



FROM **FEAR** TO **DISCOVERY:**

THE SCIENCE BEHIND THE PRACTICE
OF IMPROVISATIONAL BEHAVIORS

"Improvisers don't look at change as an obstacle; we look at it as fuel. We know that the next great idea lies just on the other side of change. We are constantly asking ourselves, 'what we can do to incite change?' Well?" —John Sweeney

How many minutes of your day do you spend worrying about making a mistake at work, stressing out about workplace politics, checking out of superficial meetings or over-planning and analyzing without taking action? If you are anything like the majority of people, chances are various stressful thoughts, fears and unhealthy judgments pop up in your head and take away from your energy and productivity.

In our 17 years of working with businesses we have found that in order to keep these stressors at bay, we have to be intentional about where we focus our attention and what lens we use to process information. We like to think of that filter as our mindset, and we have dedicated our work to helping professionals of all levels, industries and personalities choose a mindset that helps them be more productive and happier at work.

As psychologist and researcher Carol Dweck brilliantly points out in her book "Mindsets are just beliefs. They are powerful beliefs, but they're just something in your mind, and you can change your mind." (Dweck, *Mindset: Psychology of Success*, 2008).

THE MINDSET OF DISCOVERY

The mindset we strive to choose is the Mindset of Discovery, which is defined by a few powerful assumptions. When we are in the Mindset of Discovery we believe that:

- Ideas and honest opinions have value and are celebrated instead of judged.
- Change is fuel instead of an obstacle.
- Mistakes are a great source of inspiration and learning.
- We all have the power to create change and impact those around us.
- We don't need ALL the information to just begin.



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THE IMPACT OF IMPROVISATION

We have found that improvisation is a wonderful vehicle to work on one's mindset, because it breaks down complex social interactions, team dynamics and cultural norms to the very basics of humanness and how we collaborate, communicate and create.

It is in a way a lab in which we can help people set aside their every-day fears of making a mistake, looking smart or making an impression by creating an environment, in which the rules of interaction are centered around acceptance, openness, recognition, authenticity and laughter. Such a space helps people make small shifts in how they interpret information, choose their mindset and as a result be able to be more creative, authentic, productive and honest with each other, as a result allowing them to get a lot done in a short amount of time.

The definition of the Mindset of Discovery emerged from 55+ years of improvising off and on stage at the Brave New Workshop, the oldest satirical comedy theater in the U.S. Without the Mindset of Discovery it is nearly impossible to create and collaborate at the rapid pace our stage requires with the added stress of a live audience. Yet, the true power of the Mindset of Discovery is more evident in its effects on the behaviors of the humans who work at the Brave New Workshop, and those who have been impacted by Brave New Workshop's Creative Outreach business training programs.

In our years of experience we have heard countless times that employees would love their workplaces to resemble our training sessions, and to have the same feeling of trust, transparency and good humor. We have also heard that most workplaces are plagued with fear and disengagement. The desire to create positive change and infuse happiness in the workplace has driven us to dedicate our work to helping employees practice simple, measurable behaviors, which allow them to be in a Mindset of Discovery more often, and affect their organizations by simply behaving the way they want their companies and teams to be.





WHY FOCUS ON MOVING PEOPLE FROM FEAR TO INNOVATION?

