a meta-analysis of growth mindset intervention effects on academic performance also reported small average effects (Sisk et al., 2018). Yet, this meta-analysis reported significant heterogeneity, with much larger effects for at-risk students and those from low socioeconomic backgrounds. In contrast to mixed results for academic-related outcomes, cumulative analyses linking growth mindsets to reduced psychological distress and wellbeing (e.g., Burnette et al., 2020; also see Hoyt et al., in press) seem larger than effects reported in meta-analyses linking growth mindsets to academic performance. Furthermore, most of the published research on growth mindset interventions designed to improve mental health provides initial supporting evidence, but this line of inquiry is rather nascent.

3 | GROWTH MINDSET INTERVENTIONS AND MENTAL HEALTH

In the current work, we seek to magnify the discussion on harnessing growth mindsets to improve mental health. To start, we outline key mechanisms, which can contribute to more impactful implementation. Additionally, building on the heterogeneity revolution, we note that treatment effects are often heterogeneous, with a focus on trying to summarize key sources of this variability to enhance intervention effectiveness (Bryan et al., 2021). We also offer cautionary notes related to sending growth mindset messages in mental health. We conclude with critical areas where more empirical evidence is needed to move the field towards improved replication and impact.

3.1 | Mechanisms

Although there are myriad hypothesized pathways by which mindsets impact mental health, building on the hopelessness theory of depression, we outline two primary cognitive processes. Namely, attributing the etiology of depression to negative characteristics about the self and making pessimistic appraisals regarding the consequences of stressful life events are both considered fundamental for understanding what leads individuals to feel a sense of despair (Abramson et al., 1989).

First, a key cognitive process is the causal explanations, or *attributions*, that people make in the face of negative life events. Whereas understanding the uncontrollability of certain factors and experiences can help individuals to cope more effectively, blaming one's personal flaws as the reason for negative life events leads to more negative emotions, including depression. When negative emotions and experiences are attributed to an innate internal deficiency (i.e., I am an anxious person) rather than to situational contexts and demands (i.e., this is a stressful event), then one's mental health suffers (Cheng & Furnham, 2001). Importantly, mindsets shape beliefs about personal responsibility and controllability, especially in the wake of struggles (Tullett & Plaks, 2016). For example, individuals with stronger growth mindsets about the nature of people tend to attribute depression and anxiety not to their own nature but to situational factors (Seo et al., 2021). Overall, reducing blame-ridden attributions along with signaling an opportunity for future development and success can help to improve health (Hoyt et al., 2019).

Second, a related but distinct cognitive process focuses on the inferred consequences, rather than the initial causes, of the negative life events. These inferred consequences, or *threat appraisals*, consider how debilitating and anxiety-provoking such events are for the self. Threat appraisals that positively evaluate one's capacity to handle the stressor predict less depression (Seo et al., 2021). Similarly, the belief that the consequence of experiencing stress is enhancing, rather than debilitating, buffers against the psychological consequences of stressful life events (Crum et al., 2017; Jamieson et al., 2018). Critically, growth mindsets help to foster cognitive appraisals that are oriented towards evaluating negative life events as less anxiety producing, and rather as opportunities for development. These types of appraisals can be capitalized on to help reduce psychological distress. For example, a synergistic mindset intervention that combined growth mindsets of people with teaching about the potential enhancing benefits of stress improved responses to social threats, an outcome with important implications for adolescents' mental health (Yeager et al., 2021).

In summary, outlining cognitive mechanisms by which growth mindsets may help individuals to flourish can build a more robust evidence base for the theoretical underpinnings of the link between growth mindsets and flourishing and provide a springboard for future inquiry (Miller et al., 2017). The processes outlined here are in line with a long line of theorizing related to the power of beliefs in shaping outcomes. For example, maladaptive beliefs are risk factors for depression, whereas adaptive beliefs can serve as a buffer (e.g., Lakdawalla et al., 2007). Thus, perhaps not surprisingly, wise interventions, including those seeking to foster stronger growth mindsets, are predicated on the idea that helping people move away from pejorative inferences that compound challenges can help individuals to flourish (Walton & Wilson, 2018). Although we discuss these processes with the idea that mindsets come earlier in the psychological chain, we also recognize that the paths are likely not linear. Rather, links are reciprocal as growth

mindset interventions are postulated to boost outcomes via recursive psychological and behavioral processes (Yeager & Walton, 2011).

