ORGANIZATIONAL GROWTH MINDSET

by Heidi Grant Halvorson
Christine Cox
and David Rock

AUTHORS

Heidi Grant Halvorson   NeuroLeadership Institute
Motivation Science Center, Columbia Business School
Corresponding author: hghalvorson@neuroleadership.com

Christine Cox   NeuroLeadership Institute
Center for Neurodevelopmental Disorders, New York University Langone Medical Center

David Rock   Director, NeuroLeadership Institute

NeuroLeadership**JOURNAL**

Mindsets—ways of thinking about the goals we pursue in our professional and personal lives—determine how we interpret our successes and failures. They influence how we understand our own experiences in the workplace, and determine the nature of our emotional, cognitive, behavioral, and neural responses to those experiences. In this paper, we will describe how not only individuals, but *whole organizations,* can have fixed or growth mindsets—highlighting those research findings from more than 20 years of study that best capture the powerful impact of mindsets on performance, learning and engagement, self-regulation, neural processing, resilience, and leadership. We discuss two important ways that organizations can promote a growth mindset: first, by valuing, encouraging, and rewarding personal as well as organizational growth (e.g., "How am I doing now compared to how I was doing before?") over and above other comparisons (e.g., "How am I doing compared to my teammate or competitor?"). This shifts the focus from "being good" to "getting better," from fixed ability and potential judgment to growth and improvement. This shift is related to the second way in which organizations can promote a growth mindset: by recognizing that comparisons create mindsets and mindsets change performance. When organizations promote *inter*-individual comparisons (e.g., me vs. my teammate), they may also be promoting a fixed mindset—a focus on fixed ability, which in some instances can result in reduced performance. However, when organizations promote *intra*-individual comparisons (e.g., me now vs. me then), they are promoting a growth mindset—a focus on learning, growth, and improvement, which has been shown to result in increased performance. Finally, we conclude the paper by suggesting several ways that organizations can capitalize on this research and implement practices that promote a growth mindset and enhance performance.

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From Murphy & Dweck:

It was a company that prized "sheer brainpower" above all else, where the task of sorting out "intellectual stars" from the "merely super-bright" was the top priority when making hires and promotions. It was an environment where one of the most powerful executives was described as being "so sure that he was the smartest guy in the room that anyone who disagreed with him was summarily dismissed as just not bright enough to 'get it.'"

—Description of Enron (McLean & Elkind, 2003)

In public statements, executives proudly described their CEO's growth and learning over 35 years—from sales rep to the head of the organization. Managers expected their workers to show a passion and love for learning and expanding knowledge. Instead of proving how smart a person or division was, the company's focus was on making a contribution, investing in the experiences and development of a larger portion of talent, and intense on-the-job learning.

—Description of Xerox (George & McLean, 2005; Knowledge@Wharton, 2005; Vollmer, 2004)

The fixed and growth mindsets in individuals

It makes sense to begin with an overview of the consequences of mindset in individuals striving to reach a goal, since that has long been the focus of researchers' interest.

Your mindset, in large part, is determined by the answer to a single question: Do you believe that your most important attributes—your intelligence, talent, creativity, leadership ability—are fixed traits that can't be changed (fixed mindset), or malleable qualities that can be grown (growth mindset)?

It is important to know that people with different mindsets do not necessarily start out with different skill levels, or different levels of self-confidence. They simply have different fundamental beliefs about the nature of their personal qualities, and these different conceptions spawn very different motivations and actions. In one case, the motivation to validate the self through outcomes and judgments is heightened (fixed mindset); in the other case, the motivation to grow is heightened (growth mindset). Differences in mindset predict pronounced differences in what people do with information that challenges their performance and the way the brain processes

this information. Challenges to performance include such experiences as pointing out mistakes and negative feedback to errors.

Below, we highlight several areas of research detailing both behavioral and neural differences associated with fixed and growth mindsets.