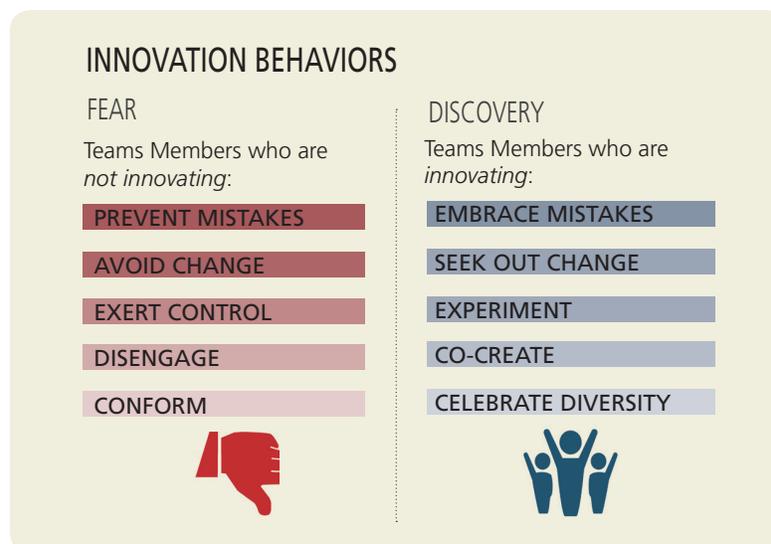
Our perspective is largely rooted in a practitioner’s point of view, based on our long-standing practice and observation of improvisational behaviors training.

This paper is meant to set the scientific context for what we know to be true, and shed light on some recent developments in research, which explain why improvisation works as a training vehicle and how the Mindset of Discovery can benefit employees.

Recent research from the American Psychological Association shows that the majority of Americans experience significant amount of stress. In a 2014 survey 67% of surveyed reported experiencing emotional symptoms of stress and 72% reported experiencing physical symptoms of stress. (Anderson, et al., 2014).

In the same survey 69% of the surveyed reported work as a source of stress. (Anderson, et al., 2014) In a 2012 survey by Accountemps only 3% of 420 office-based employees called themselves fearless, and the number one fear was that of making a mistake (28%) (Accountemps, 2012).

It is clear that stress and fear are prevalent, but what is being done about it? Only 35% of surveyed said they are doing an excellent or very good job at managing stress and 44% said they are not doing enough or are not sure whether they are doing enough to manage their stress. 19% of Americans said they never engage in stress management activities. (Anderson, et al., 2014)



The organizational implications of fear and stress are significant. Research shows that anxious people are less self-confident and more likely to ask and rely on advice from others, unfortunately they are also less likely to discern the quality of the advice or to recognize conflict of interest (Gino, Brooks, & Schweitzer, 2012). Moreover, fear of being perceived negatively up the organizational chain can prevent employees from communicating freely and deliver feedback or raise concerns due to "fear of being viewed or labeled negatively, and as a consequence, damaging valued relationships" (Milliken, Morrison, & Hewlin, 2003)

Managers are also afraid of negative feedback and perceived assumptions about employees can also further cut down on their desire to share information, which creates a culture of silence and stifles innovation. (Morrison & Milliken, 2000)

"Exposure to stress--either over the long term, such as three weeks or even one week or just one day--can produce structural changes in the neurons of the prefrontal cortex." — Dr. Carla Wellman

Such communication breakdowns can lead to decreased trust. In fact a recent survey shows that employees do not trust their organizations with 1 in 3 surveyed reporting that their employer is not always honest and truthful with them. "This lack of trust should serve as a wake-up call for employers," says David W. Ballard, PsyD, MBA, head of APA's Center for Organizational Excellence. "Trust plays an important role in the workplace and affects employees' well-being and job performance." (Excellence, 2014)

On an individual level, stress has profound impacts on our neurology. When under stress or when fearful, our brains are flooded by stress hormones such as cortisol, the frontal lobe, where most of our executive functions reside, shuts down and we lose our ability for compassion, strategy and trust building and we are left to more primitive responses such as fight, flight, appease or freeze. (Goldsmith, 2014)

Effects can be lasting (Wellman, Brown, & Henning, 2005). As Dr. Carla Wellman points out "exposure to stress--either over the long term, such as three weeks or even one week or just one day--can produce structural changes in the neurons of the prefrontal cortex. A neuron's shape is critically important to the way it processes information. We have seen profound changes as a result of stress and changes in behavior that the prefrontal cortex is directly responsible for." (Piurek, 2008)

It is clear that stress and fear are a significant factor for work productivity and the quality of relationships and interactions. We believe that it is a big hurdle that has to be addressed in order to create the workplace of the 21st century, which will produce the innovative solutions to the many significant problems society faces. We believe that our approach is particularly well suited to arm individuals and teams with the ability to manage fear and stress and help them focus their attention on learning, progress and forward movement.