3.2 | Moderators

In addition to understanding causal mechanisms linking growth mindsets to mental health, a clear outline of potential constraints contributes to a better understanding of ways to optimize interventions. Building upon emerging work on the person and context-dependent nature of growth mindset interventions, we identify three critical moderators that should be discussed and tested in future intervention research. First, we emphasize targeting, defined as implementing the interventions with populations and individuals *who* are expected to benefit most. Second, we suggest that the context, or *where* the intervention is implemented, matters. Specifically, psychological affordances, including growth-oriented social norms, provide a rich soil that is necessary for the growth mindset seed to germinate (Walton & Yeager, 2020). Third, we outline the importance of implementation fidelity, or *how* to best deliver these interventions. Delineating the who, where, and how allows for maximization of resources and will help researchers replicate central findings and address potential discrepancies.

First, the effects of mindset interventions are stronger when the intervention is targeted towards populations expected to benefit most. In the domain of academics, targeting includes seeking to improve grades for students at-risk of failing and for students from disadvantaged backgrounds. At-risk and low socioeconomic status are key moderators in the cumulative analysis of growth mindset intervention effects on grades, with almost four times the effect, relative to the average (Sisk et al., 2018). When the goal is to enhance mental health, targeted mindset interventions would seek to help those who are experiencing stress, trauma, or poor mental health. However, empirical evidence is still needed that clearly describes who benefits most from growth mindset interventions when the goal is to reduce psychological distress and promote wellbeing.

In addition to being more effective with some individuals, relative to others, mindset interventions are also more impactful in certain contexts. A mindset intervention has the best chance of producing lasting change in an environment that provides "the way of thinking offered by the intervention" (Walton & Yeager, 2020, p. 219). The contextual features that render the growth mindset perspective adaptive, by supporting the belief and enabling behaviors in line with the belief, are termed psychological affordances (Hecht et al., 2021). Social norms and local cultures can also serve as powerful affordances. For example, academic growth mindset interventions are most effective in contexts with peer norms that support challenge-seeking behaviors (Yeager et al., 2019). Additionally, when organizational cultures are viewed as more growth oriented, employees report greater commitment (Canning et al., 2020). In considering growth mindsets in mental health, norms and cultures that prioritize personal wellbeing and signal that they value seeking treatment would provide a strong foundation for individuals to develop growth mindsets. Overall, considerable work is needed that elaborates on the affordances that are most relevant when leveraging growth mindsets to improve mental health.

Finally, the effectiveness of growth mindset interventions depends critically upon implementation fidelity, defined as the extent to which the intervention is delivered as intended to yield the desired end result (Dumas et al., 2001; Dusenbury et al., 2003). Despite the importance of implementation fidelity for properly assessing the efficacy of mindset interventions, researchers currently lack a standard protocol with empirically supported guidelines for properly executing growth mindset interventions. Not surprisingly, then, mindset interventions exhibit great variation in their implementation practices. Basic competence in delivering the message that traits, people, or experiences are malleable is of course a critical implementation strategy, yet there are many potentially relevant sources of variation in strategies. These potential moderators include the following: the use of credible sources, incorporating scientific and (perhaps especially) neuroscientific evidence; inclusion of content that is personally relevant to targeted recipients; incorporation of role models and social norms; and the presence of memorable metaphors and activities designed to enhance retention and recall. Historically, a core component of delivery competence for mindset

interventions has been including an attitude change tactic (e.g., Aronson et al., 2002), and even this component is not uniformly included in all growth mindset interventions.