Performance

Whether an individual works with a manager who evaluates employees through the lens of a fixed vs. a growth mindset has a strong impact on that individual's performance. To the extent that a manager espouses a growth mindset, employees perceived him or her as being more just, consistent with feedback, unbiased, and willing to listen to employee input; these perceptions, in turn, were directly related to employees' greater organizational commitment and organizational citizenship behavior (Heslin & VandeWalle, 2009). Similarly, managers with growth (vs. fixed) mindsets more accurately recognize positive changes in employee performance over time and engage in more effective and helpful employee coaching (Heslin & VandeWalle, 2008). Managers with more fixed mindsets were perceived as less effective, less consistent, and less fair than their growth mindset counterparts.

Approach to learning

The fixed mindset has been linked to less effective learning strategies, including rote memorization and other forms of surface processing—strategies that are associated with weaker learning and reduced retention of information. The growth mindset, on the other hand, predicts the use of deeper processing strategies such as "elaboration" and "networking" (Elliot, McGregor, & Gable, 1999; Kaplan & Midgley, 1997; Pintrich & De Groot, 1990)—strategies that enhance learning and later memory (Davachi, Kiefer, Rock, & Rock, 2010; Davis, 2014). Moreover, having a growth mindset predicts adaptive help-seeking when one is struggling to master the knowledge or skill (Pintrich, 2000), while the fixed mindset predicts effort withdrawal in the face of uncertain outcomes (Midgley, Anderman, & Hicks, 1995).

Self-regulation

The growth mindset fosters the use of more adaptive emotion and motivation-regulation strategies. Wolters (1998), for example, found that among college students, the growth mindset was related to attempts to regulate self-perceptions of efficacy, interest, and value through positive self-talk and strategic focus of attention. Growth mindset is associated with better time management (Pintrich, 2000), more cooperative information exchange with task partners (Poortvliet, Janssen, Van Yperen, & Van de Vliert, 2007), and the seeking of instructive information, rather than simply trying to prove oneself correct, after disagreement with a task partner (Darnon, Muller, Schrager, Pannuzzo, & Butera, 2006).

Differences in mindset predict pronounced differences in what people do with information that challenges their performance...

These findings are echoed in the sporting arena, where fixed mindsets (compared to growth) predict help-avoidance, higher anxiety, decreased enjoyment, failure to take an analytic stance toward one's learning strategies, and abandoning activities when they become difficult (Ommundsen, 2001, 2003). Additionally, several researchers have found similar behavior patterns produced by what we would classify as fixed and growth mindsets in the domains of social interaction (Goetz & Dweck, 1980), aggression (Erdley & Asher, 1996; La Greca, Dandes, Wick, Shaw, & Stone, 1988; Taylor & Asher, 1989), and intimate relationships (Brundage, Derlega, & Cash, 1976; Kamins, Morris, & Dweck, 1996). For instance, having a fixed mindset leads people to seek out interaction partners who will validate them and increase their status. Fixed mindsets also create vulnerability to negative affect, loss of self-esteem, and withdrawal or aggression after a perceived rejection. In contrast, having a growth mindset leads people to seek out interaction partners that will help them to develop and improve (even through criticism), and fosters persistence and new strategy generation after a perceived rejection (Erdley, Loomis, Cain, & Dumas-Hines, 1997; Kamins et al., 1996).

The brain's response to errors

Several studies have begun to elucidate neural differences associated with fixed and growth mindsets. Mangels, Butterfield, Lamb, Good & Dweck (2006) showed that the brains of individuals with a fixed mindset show a different orientation to negative feedback about errors they have made. Using event-related brain potential (ERPs), they tracked people's attentional strategies as they worked on a difficult general information task. College students wearing caps outfitted with electrodes attempted to answer difficult questions relating to such subjects as history, geography, or popular culture. Shortly after they typed an answer into the computer, they were given information about whether their answer had been right or wrong (ability-related feedback). And shortly after that, they were given information about the correct answer (learning-relevant feedback). Analysis of the ERPs revealed what information the students were most interested in, that is, what kind of information grabbed their attention.