PART I:

**HOW BNW IMPROV-
BASED TRAININGS
MOVE EMPLOYEES
FROM FEAR**

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01 Changing a learner's mindset

In her groundbreaking work Carol Dweck argues that mindset is key to success and compares two mindsets: fixed mindset and growth mindset.

01 Adopting a "Growth Mindset"

Dweck shows how the fixed mindset (the belief that intelligence, talents, abilities and personality are fixed and unchangeable) creates significant amounts of anxiety in those who possess it because they perceive setbacks and challenges as proof of their unworthiness and as a result tend to become bitter, disillusioned or withdrawn. The growth mindset on the other hand assumes that intelligence, personality and skills are all dynamic and through effort one can change and improve. Growth-minded people tend to perceive challenges and setbacks as simply a step in a process and are motivated to work and try harder in the face of adversity instead of giving up. (Dweck, *Mindset: Psychology of Success*, 2008)

02 Can We Change?

The big question becomes, can we change our mindset? And the answer is a definite yes. Dweck and her team have completed multiple studies which show that when students are taught the growth mindset, they are able to adopt it and increase their academic performance. (Dweck, *Teaching a growth Mindset*, 2013). Moreover, when armed with the right mindset students are able to build resilience to academic and social challenges. (Yeager & Dweck, 2012)

According to Dweck to change one's mindset one needs to 1) recognize mental patterns

and the voice of the unproductive mindset 2) reframe information through the lens of the productive mindset and 3) choose one's behavior. (Dweck, *How Can you Change from a Fixed Mindset to a Growth Mindset*)

03 Improv Fosters Self-Awareness

Improvisation is an excellent vehicle to drive self-awareness as shown in the results of a four-year study of using improvisation in leadership programming in Australia. According to the researcher, "The method acted to enhance participants' focus on cognitive behavioural awareness. It provided an environment in which participants expanded their expressive emotional palette and also revealed possibilities for the translation of negative emotions like anxiety and confusion into creative energy by harnessing their reactive energy and thus enabling them to slow down their response rate, and in some cases to develop the capacity to choose their responses when under pressure." (Dennis, 2014)

BNW's improv-based curriculum is built around intentional facilitation and reflection activities, which help learners recognize their mindset patterns, and making a conscious choice to pick a new behavior or reaction. Learners are driven to shift to the Mindset of Discovery by practicing simple behaviors, which help them focus their attention and energy on learning and forward movement (growth) as opposed to fear and anxiety.

02 Impacting the Brain

We become what we practice, as we strengthen the brain networks associated with the activities we are working on, thus making those activities not only easier, but also more automatic.

01 We Can Change Our Brains

While Dweck's work is primarily on students, we know that adult brains can also change and improve. In the past 20 years the field of neuroscience has exploded and the concept of neuroplasticity, or the ability of the brain to change even in adult years has been widely accepted. We now know that with practice we are actually able to change our brains and affect not only the gray matter where most processing happens, but also the white matter, which connects the different parts of the brain. In a 2009 study Oxford researcher Dr. Heidi Johansen-Berg and her team showed that after six weeks of juggling training (weekly training sessions and 30 minute practice a day) there were changes in the white matter of this group compared to the others who had received no training. The changes were in regions of the brain which are involved in reaching and grasping in the periphery of vision. (Scholz, Klein, Behrens, & Johansen-Berg, 2009)

Aside from motor skills training there is evidence that mental training also has profound impacts on the brain. A study conducted on participants in an 8-week meditation course showed decreased activity in the amygdala when viewing various emotionally charged images while not meditating. This is the first study to show the lasting effects of mental training. Interestingly enough subjects who

practiced compassion meditation, showed spikes in amygdala activity in response to negative images -- all of which depicted some form of human suffering. (Gaëlle Desbordes, 2012)

Truly, we become what we practice, as we strengthen the brain networks associated with the activities we are working on, thus making those activities not only easier, but also more automatic.