Additional dimensions of variation in implementation practices include dosage (e.g., the number of treatment sessions, duration of treatment); the primary delivery medium (e.g., online vs. in-person instruction); and the degree of control that researchers have over delivered content (e.g., direct delivery of the message themselves vs. training teachers or other intermediaries to deliver the message). These are just some examples of implementation strategies that likely serve as critical moderators of intervention effectiveness. Yet, mindset practitioners lack evidence-backed guidelines for executing interventions optimally and more importantly do not yet have an overall assessment of implementation fidelity. Only in light of such assessments can researchers draw proper conclusions regarding intervention effectiveness and these practices likely differ depending on the end goal—is it to promote engagement, academic success, or mental health? Overall, more research is needed regarding implementation fidelity, especially as more work seeks to leverage these interventions with the goal to improve mental health. Building on the heterogeneity revolution (Hecht et al., 2021), this work will need a better understanding of the individual, contextual, and implementation differences in growth mindset interventions. Articulating these constraints on generality is critical not only for replications but also for amplifying the potential to harness growth mindsets to help individuals flourish (Simons et al., 2017).

4 | CAUTIONARY NOTES

Thus far, we have outlined the why, who, where, and how of growth mindset interventions in the context of mental health and called for more research. In this appeal for additional inquiry, we now note the potential limitations of growth mindsets. We discuss the importance of avoiding an individual deficit-based approach, and we underscore the need to be context conscious—recognizing what is required for the growth mindset to take root. Namely, when fostering growth mindsets to enhance mental health, we offer three cautionary notes related to the content and context of messages.

First, to avoid the potential double-edge sword effects of growth mindsets in stigmatized contexts (see Hoyt & Burnette, 2020 for a review) and to prevent a misunderstanding of growth mindsets, messages need to be delivered in a way that incorporates the resources required for improvement. The message cannot be about effort alone, as such messaging can increase blame and contribute to pessimistic evaluations about the potential to improve. This type of messaging leads to false mindsets, or believing that hard work alone will lead to success (Dweck & Yeager, 2019; Goegan et al., 2021), and can undermine progress. Instead, *compensatory* growth messages help to keep the benefits of growth mindsets without the potential costs. These messages explicitly target both of the cognitive mechanisms outlined in the current work by articulating that people are not to blame, yet they have the capacity to handle stressors. Research in the domains of weight and addiction have demonstrated that compensatory growth mindset messaging can be effective. For example, compensatory messaging decreased eating disorder risk and unhealthy weight control behaviors (Hoyt et al., 2019) and improved intentions to engage in effective addiction therapies (Burnette et al., 2019). Similar work shows how coupling a growth mindset message with an understanding of situational constraints, rather than tethering it to the belief that failure is a result of languidness, can elicit empathy and support (Tullett & Plaks, 2016). In mental health, compensatory messaging could work to curtail blame by incorporating information about the social determinants of mental health while also fostering confidence in one's potential to improve how they feel in the future—such appraisals are cornerstones of wellbeing. This type of messaging needs to differentiate between the onset (e.g., adverse early life experiences, social exclusion) of mental illness and the offset, or the potential to handle the stressors moving forward. Overall, compensatory messaging reduces blame attributions and avoids the false growth mindset, while also encouraging confident appraisals.

Second, and related, when trying to reduce blame, more work is needed on the potential ramifications of messages about mental "illness." These disease, or similar chemical imbalance models of psychopathology are often

incorporated to try and diminish blameworthiness but they may also activate a sense of hopelessness described by Abramson et al. (1989). For example, in the context of weight, the message that obesity is a disease undermined the value placed on health (Hoyt et al., 2014). Additionally, such disease messaging can contribute to prejudice via a belief in an inherent, devalued underlying essence (Hoyt et al., 2017). In the domain of mental health, disease messaging can contribute to negative attitudes toward people with mental illness (Schomerus et al., 2012), and similar work found that biogenetic and diagnostic labeling (such as "mental illness") predicted negative perceptions and a desire for social distance (Read et al., 2006). Overall, although disease messaging may help to diminish feelings of shame and guilt, it is a mixed blessing as it can also promote essentialist thinking and in turn increase antipathy and undermine expectations for potential recovery (Loughman & Haslam, 2018). Thus, compensatory messaging that explains the myriad causes of the onset of mental illness in order to reduce blame should carefully consider how the genetic, biological, and neurobiological evidence is presented. This messaging should also seek to foster a sense of agency and confidence in the potential to offset the stressors in the future.