Growth-mindset participants focused their attention on both the ability-relevant and learning-relevant feedback, since, in fact, both types of feedback (knowing whether you were right or wrong and knowing what the right answer is) are important for learning. In contrast, fixed-mindset participants focused their attention only on the ability-relevant feedback. Once they found out whether they were right or wrong, that was it. Although they did learn some of the right answers, they showed much shallower levels of neural processing than the growth-mindset participants. Interestingly, both groups showed similar levels of attention to the positive feedback (they got the answer right), but growth-mindset participants showed greater attention to the negative feedback (they made an error) than fixed-mindset participants.

Not surprisingly, the growth mindset pattern of attention led to greater learning, as reflected in the number of previously-missed questions they got correct on a re-test.

Further studies have followed this line of work, showing that individuals with a growth mindset show greater awareness of and attention to mistakes, reflected in the enhancement of an ERP component that indexes error processing, which led to greater accuracy in performance after they made mistakes (Moser, Schroder, Heeter, Moran, & Lee, 2011).

In addition to one's default tendency to have a fixed or growth mindset, researchers have shown that experimentally inducing one or the other mindset impacts both neural responses and performance. Schroder et al. (2014) had participants read a short passage that explained that intelligence was either fixed or malleable before completing a reaction time task. People in the growth-mindset condition (intelligence is malleable) showed greater neural signatures of attention to task-relevant information, and attention to errors was strongly related to their performance on a later task. People in the fixed-mindset condition (intelligence is fixed) showed greater attention only to responses, not to information that would help them perform better in the future, so unsurprisingly these participants did not show any benefit to performance.

Recent work has also extended the investigation of fixed vs. growth mindset into the realm of social neuroscience. One study had participants read passages about individuals that behaved in either a stereotype-confirming or stereotype-violating way. For example, a "math geek" who wants to improve on his areas of academic weakness takes a remedial course in writing and literature. Later he is observed to be reading the science section of the newspaper (stereotype-confirming) or the arts section of the newspaper (stereotype-violating). Individuals with a fixed mindset showed greater neural responses associated with a violation of these semantic (meaning-based) expectations (i.e., the N400 ERP component) when they observed the math geek reading the arts section (i.e., surprise that he is behaving in a non-math-geeky way). In contrast, individuals with a growth mindset showed greater N400 responses to the math geek reading the arts section (i.e., surprise that he is behaving in a math-geeky way because he has taken the writing and literature course) (Xu & Plaks, 2015). These findings show that the fixed-mindset brain expects people to behave more like their stereotype no matter what, but a growth-mindset brain is better able to take contextual information into account and doesn't necessarily expect people to behave stereotypically. It appears that when we believe that we and other people can change (growth mindset), we begin to process stereotypical behaviors as errors and

orient toward them (i.e., the brain registers surprise) once a person has begun to take steps to change (i.e., taking a remedial course in his/her areas of academic weakness). This explains why a fixed-mindset person's brain is more surprised by the math geek reading the stereotype-inconsistent arts section, and the growth-mindset person's brain is more surprised by him/her reading the stereotype-consistent science section.

The brain and growth

One core tenet of the growth mindset is that intelligence is malleable and can change and grow with effort and development. Developmental neuroscience research gives credence to this view, showing that IQ can rise and fall throughout adolescent development in relation to changes in brain structure and function (Ramsden et al., 2011). Importantly, educating people about the way that the brain grows and changes has been shown to shift them from a fixed to a growth mindset (Fitzakerley, Michlin, Paton, & Dubinsky, 2013).

