



Heart of the Matter

rainbow

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Educating the Innovation Generation Part II: What Encourages Innovation?

Most people assume that creativity and innovation are qualities that a person is born with – that there are an extremely small percentage of people, perhaps, 1 in 1,000,000 who are creative geniuses. These creative individuals are the inventors and visionaries, but only *if* they are also given the proper circumstances and have the courage to buck a system that may do everything it can to squash creativity. The rest of us move throughout our mediocre lives which are interrupted occasionally by an invention or new paradigm that radically changes the way we function or think.

Although this may seem true, futurists and experts in innovation say that is quickly changing. Gary Hamel draws a metaphor between Earthquakes and change, “Like many sorts of change, major tectonic events happen very slowly and then all of a sudden...the forces of change finally break loose and the planet erupts.” Malcolm Gladwell made the term “tipping point” common and explains that change doesn’t happen in a straight-line, but is an almost flat line for long periods of time and then suddenly soars. Think of all the major revolutions in history, from the liberation of India, to the Civil Rights movement in America, and to South Africa– before the revolution

it seemed like the injustice would continue forever, but then one day it all shifted. Practically overnight, India became self-governed, segregation ended in the South, and Nelson Mandela was freed and became president of South Africa.

Experts claim we have already crossed the threshold into the Age of Innovation. The tipping point is here. So how do we modify our educational system and our lives to prepare our young people to be innovative? We can no longer believe that only a radical few individuals are worthy. In *Creating Innovators: The Making of Young People Who Will Change the World*, Tony Wagner assembled the biographies of young innovators, and developed a list of qualities that were commonly nurtured in their lives.

Using Wagner’s research, there are three vital ingredients to innovation: **Play, Passion, and Purpose**. Whether in the home, at school, or at work, these three elements are essential ingredients to creating an environment where innovation thrives. In this article, which is Part Two of a three part *Heart of the Matter* on Innovation, I will briefly describe aspects of creativity and innovation. In Part Three we will narrow

our lens on innovation to the context of education, and examine how traditional education has unfortunately been designed to squash innovation. Finally, we will briefly analyze how one particular school, Rainbow Community School, nurtures innovation.

PLAY

It requires a big shift in the American way of thinking to consider play as a method of learning or producing value. To most Americans, it sounds anti-intuitive – How can play lead to productivity?

Most of us think of play as something a child does. Brain science shows that children will learn more in the first seven years of life than the whole rest of their life combined. How are they learning so much? *With Play*. In a child's world, *play is work*. With the importance of play in mind, one would reason that play is also a key ingredient for older children and adults to learn and create. Unfortunately, play has come to be synonymous with “goofing off” – or spending time in a way that has no value other than frivolous entertainment or sloth. This couldn't be further from reality.

I am going to break play down into the following components: Experimentation, Imagination, Collaboration, and Enjoyment to help us better understand what play really is and why it is so vital.

Experimentation

What is learning? It is the most natural thing in the world. We realize when our babies first begin talking that they have been listening and learning from the instant they were born. When they are learning to walk they wobble a bit, fall over, and think to themselves, “That didn't work, I'll try something different.” In the spirit of play, they will try again and again, without fear of being “wrong” or making mistakes. Experimenting and testing hypothesis is one of the primary ways we construct learning.

Interestingly, making mistakes is the cornerstone of innovation. In fact, the mantra of modern day entrepreneurialism is “FAIL FAST,” meaning make lots of low stakes, small mistakes early on until you find the formula that will work.

The early progressive educators and child development pioneers, such as Maria Montessori, Lev Vygotsky, and Jean Piaget understood play to be the most important aspect of learning. John Dewey, the “Father of Progressive Education” coined the term “constructivism,” meaning children learn best when they *construct* their learning – when they learn by doing things, by trying and experimenting – rather than by

merely listening and summarizing. As soon as children become fearful of making mistakes, their ability to learn is severely dampened – one of the reasons high stakes testing, where mistakes are “wrong” – has rewired children's brains to seek right answers rather than explore creative solutions.

