

Betting Against Ingenuity: How to Discourage Innovation through Policy, School, and Cultural Norms

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Don't bet against American ingenuity, says President Obama whenever he speaks to workers in American industries. Across the political spectrum, we seem to agree that innovation drives the economy. In childrearing and education, however, we have been betting against ingenuity for decades, by selecting against the attitudes and behaviors that underlie creativity and by investing in ideas and programs that do little to encourage innovation. If you search the text of No Child Left Behind and Race to the Top funding legislation, for the term "creativity" and its variants, you will not get a single hit. In funding priorities, national research organizations have repeatedly bet against ingenuity by refusing to fund research on creativity and innovation in the schools. I challenge you to search all current funding opportunities in Institute of Education Sciences, National Science Foundation, or National Institute of Health – the major funders of research—to find ONE instance of the word creativity, much less a program offering funding for research into educational strategies to identify and encourage creativity in education, in science, or in health.

As a psychologist who studies creativity, I've had the opportunity to interview the inventors whose products changed the world, from well-known innovators like Steve Wosniak, who invented the Apple computer to unsung heroes like Blackie Hubbard, inventor of the first mechanical cotton picker. At the University of Kansas, I direct the Counseling Laboratory for the Exploration of Optimal States (CLEOS) where we find and mentor potential innovators while listening to what they have to say about school, work, and the future. I co-direct the Lawrence Creates Makerspace, where adult innovators establish start-ups based on their inventions. Inventors, old and young, have much to teach us about the barriers they encounter to creating products and services that are original, novel, and needed.

A slow-paced curriculum that teaches to the middle, parents' and teachers' obsession with social skills, and an emphasis on task-committed, conscientious behavior is what discourages them the most.

Slow Paced Curricula – Holding Creative Students Back

Holding creative children back – from entering kindergarten, from accelerated learning, and from concentrating on their personal projects – is the major way we bet against ingenuity. One can indeed be knowledgeable without being innovative, but one cannot be innovative without knowledge that can only be acquired by starting the basics early and moving rapidly through the facts, rules, and structure of a discipline. America's inventors got an early start, were encouraged to tinker, compute, think, and read to their heart's content, and were supported in their career goals, no matter how strange they seemed at the time. Steve Wosniak's parents negotiated with his school to allow their son to be enrolled in advanced math AND electronics shop, an outlandish combination at the time. Linda Buck, the Nobel prize winner who discovered the neurochemistry of the sense of smell, says of her childhood,

During my childhood, I did the things that girls often do, such as playing with dolls. I was also curious and easily bored though, so I frequently embarked on what were to me new adventures. Aside from school and music lessons, my life was relatively unstructured and I was given considerable independence. I learned to appreciate music and beauty from my mother and my father taught me how to use power tools and build things. (p.1)

Few children are given the freedom and encouragement to pursue their interests that we see in the childhood of great innovators. Creative students hunger to learn rapidly in their interest area. One student at our CLEOS lab said, “I know that Shakespeare is important and all, but I have this facial recognition program I’m working on, and I have ten lame word-finds about Julius Caesar I have to do before I can get back to working on it.”

Sadly, even some of our gifted education programs that are supposed to encourage creativity focus on silly, fantastical questions like, “What would aliens on Jupiter look like?” or impossibly broad questions like, “How can we solve world hunger?” rather than on the real world, local problems in which young innovators are interested. As a judge at the Intel Science Fair, I met young people who were encouraged to work on real problems, for example, an African American high school student in Chicago studied what kinds of vegetables could thrive in low-nutrient, urban soils and a fourteen year old who tested a new app on a large, simple mobile phone to remind elderly people at a local assisted living residence to take their medications. To create these innovations, the first student took a crash online course in soils and worked in a greenhouse; the second student learned to code, took an app development workshop, and volunteered at a retirement center. They were fortunate to have teachers and parents who allowed them the freedom to explore their interests and who provided the resources they needed to learn rapidly.