02 Improv Triggers Brain Development

There is evidence that improvisation also has effects on the brain. Neuroimaging studies have shown that when improvising we use profoundly different parts of our brain than when performing from memory. (Liu, et al., 2012) In fact "during improv, the brain deactivates the area involved in self-censoring, while cranking up the region linked with self-expression" according to Dr. Charles Limb, a neuroscientist (Limb, 2008).

We believe that the ability to quiet down the inner critic and decrease self-judgment increase overall productivity, by helping employees share their ideas and opinions more frequently and freely, especially when they are on the spot or in unexpected circumstances, thus improving the information flow within the organization and counteracting fear-triggered behaviors.

03 Triggering laughter

Laughter is a powerful tool in helping individuals move away from fear and into discovery.

01 Laughter is a Powerful Tool

Another unique feature of BNW's improv-based curriculum and approach is that all sessions are accompanied by loud and frequent bouts of laughter as a result of the activities participants experience and the intentional manner in which our facilitators approach their work.

Laughter is a powerful tool in helping individuals move away from fear and into discovery. In a recent study researchers from Loma University show that laughter reduces cortisol, thus reducing stress (and improving memory for that matter) (Bains, et al., 2014) Other researchers have shown similar results of the stress-decreasing quality of laughter (and have paired it with improved immune system response as well) (Bennett, Zeller, Rosenberg, & and McCann, 2003).

02 The Benefits of Laughter

Additionally, laughter has been shown to affect the whole brain, giving it a workout similar to meditation. "What we have found in our study is that Humor Associated with Mirthful Laughter sustains high-amplitude

gamma-band oscillations. Gamma is the only frequency found in every part of the brain. What this means is that humor actually engages the entire brain -- it is a whole brain experience with the gamma wave band frequency and humor, similar to meditation, holds it there; we call this being, 'in the zone,'" said Lee Berk, DrPH, MPH, principal investigator of the study and associate professor at the School of Allied Health Professions and associate research professor, pathology and human anatomy, School of Medicine, at Loma Linda University. (PRWEB, 2014)

Another benefit of laughing as a group is that it increases endorphins in a way that simply having a good feeling while in a group does not. (Gorman, 2011) That certainly makes sense, when one considers that according to Robert R. Provine, a neuroscientist and Professor of Psychology at the University of Maryland "laughter is a ritualization of the sound of play." In his book *Laughter: A Scientific Exploration*, Provine shares that laughter is a signal that everything is OK and it is time to play and relax. (Provine, 2001)

04 Practicing the mechanics of acceptance and recognition

92% of employees who feel valued say they're satisfied with their job compared with 29% of those who don't feel valued.

01 Improv Creates Collaboration

In his 10 years of studying theatrical improvisation and the implications of improvisational teams on innovation Dr. Keith Sawyer has found that a key aspect of improvisation is its "collaborative emergence" characterized by 1) unpredictable outcome 2) a moment-to-moment contingency (meaning that one person's actions are dependent on the ones of the their teammates) 3) the interactional effect (any given action can be changed by the subsequent actions of other participants) 4) collaborative process in which each participant contributes equally. (Sawyer & Dezutter, *Distributed Creativity: How Collective Creations Emerge from Collaboration*, 2009).

02 Feeling Valued at Work

That inter-dependence within team members, when interacting, creates a wonderful sense of value of others' ideas, and true belief in the power of the group. How does that apply in the real world? A 2014 survey by the American Psychological Association shows that "whether or not employees feel valued is a huge differentiation. 92% of employees who feel valued say they're satisfied with their job compared with 29% of those who don't feel valued." (Excellence, 2014)



05 Building trust and team focus

In addition to helping learners practice valuing each other, BNW's improv-based experiences build trust.