An important point to make here is that individuals (and as we will see below, organizations) that tend to have either a more fixed or a more growth mindset are *both* concerned with performing well and succeeding. The difference is in how that desire to succeed manifests—those with a fixed mindset focus more on *demonstrating existing ability relative to others,* while those with a growth mindset focus more on *developing skills and knowledge relative to personal goals.* The important thing to remember moving forward is that having a growth mindset does NOT necessarily mean that someone does not care about making mistakes or does not experience mistakes in a negative way—what differentiates having a growth from having a fixed mindset is how one responds to mistakes. The growth mindset is associated with taking the mistake and learning from it; people with a growth mindset are better able to do this because they do not interpret making a mistake as a reflection of their fixed level of intelligence or ability, which is the way that people with a fixed mindset tend to see mistakes—and why they tend to respond in a more threatened, defensive, and sometimes less adaptive way.

Before continuing to a discussion of mindsets in organizations, we acknowledge that though we are highlighting research suggesting the benefits of the growth mindset (relative to the fixed mindset), we also realize that performance comparison and competition will never be fully absent from the organizational world. Therefore, we are not advocating that organizations must reject the kinds of comparisons that tend to be more associated with a fixed mindset (e.g., me vs. them), but are highlighting the compelling findings from many studies across different fields of research that suggest an

organizational benefit to encouraging a growth mindset, if and where possible.

The fixed and growth mindsets in organizations

To date, much research has focused on differences in individual performance associated with differences in fixed vs. growth mindsets. Increasingly, however, focus is directed toward mindsets in organizations, specifically in the orientation of organizational cultures toward a more fixed or growth mindset. Below, we summarize research examining differences in mindset at the organizational level.

Growth mindset organizations believe everyone can grow

Organizations that espouse a growth mindset support the idea that everyone within the organization has the potential to learn, grow, and improve—not merely a select few, or those deemed as "high potential" or targeted "superstars."

> *...everyone within the organization has the potential to learn, grow, and improve—not merely a select few, or those deemed as "high potential"...*

Illustrating the organizational effects of a fixed or growth mindset in the workplace, one set of studies tracked individuals and monitored their development of managerial skills as they worked on a complex task, both as individuals and in groups. Growth and fixed mindsets with respect to managerial ability were either measured (in some studies) or experimentally induced (in others). The managerial decision-making task involved matching employee attributes to the different jobs in the organization and learning over trials how best to facilitate the attainment of the production quota for each employee. In order to determine the best solutions, participants had to engage in continual hypothesis-testing and had to revise their strategies as a function of the feedback.

In one of these studies (Wood & Bandura, 1989), some participants, working as individuals, were explicitly told that the required skills were a function of their underlying cognitive capacities—that you are either one of people who are good at this, or you're not (fixed mindset). Others were told that the skills were developed through practice, and that anyone could improve (growth mindset). Although both groups of participants began the task with confidence, those in the fixed-mindset group showed a progressive decrease in self-confidence across trials as they struggled to meet the demanding production quotas. In addition, they set less challenging goals across trials, became less efficient in their use of strategies, and their performance steadily declined. In contrast, those in the growth-mindset group maintained their sense of confidence, became more systematic in use of strategies, and sustained a high level of performance.

In another study (Wood & Goodman, 2003), mindsets toward managerial ability were measured, and participants were placed into a three-person team with like-minded members. The teams worked together for several weeks—and were then given the same managerial decision-making task described above. Everyone started out with similar attributions, team efficacy, and team goals, but began to diverge over the course of the task. While the fixed-mindset teams tended to blame uncontrollable factors (i.e., the task, their ability, luck) for their difficulty, growth mindset teams chose strategy attributions instead. Compared to the fixed-mindset teams, the growth-mindset teams also increased in confidence over trials, and set more challenging goals for themselves on the later trials. Finally, the processes occurring in the two types of teams differed in important ways. Members of the growth-mindset teams openly stated their opinions and expressed disagreements. They were also, as a team, more focused on the task and effective in their use of time. This greater focus on the task, the more challenging team goals, and the strategy attributions mediated the effects of team's fixed or growth mindsets on performance: Growth-mindset teams' superior performance emerged early and became even more pronounced over time. Fixed-mindset teams, more concerned about proving their managerial ability, fell prey to a "groupthink" process (Janis, 1972), in which frank discussions were not held and disagreements were not aired.