1. Imagination

Research shows a direct link between people who were imaginative as youngsters and who became highly creative, intelligent people as adults. From Alison Gopnik, professor of psychology at Berkeley and leader in the study of children's learning and development “Exactly the same abilities that let children learn so much about the world also allow them to change the world—to bring new worlds into existence – and to imagine alternative worlds that may never exist at all.” Imagination is at the root of envisioning new ideas, new products, and new ways of solving problems; but it also an important avenue for learning. Children need vast opportunities to explore boundless imagination – listening to stories and making up and acting out stories are just a few methods.

2. Collaboration

Children can learn independently, but to collaborate is a natural human drive. When people collaborate, the ability to construct learning increases dramatically. For the most part, whether it is our family or our work partners, we toss ideas around with other people. This increases the number of ideas and helps us ferret out what will work and what won't. Also, there is a severe limit to what one person can accomplish alone. Add colleagues, with various expertise and interests, and the possibilities are endless. *In A New Culture of Learning*, Thomas and Brown explain why online peer-to-peer groups and interactive group video games with role playing feel more important to many children than school. One of those reasons is the collaboration they offer. Learning and creating expand exponentially when collaboration is in force.

3. Enjoyment

I don't think enough attention has been given to the mere importance of having fun. In MRI scans, when people are having a pleasant experience and enjoying themselves their brain lights up – they are more capable of learning and producing. Children who are deeply in play are almost in a trance. This is similar to “the zone” that professional athletes, musicians, and mathematicians are in when they are performing at their best, meaning they are totally focused and in the present: no distraction, no thinking about external pressures-- just pure enjoyment. Being in “the zone” helps children learn how to focus. Also, a spirit of playfulness while at work or while learning, creates an

environment where people can get a natural injection of endorphins to keep them learning and creating at their optimal levels. We hear about Google and all the frivolous-sounding amenities available to their employees at any time, such as massage therapists, a volleyball court and gym, and free cafeterias. One thinks, “How does any work get done?” yet this is one of the most productive and innovative companies to ever exist, pulling in \$900,000 in profit per employee.

Wagner’s research and the countless interviews he conducted with young innovators showed a common history of children who were allowed to play when they were young. Their parents understood the importance of play and didn’t want them to be pressured by scholastic work too young.

Play isn’t just important before the age of seven. Businesses and organizations who have a culture of play – who joke around at work or who institutionalize play by allowing employees flexible schedules so they have ample free time, and days to explore new ideas – are the leaders in the new innovation economy. Other top innovating companies offer similar amenities to Google, plus employees can dress how they want and bring their pets to work. Innovative organizations structure employee time at work so that there is opportunity for spontaneous conversations that spur collaboration and great new ideas.

Adults who are going to thrive in a world with fast-paced change, need to be unafraid of making mistakes and willing to explore with an attitude of playfulness in order to adapt. Thomas and Brown: “Children and adults alike must continue to deal with an ever-changing, expanding world. A child playing with a new toy and an adult logging onto the Internet, for example, both wonder, “What do I do now? How do I handle this new situation, process this new information, and make sense of this new world? This alters the formula: In a world of near-constant flux, play becomes a strategy for embracing change...”

PASSION

Passion is the fuel that gives humans the superhuman ability to transcend barriers. When we are passionate about something, we are highly engaged. The more engaged we are, the better we learn and the more we produce. If you want employees to work hard or students to learn a lot, they need to be fueled by passion. Unfortunately, most work places haven’t caught on to this. One study revealed that a mere 21% of employees are truly engaged in their work. Gary Hamel thinks that managers have yet to understand the connection between engagement and financial success. Why should we expect children to be different?

In *The Future of Management* Hamel laid out a Hierarchy of Human Capabilities at Work that is similar to Maslow’s Hierarchy:

Level 6: Passion
Level 5: Creativity
Level 4: Initiative

Level 3: Expertise
Level 2: Diligence
Level 1: Obedience

Obedience is the most basic need for a worker to show up to work on time, follow the rules, and do the basic requirements of the job. Diligence is one rung higher, requiring employees to work hard and care about delivering great results. Add to that expertise, and you also have a highly trained work force. Hamel places a line here, because he says that in today’s market, a person with the bottom three qualities will not greatly succeed. Their job probably can be outsourced overseas to another obedient, diligent, and expert worker for a lot cheaper. However, once someone has initiative, they don’t have to be told what to do. They act instinctively and beyond their job description. If they are creative, they are highly valuable problem solvers, inventors and game-changers. Finally, he places passion at the top. Add passion to all the qualities below it, and you have people who see their work as a calling, who pour everything into their work as an extension of their life.