01 The 8 Factors that Create Trust

Paul Zak, the famed neuroeconomist who has spent years on researching the neurochemistry of trust, empathy and morals and who popularized the role of Oxytocin in those processes, names eight factors that according to his experiments create trust (Zak, 2013)

- Ovation (Praise often, unexpectedly and visibly)
- Expectation (Set clear objectives)
- Yield (Allow your colleagues to choose how work is done)
- Transfer (Let those doing the work manage themselves)
- Openness (Practice transparency)
- Caring (Demonstrate concern for the whole person)
- Invest (Develop colleagues)
- Natural (Be authentic)

02 BNW Trust-Building Techniques

BNW improv-based activities and curriculum allow participants to practice the majority of these behaviors, especially ovation, yield, openness, caring and natural, thus helping teams build trust.

Finally, BNW's improv-based practices are typically team activities, which help participants shift their focus from their individual success to the success of the team, because only then would they perform the activities successfully. Incentivizing for group success, has proven to increase collaboration as shown by research by Marshall W. Van Alstyne et al. (Alstyne, 2005) Although the study was conducted on financial compensation, we believe that practicing shifting one's focus to team success leads to profound changes in how often and how well teams share information and collaborate, which in turn can be an antidote to the culture of silence and fear we examined in Section II.

PART II:

HOW A MINDSET OF DISCOVERY IMPACTS INNOVATION



01 Working out the creativity brain networks

Innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations. —*The National Science Foundation R&D and Innovation Survey*

01 Defining Innovation

There are many definitions of innovation, for the purposes of this paper we have adopted the definition cited in the Oslo Manual prepared by the Organization for Economic Co-operation and Development and Eurostat, which was also adopted by the National Science Foundation Business R&D and Innovation Survey (BRDIS) (Borouh, 2010) : "innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations." (Eurostat, 2005). Following this definition the NSF cites that in the period of 2006-08 overall about 9% of the estimated 1.5 million for-profit companies in the US were active product innovators. (Borouh, 2010) That is a strikingly small number given that innovation is considered a top priority for many CEOs and perhaps the key to success in the 21st century. With this in mind, we explore how improvisational behaviors practice can impact individuals and teams who are pursuing innovation.

02 Stimulating Business Innovation

Creativity, or the production of something novel and useful (Jung, Mead, Carrasco, & Flores, 2013), is one necessary component

for business innovation, as it provides the ideas and insights used to develop the new or significantly improved products, processes and methods.

Creativity is a vast area of study, which has been of interest to humans since antiquity. New technology has most recently allowed researchers to begin to identify the brain processes and structures that are involved in creativity and to shed more light on how creativity emerges. While there are still many unknowns, evidence points that creativity is a combination of several cognitive processes instead of just one, which are not relying on a specific region of the brain, but rather brain networks and hubs, which are engaged at different times and for different purposes. (Jung, Mead, Carrasco, & Flores, 2013)

03 Dissecting Creativity

The brain networks necessary for creativity are different than those needed for intelligence. As neuropsychologist Rex Jung points out in an interview, for intelligence to work, more is better in the sense that more neurons, more chemical connections between those neurons and direct paths between brains networks are what helps us process information quickly and efficiently. Creativity on the other hand, requires less, in the sense that

there is a down regulation in the frontal lobes, which allows for the brain to “meander” and for networks to link more freely, thus helping us link unexpected ideas and concepts. The phenomenon of “freeing” the frontal lobes is called “transient hypofrontality.” (Jung, Creativity and the Everyday Brain, 2013)