Growth mindset organizations avoid assigning people numbers

Growth-mindset organizations avoid rankings and relative ratings, and strongly encourage goals that promote "getting better" (e.g., "How am I doing now compared to how I was doing before?") instead of "being good" (e.g., "How am I doing compared to my teammate or competitor?")—this facilitates motivation to learn and grow.

In growth-mindset organizations, where talent is something that you cultivate, employees are more likely to be concerned with gaining skills and knowledge. This focus on *getting better*, rather than being good (i.e., focusing more on the ability to learn, grow, and improve instead of on whether or not they are or aren't good at something), leads them to be less interested in comparing themselves to others, and more interested in comparing their performance today to their own past performance, to gauge how quickly and effectively they are improving over time.

In fixed-mindset organizations, people are quite understandably more concerned with proving their ability though their performance than improving it. Their focus when pursing any goal is to *be good* (i.e., to show, prove, and convince others that they are competent and/or talented at something), and they are particularly concerned with how they perform relative to others.

...focus on getting better, rather than being good...

A dramatic demonstration of how a fixed mindset makes validating intelligence more important than learning comes from a study by Hong, Chiu, Dweck, Lin, and Wan (1999). The study was conducted at the University of Hong Kong, perhaps the premier institution of higher learning in Hong Kong, where everything is in English—all classes, reading, papers, and exams. In other words, proficiency in English is a necessity for success. Unfortunately, not all the students who enter the university come prepared to conduct their academic lives in English. Thus, for many of them, some language instruction would be highly advantageous. As entering students registered for their classes, their mindsets with respect to intelligence were assessed, their English proficiency scores were obtained, and they were asked the following: *If the faculty offered a remedial English class, how likely would you be to take it?* Among students with low proficiency in English, those with a growth mindset indicated that they were highly likely to take such a course. However, those with a fixed mindset, in spite of their low proficiency, were not particularly interested. Rather than reveal a deficiency and remedy it, they would prefer to put their academic careers at risk.

Another study demonstrates the effects of promoting either a fixed or a growth mindset in individual goal achievement and learning. When students knew that their performance was going to be evaluated relative to other students, they put more emphasis on ability as the goal (e.g., "to be good"), which resulted in a greater fixed mindset. When students were evaluated across time, relative to their past performance, they put more emphasis on mastery as the goal (e.g., "to get better"), which enhanced learning and resulted in a greater growth mindset (Butler, 2006). The main message here is that comparisons create mindsets, and mindsets change performance. This is especially relevant in an organizational context. When organizations promote *inter*-individual comparisons (e.g., me vs. my teammate), they may also be promoting a fixed mindset—a focus on fixed ability, which in some instances can result in reduced performance. However, when organizations promote *intra*-individual comparisons (e.g., me now vs. me then), they are promoting a growth mindset—a focus on learning, growth, and improvement, which has been shown to result in increased performance.

Growth mindset organizations value progress over perfection

Very much related to the discussion above about avoiding comparisons with others, clearly communicating the message that *progress* is what is valued by the organization is a key part of instilling the growth mindset.

Framing organizational goals to emphasize "getting better," as opposed to "being good" or "being the best," is one way that to promote a growth mindset. A powerful example of the benefits of shifting from a more fixed to a more growth mindset can be seen in the company Juniper Networks. Since eliminating employee ratings in 2011, they have integrated a process called "quality conversations" between employees and managers, using many growth-mindset principles (e.g., facilitating innovation and positive change, asking for employee input, etc.). By changing methods of evaluation to be more in line with a growth mindset, and by consistently reinforcing the message to employees that the goal is "progress over perfection," Juniper saw an 88% increase in engagement levels, 84% improvement in leadership skills, 75% improvement in coaching ability, and 70% improvement in in the ability to deepen the climate of innovation and creativity (NeuroLeadership Institute, 2015). This message of valuing progress and the framing of goals to emphasize improvement ("get better") are integral to instilling an organizational growth mindset.