Third, a related concern when sending growth mindset messages is the presence of institutional and systemic barriers to success. Researchers need to understand the influential role of context when trying to harness growth mindsets to promote individual flourishing. We offer the growth mindset approach in concert with, rather than in place of, coordinated efforts to dismantle systemic inequities that promote the wellbeing of those with privileged identities more robustly than those with devalued and marginalized identities. Indeed, growth mindset interventions in conjunction with efforts to dismantle systemic inequities can serve as a means toward social transformation. We suggest that a growth mindset perspective is likely more meaningful and appropriate when coupled with more holistic approaches that target systems and policies. Individuals exist in a social network and are not only influenced by their relations with other people but also by the ideas and practices that are customary in their community (Markus, 2008)—that is, people are influenced by and also influence their larger eco-systems (Riemer et al., 2020). To maximize impact, growth mindsets should not be promoted in individuals alone—rather, interventions also need to target culture shapers and community leaders and provide the resources necessary for development.

5 | FUTURE DIRECTIONS

To continue to catalyze flourishing via growth mindset interventions, we conclude this review by suggesting two areas for future inquiry. First, we need more evidence regarding the why, who, and the where of growth mindset interventions in the context of mental health. This work should integrate key mechanisms and boundary conditions, which entails a consideration of not just individual-level factors but also environmental and contextual cues, norms, and affordances. We seek to call attention to the inevitably tight linkage between hypothesized mediators (e.g., cognitions) and moderators (e.g., populations, contexts, cultures) to highlight the need for a better understanding of the default ecosystem in which researchers plan to intervene. Such an approach would outline factors related to both the individual and the broader social environment. Key components, include, but are not limited to, one's own level of mental wellbeing and one's default attributional tendencies and threat appraisals. Another consideration is an individual's motivation to improve mental health, which is likely tightly yoked to their identity and lived experiences. Context considerations should capture the available affordances and culture as well as the support systems in the environment. Overall, future work needs to address the inter-related issues of mechanisms, populations, and existing ecosystems to understand how to make mindset interventions impactful.

Second, we need a better understanding of how to implement growth mindset interventions designed to reduce psychological distress and improve wellbeing. For example, questions remain about which mindsets to target when implementing mindsets to improve mental health. Although most interventions to date target mindsets of people (e.g., Schleider & Weisz, 2018; Yeager et al., 2013), a meta-analysis linking growth mindsets to mental health-related outcomes found that mindsets of emotions—that is, beliefs about the malleable vs. fixed nature of emotional states—had slightly stronger effects (Burnette et al., 2020). Thus, mindsets of emotion could also serve as potential

powerful levers on which to intervene. Additional implementation questions remain, such as what are the key active ingredients, how many sessions are needed to instill a growth mindset, and what compensatory messaging should be included? Overall, more research is needed that outlines the implementation practices that maximize effectiveness. This work also needs to provide a valid and reliable assessment of implementation fidelity.

6 | CONCLUSIONS

We reviewed cutting-edge research on harnessing growth mindsets to promote psychological flourishing, with an emphasis on interventions designed to improve mental health. We highlighted key causal mechanisms, focusing on the importance of attributions and appraisals—these theories can provide additional levers on which to intervene. We also outlined critical boundary conditions, many of which provide a springboard for future research that seeks to understand for whom, where, and how growth mindset interventions may work best. We identified potential downsides of growth mindsets in stigmatizing contexts, with concrete ideas for reducing the costs and keeping the benefits. We hope this review can help move the field of growth mindset work closer to the goal of advancing scientific knowledge in ways that help promote psychological flourishing.

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