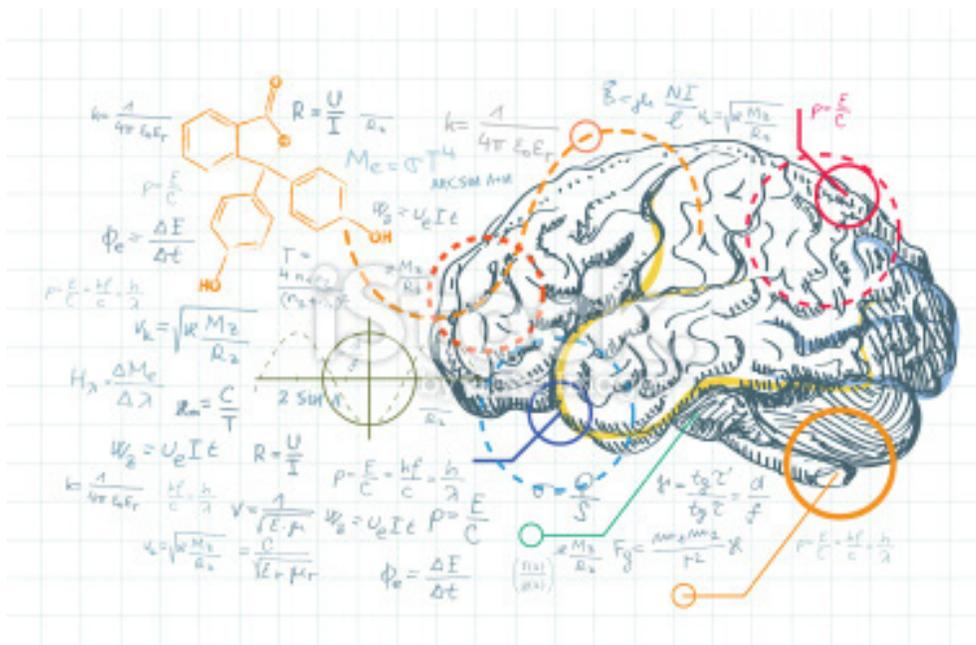
The old myth of right brain vs. left brain predominance is in fact incorrect, as cognitive processes, both analytical and creative depend on the neural networks of the brain and use the whole brain, not just one part of it. (Anderson, Nielsen, Zielinski, Ferguson, & Lainhart, 2013)

We already mentioned two fMRI studies performed on improvisers in section III as we discussed how practice can impact the brain (one on jazz musicians and one on freestyle hip hop artists). As it pertains to creativity, one study showed evidence of deactivation in the lateral prefrontal cortex associated with self-judgment (Limb, 2008) and the other showing a back and forth activation between

large brain networks (Liu, et al., 2012), which could be associated with a widely accepted construct of creativity called blind variation and selective retention (BVSR) (Jung, Mead, Carrasco, & Flores, 2013), which combines divergent thinking generating novel ideas with a selection process of the useful and feasible (Simonton, 2010)

While further research on the impacts of improvisation on the brain is necessary, from a practitioner’s stand-point, the effects it has on individual creativity are undeniable. (Drinko, 2013)

To aid the non-improviser with the tools to practice the core principles of improvisational activity and thus exercise and strengthen their creativity brain networks, the Brave New Workshop has distilled a simple set of five behaviors, and methods for practicing them, which are at the core of the Brave New Workshop experience.





02 Collaborating for innovation

As many have pointed out, innovation is not just about ideas (i.e. creativity), but also about execution (i.e. capitalizing on creativity).

01 Managing Ideas

Some researchers argue that companies struggle with innovation, not because of the lack of ideas, but because they are not able to execute them due to market, organizational or cultural pressures. (Govindarajan & Trimble, 2010) In other words innovation does not happen in a vacuum and is always a result of interactions and iterations. An individual innovator can seldom affect large organizational change.