Growth mindset organizations embrace mistakes and learn from them

Mindsets create a framework in which people interpret and respond to setbacks, and in so doing go a long way to determining how resilient we are in the face of a challenge. Within a fixed mindset, setbacks appear to reveal permanent inadequacies. This mindset also provides no good recipe for future success. Instead, it often prompts people to give up or to engage in defensive strategies

intended to hide their inadequacies—often at cost to their future learning. These include self-handicapping (Rhodewalt, 1994; Shih, 2009), a defensive strategy in which people fail to prepare properly for an upcoming task in an effort to ward off low-ability attributions; the intent to cheat (Blackwell, Trzesniewski, & Dweck, 2007); and the tendency to hide evidence of a poor performance (Mueller & Dweck, 1998). Mueller and Dweck (1998) found that 45% of their participants in a fixed-mindset condition lied about their score on a failure trial when they were reporting that score to someone else.

In contrast, individuals with growth mindset tend to attribute setbacks to insufficient effort or ineffective strategies, and consequently respond with greater vigor and determination (Blackwell et al., 2007; Robins & Pals, 2002; Trzesniewski & Robins, 2003). This was demonstrated in a study by Grant and Dweck (2003), in which students were followed in their college chemistry course—a highly difficult course that is the gateway to the pre-med curriculum. Their mindsets were assessed and, periodically throughout the semester, they were asked about the study strategies they used to confront the difficult material. Among students who performed poorly on the first exam, growth mindset predicted greater help-seeking and deeper study strategies, which resulted in steadily increasing exam performance throughout the semester.

In the face of negative feedback, both fixed and growth mindset individuals experience negative affect. More specifically, feelings of anxiety, frustration, and sadness are commonly reported when individuals encounter hardship. Individuals with a growth mindset, however, seem to utilize this negative affect in a more adaptive way (Grant, Baer, & Dweck, 2008). They take the experience of depression as a sign that their effort needed to be increased or that they should engage in more adaptive coping strategies, and consequently greater depressed affect was associated with *more* problem-focused coping, while the opposite pattern emerged in pursuit of *be good,* or fixed-mindset goals (i.e., greater depression was associated with disengagement and helplessness).

Growth mindset organizations facilitate more effective leadership

As mentioned above, individual performance has been tied to whether managers interact with employees via a fixed or growth mindset. Growth mindset managers are both more effective and more accurate at giving employees feedback, recognizing positive change and progress, coaching, and increasing employee performance (Heslin & VandeWalle, 2008, 2009).

Other research in this area provides support for these findings. Growth-mindset managers are better able to

accurately detect changes in employee performance over time—both improvements and decrements. Fixed mindset managers remain anchored to their initial impression (Heslin, Latham, & VandeWalle, 2005).

Heslin, VandeWalle, & Latham (2006) measured managers' mindsets and subordinate observations to assess the quality of the managers' coaching along three dimensions: Guidance ("the communication of clear performance expectations and constructive feedback regarding performance outcomes, as well as how to improve"), Facilitation ("helping employees to analyze and explore ways to solve problems and enhance their performance"), and Inspiration ("challenging employees to realize and develop their potential"). In two studies, managers' mindset *alone* accounted for between 14-23% of the variance (which was the largest component in the factor analysis) in employees' ratings of the managers' coaching. In a third study, after experiencing an intervention, former fixed-mindset managers were significantly more willing to coach a struggling employee, offered more suggestions, and provided overall higher quality coaching. The intervention consisted of scientific evidence via a paper and video, and a series of exercises asking managers to reflect on the importance of recognizing the ability to change, and times when they themselves changed.

This research clearly points to the significant organizational advantages of promoting a growth mindset among employees as well as managers—having an organizational growth mindset is directly related to more effective leadership.

Can mindsets be changed?

To date, several longitudinal studies have demonstrated lasting change in students' mindsets (Aronson, Fried, & Good, 2002; Blackwell et al., 2007; Good, Aronson, & Inzlicht, 2003). In each case, a relatively modest intervention resulted in appreciable changes in academic motivation and achievement.