Wagner found that young innovators, without fail, were passionate about what they do. They pursued what they loved, and that led to success. When people told them, “Pursue what you love and the money will follow,” they didn’t regard that as quaint, impractical advice. They went for it! Malcolm Gladwell, in *Outliers*, introduced us to the concept of 10,000 hours, demonstrating that people who accomplished something truly extraordinary with their lives first had to spend at least 10,000 hours at it. That kind of perseverance requires passion. We have all heard the phrase, “If your work is something you love, you will never work another day in your life.”

Putting 10,000 hours into something you love also requires time to focus without too many distractions. When people get caught up in the system of jumping through the hoops of life’s bureaucracies, they lose time and passion to pursue what they really love. The biographies of accomplished innovators in Wagner’s book had parents who supported them when they took risks in order to pursue their passions. Laura White was

a champion swimmer – she was likely to earn a swimming scholarship to college. Yet when Laura became passionate about the injustices of society--specifically, how most childhood drownings were poor children who didn't know how to swim and she wanted to offer such children free swimming lessons--her parents supported her by allowing her to drop out of competitive swimming in order to found her non-profit organization, Swim 4 Life. Risk-taking, often synonymous with entrepreneurialism, requires passion.

PURPOSE

Play and passion by themselves are not enough to spark innovation. In Part I of this series, we looked at the Millennial Generation and the generation following it, and noted that they are far more intrinsically motivated (as opposed to extrinsically motivated) than previous generations. Through Wagner's research it becomes obvious that it's people with a purpose, people who pursue meaning in their lives, who are most likely to be innovative. In his interviews with young innovators, they kept referring to a desire to make a difference in other people's lives and toward the sustainability of the planet. Laura White didn't just want to teach swimming lessons, she wanted to save people's lives. Jamien Sills, the inventor of a totally green tennis shoe, didn't just want to make shoes, he made the world's most environmentally friendly athletic shoe on the planet.

Why is Purpose such an essential ingredient to innovation? Daniel's Pink's theory is that embracing a mission for change creates people who are willing to take personal risks and to make mistakes in order to further the cause. In one of the most watched Ted Talks on Youtube, an illustrator lays out Pink's formula for motivation:

Mastery + Autonomy + Purpose = MOTIVATION

Whether we are talking about students or employees, people need all three ingredients in Pink's formula to be motivated, productive, happy people. **Mastery** goes hand in hand with challenge: People need to be given a challenge in order to be engaged, and then given the time and tools to master that challenge. **Autonomy** has to do with choice. Maria Montessori was a master at creating choice in an educational setting. She understood that children, even at a young age, need to be able to exercise a certain level of free will in order to be engaged. This is even truer in the work place. Mastery and Autonomy are not enough, however. The final element in the motivation equation is **purpose**. When people experience real meaning in their activities, they remain inspired.

If personal gain is all your life is about, no matter how passionate and intelligent you are, a lack of values and purpose will impede your ability to be superlative. Personally, I would also add an esoteric element to the reason why purpose is necessary in people's lives. I believe that when one works for good, a higher power adds energy, insight and good fortune to the effort. May the force be with you!

EXPERTISE

As we wrap up the formula of Play, Passion, and Purpose as the essential ingredients in creating innovation, I need to point out the obvious: There is a lot more to it than that! And there are many other formulas laid forth by multiple experts and futurists. In particular, we don't want to leave this discussion without adding a final element: **expertise**. Teresa Amabile, director of research at the Harvard Business School, includes expertise (defined as knowledge – technical, procedural, and intellectual) as a key element in developing creativity. You can't create something out of nothing, so there has to be enough expertise to create innovation. This is a good segue into Part III of our series on the Innovation Generation, where we will explore education's role in developing innovators. The traditional role of education is to impart knowledge, or expertise, to the masses. We will explore how the conventional educational system has unfortunately become a barrier to innovation, but how schools, and how one school in particular, Rainbow Community School, in Asheville North Carolina, can equip students with expertise while also laying fertile ground for the future of innovation.

A full list of references for the "Educating the Innovation Generation" series was published in Part I.