02 Interaction is the Key

So how we play with others, function in a team, communicate and collaborate is key to the success of innovation. In his book *Group Genius*, Keith Sawyer shares case studies of innovative from diverse organizations, which embrace improvisation as part of their process. While employing bursts of planning, they tend to do a lot more executing and experimentation, which is the reason for their innovation success. Sawyer shares that “improvisational teams are the building blocks of innovative organizations, and organizations that can successfully build improvisational teams will be more likely to innovate effectively.” (Sawyer, *Group Genius: the Creative Power of Collaboration*, 2007)

In a 2005 empirical study examining the relationship between improvisation and innovation in teams, Vera and Crossan show that when teams complete improvisational tasks, if a number of contextual factors are true such

as teamwork (eg cooperation and trust), experimental culture, team expertise (domain- and task-relevant), and information sharing and communication, the level of innovation in those team increases. (Vera & Crossan, 2005) Those contextual factors are the foundation of successful improvisational teams, making the practice of improvisational behaviors a great tool to increase innovation.

03 Creating an Open Space

The role of a leader of an innovative team is different than that of a traditional manager. Instead of closely controlling the work-flow, leaders of innovative teams have to create safe spaces for their team members to work in and collaborate and can depend on the team to largely self-regulate. (Sawyer, 2007, p. 33) If that is indeed the case, we believe the leaders of innovative teams have to be especially skilled listeners and there is evidence that improvisational training can help. In her 2013 dissertation Farnaz Tabanaee describes her empirical study of the effect of improvisation in leadership development and reports that 100% of the leaders she surveyed after a controlled improvisational training experience indicated acquiring more effective listening skills. (Tabanaee, 2013)

Based on this evidence, and our experience with business innovation teams, we believe that improvisational behaviors training and practice are key to developing innovative teams within large and small organizations.



THE ROAD AHEAD

The BNW improvisation-based curriculum helps to reduce the dysfunctions of stress and fear within an organization while fostering acceptance, team trust, innovation and laughter.

Stress and fear are a source of dysfunction in organization and one way to address them is to help employees shift their mindset through continuous practice of simple behaviors paired with reflection and self-awareness activities. The BNW improvisation-based curriculum is a suitable and relevant approach to help individuals and teams shift away from fear due to the inherent nature of the curriculum, which helps learners decrease self-judgment, practice acceptance of others, build team trust, and laugh together.

The BNW approach is also relevant to innovation, as it provides an opportunity to practice the creativity brain networks on the individual level and key team dynamics which drive innovation on the group level.



WE DO WHAT WE DO FOR ONE VERY SIMPLE, SUCCINCT REASON: WE ABSOLUTELY BELIEVE THAT THE INFUSION OF LAUGHTER AND THE SHARING OF IMPROVISATIONAL SKILLS CAN INCREASE LEARNING, INNOVATION, LEADERSHIP, CREATIVITY AND PRODUCTIVITY.

—JOHN SWEENEY
OWNER, BRAVE NEW WORKSHOP

ABOUT US

For the past 55 years, the Brave New Workshop has been a creative laboratory shedding light on how people come up with ideas, how they collaborate, solve challenges and manage conflict.

For the past 15 years, our work has been especially focused on applying the cultural tenets of improvisation to the corporate world.

We have seen how the behaviors and attitudes of improvisation can impact human beings and can help them lead happier lives—lives that are focused on learning and discovery as opposed to stagnation and fear. While we know that one cannot live in a mindset of discovery at all times, practicing the behaviors of innovation can help one operate from this place more frequently. We hope to inspire and enable millions of people to choose a mindset of discovery and to avoid the habit of fear.

OUR TRAINING PROGRAMS

OPEN Mind: Enhance the innovation ability of individual learners by increasing their creative confidence and arming them with ways to practice innovation behaviors.

OPEN Space: Increase the innovation ability of teams by helping managers and leaders model, coach, reward and create space for innovation behaviors.

OPEN Culture: Ignite the entire organization by creating culture that fosters innovation behaviors.

OUR SPEAKING PROGRAMS

**John Sweeney:
Inspiring Innovation
at the Speed of Laughter**

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www.bravenewworkshop.com/creativeoutreach

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