...comparisons create mindsets, and mindsets change performance.

In one intervention study, Blackwell, et al. (2007) designed and administered an eight-session workshop to 7th grade students. All of the students in the study were given sessions on study skills and learned a host of useful things that could aid them in their schoolwork. However, half of

the students were also taught growth mindset and how to use this concept in their studies.

Specifically, students were taught that the brain forms new connections every time they learn, and that, in this sense, learning changes their brain and, over time, makes them smarter. Thus, they were taught that they were in charge of their brains and could choose to make new neural connections if they applied themselves.

Before the intervention, students' math grades had been sharply declining. After the intervention, the math grades of the students in the control group continued to decline, even though they had received study-skill training and other potentially useful information. In contrast, the students who had been given the growth-mindset intervention showed a marked recovery in their grades and were now earning significantly higher grades than their peers in the control group. Just as striking was the fact that teachers (who were blind to students' experimental condition) singled out significantly more students in the growth-mindset intervention as having shown positive motivational change. The teachers described in detail changes in these students' orientation toward learning and their valuing of improvement, the precise things that one would expect to be fostered by a growth mindset.

As noted above, this intervention was relatively modest when compared with other lengthy and costly educational interventions. This fact brings home the idea that when one pinpoints a belief that is at the core of a motivational pattern, simply altering that belief (and demonstrating how the new belief can be put into practice) can have a cascade of beneficial effects.

Creating a growth mindset organization

When an organization's culture and values are consistent with a particular mindset, the impact on its employees is profound. Studies by Mary Murphy and Carol Dweck show that people shift their self-presentation strategies accordingly, presenting evidence of their "smarts" in fixed-mindset organizations, and highlighting their "motivation" in growth mindset organizations. When giving opportunities to hire or reward fellow employees, they reward these same sorts of displays in others (Murphy & Dweck, 2010).

Continuing research by Murphy and Dweck, in collaboration with the consulting firm Senn Delaney, has explored the effects of organizational mindset at seven Fortune 1000 companies. Their preliminary findings suggest that in fixed-mindset organizations, only a handful of "star" workers were highly valued, and consequently, employees felt less commitment to their company and put less trust in their leadership. They worried about making mistakes and being judged as less capable, and pursued

fewer creative and innovative projects. They were also more likely to cut corners, to withhold information from their colleagues, and to cheat to get ahead. Employees at growth-mindset organizations, on the other hand, were rated by their supervisors as more collaborative, more innovative, and more effective overall. Employees were 47% likelier to say that their colleagues are trustworthy, 34% likelier to feel a strong sense of ownership and commitment to the future of the company, 65% likelier to say that the company supports risk taking (and is supportive even after failure), and 49% likelier to say that the company fosters innovation and creativity (Dweck, 2014; Murphy, Chatman, Kray, Dweck, & Delaney, 2015).

Praise the process

When it comes to creating a culture of growth, feedback—particularly praise—can be a potent weapon of influence. What managers choose to praise says a great deal about what is valued in an organization. Therefore, when praise is given, it should emphasize, whenever possible, the *process* that lead to success. Praising a person for abilities or qualities that seem innate or unchanging (e.g., you are a "genius," a "natural," or "so talented") can inadvertently foster fixed mindsets. Praise for hard work, persistence, use of good strategies, and determination, on the other hand, reinforces the idea that these are the key ingredients for success, and makes the recipient more resilient in the face of difficulty.

> ...when praise is given, it should emphasize, whenever possible, the process that lead to success.

The impact of praise was vividly shown in a series of studies conducted by Carol Dweck and Claudia Mueller. Fifth-graders were given a set of relatively easy problems to work on, and then praised for their good performance. Half of the students were given praise that emphasized ability ("Wow, you did really well. You must be really smart!"), while the others were given effort-focused praise ("Wow, you did really well. You must have worked really hard!") Next, all the students were given a very difficult set of problems, and no one in the study got more than 1 out of 10 of those correct. Finally, the researchers gave the students one last set of problems, similar in difficulty

to the first set.

Dweck and Mueller found that the children who had been praised for smartness did *far worse* on the third set of problems when compared to the first. Having been told that their good performance on the first set made them "smart," they were quick to adopt a fixed mindset, and conclude that their poor performance on the second set made them *not*-smart. These students lost confidence and motivation, and their final performance suffered for it.

A very different pattern emerged for the children who had been praised for effort—they performed *better* on the third set than they had on the first. Having been told that doing well was about effort, they adopted growth mindsets. Their experience with difficulty on the second set thus prompted them to ramp up their efforts and work even harder. These students *gained* confidence and motivation, and they achieved even more (Mueller & Dweck, 1998).

Incentivize improvement

One important thing that organizations can do to instill a growth mindset in the organizational culture is to make it clear that incentives and evaluation are motivated by a "get better" orientation instead of a "be good" orientation. As mentioned above, comparisons create mindsets, and mindsets change performance. Organizations that emphasize individual growth over relative ratings/ rankings, mastery over ability/approval—these will be the organizations that tap into individuals' internal motivation to learn and grow, harness the brain's ability to effectively deploy attentional resources and encode information that will improve subsequent performance, and avoid the pitfalls of increased stress and threat inherent in comparisons with others, leading to self-defensiveness. By incentivizing improvement, companies will communicate to employees that they promote an organizational growth mindset, and research continues to show that this has a strong relationship to improved performance.

Teach from the top

One of the most effective ways to instill an organizational growth mindset is through behaviors and communications by those in the top leadership positions in the company. One striking example of this principle in action is Kaiser Permanente CEO and Chairman George Halvorson. By highlighting and reinforcing the company's goal to "be the best at getting better," Halvorson has made it clear that an organizational growth mindset is paramount, and that message is communicated directly to employees (e.g., in his "Letters to Kaiser" communications) (Halvorson, 2013). This is one example of an organization focusing on improvement over time, instilling an organizational culture that encourages employee input and initiative to

contribute to that improvement, and supporting these growth-mindset principles from the top down.

Bootstrap the brain

As discussed above, educating people about how the brain changes and grows (e.g., neural plasticity) increases growth mindset. Students who interacted with a neuroscientist during an educational initiative called Brain Awareness Week reported that they better understood how the brain works (i.e., especially how the brain changes during development and learning). This led to a significant increase not only in their positive attitudes toward science, but also in their agreement with growth mindset statements (e.g., "With hard work, you can change how smart you are.") (Fitzakerley et al., 2013). Priming people to adopt a growth mindset (e.g., reading a passage about how intelligence is malleable and can increase with effort) also shifts the way the brain responds to errors—people pay more attention to task-relevant information, especially errors, and use that information to improve their later performance. This difference in attention and behavior is readily observable in their neural responses—a pattern that does not happen when people are primed with a fixed mindset (e.g., reading a passage about how intelligence is fixed and immutable) (Schroder et al., 2014).

Summary

Accumulating evidence, both from individuals and organizations, supports the importance of promoting a growth mindset to improve performance, learning and engagement, self-regulation, neural processing, resilience, and leadership. Neuroscience research points to profound differences in neural processing associated with a fixed vs. a growth mindset—growth mindset engages the brain's attentional resources in a way that helps people use errors and feedback to improve their performance. Instead of the maladaptive responses associated with a fixed mindset (defensiveness, increased stress, focus on one's comparison to others), a growth mindset encourages openness to and integration of feedback, an increase in one's internal motivation to learn and grow, and an increase in performance. We have suggested several ways that organizations can instill and promote a growth mindset: Praise the Process, Incentivize Improvement, Teach from the Top, and Bootstrap the Brain. Findings from an increasing number of applied research studies support this model of organizational growth mindset, and the profound increases in satisfaction, engagement, and performance are a testament to the power of mindset.

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