Another problem that young innovators encounter in their education is the constant encouragement to be well-rounded. E. Paul Torrance (1993) pointed out the danger of well-roundedness to the focused pursuit of knowledge. Creative young people have a distressing tendency to excel and persevere only in those areas in which they have true interest – leading to uneven academic performance, with A’s in their interests and C’s in everything else. Although necessary to innovation, this narrow intellectual focus often causes innovators to be left behind by authors of gifted identification formulae and college admissions officers, who want all-around high achievers in academic as well as social activities. In fact, our recent research on what variables predict that creative adolescents are in gifted education found that besides having high grades across courses, they needed to have social interests and extraverted, conscientious personalities (Kerr, Hu, & Vuyk, 2013).

Focus on Social and Emotional Skills

Our society’s intense focus on social achievements is puzzling to current and potential inventors. Innovators are not asocial; they are simply happiest working alone or with just a few friends with like interests. Yet boys are held back a year or more from schooling – “kindergarten red shirting”—so that they are bigger and competitive in sports where they are supposed to learn teamwork. If you ask most creative kids what they

dislike most about school (besides being bored), it's cooperative learning, the academic form of teamwork, because, as one girl said, "I end up doing all the work, but I have to act like everybody made a great contribution." Girls who want to complete high school requirements in three years are asked, "What about the prom?" As a recent NSF study led by Karen Multon and I showed, the women who persist in science and mathematics are those who value their intellectual goals as much or more than their relationship goals – but this is still a still surprisingly difficult path for females (Kerr & Multon, in press).

Emotional intelligence and social skills are hailed as the new necessity for entrepreneurs; but the truth is, most inventors concentrate on their work and leave the public relations to a business partner. For some odd reason, educators believe that children will learn social skills by being forced to interact with kids who are less gifted, less creative, and less curious – despite the absence of data to back this up. In addition, the vast increase in interest in social and emotional issues of gifted has a down side both for creative students. Claims that gifted kids are "intense" and "sensitive" not only pathologize the passion and social nonconformity that drive creativity; they also imply that these kids need counseling in order to cope – something to which most inventors would strenuously object. (Nicholas Colangelo and I learned that inventors' lowest personality score was "succorance" – the desire for help and sympathy!)

Focus on "Task Commitment," "Grit," and Hard Work

Finally, heretical as it seems, the American work ethic that claims that "anything worth doing is worth doing well" blocks innovation. Innovators are extremely industrious, sleeping very little and working feverishly on their projects, in a state of creative flow that ignores time, hunger, and interruptions. What makes them different from other hard workers is their previously mentioned tendency to be persistent in the tasks they choose. They are the opposite of perfectionists, because perfectionism in all things leads to performance without priorities. Innovators are *selectively conscientious*; they are superb prioritizers, so that neatness, routine meetings and filling out forms take low priority. Many of our most creative students have been labeled slackers who are "off-task" only to emerge from the basement with an app or a device that is patentable. In like manner, inventors often migrate from one corporation to another because their tendency to work on their own projects rather than assigned tasks gets them in trouble. The warehouse forklift, ice rink refrigeration, and a new oil drill bit were all products that emerged from such wildcat, off-task projects, according to a study. Maybe we need to cut the slackers some slack, and find out what they are doing in the basement.

In gifted education, we are currently in love with research on "grit," "mindset," and all the other new terms for task commitment, hard work, and conscientiousness in all things. Those of us who teach really do like those students who get things in on time, who follow our directions, and persist to the end of all the tasks we set for them. Americans love to believe that people get ahead by hard work and persistence; but innovators love their work so much that it seldom seems effortful to them, and they will quickly abandon a project that doesn't engage their passions. In addition, in a society in which girls are socialized to be neat, compliant, and conscientious in getting all their work done, this emphasis on training kids away from trusting their own intuition about what tasks deserve their priorities is a double dose of creativity prevention.

Cultural norms develop to fit needs, and for the last two decades, we have educated young people to be agreeable and co-operative as well as hardworking and industrious at whatever they do. *In short, we have created a generation of service workers.* They are probably the nicest, most eager to please students we will ever have – but how many baristas do we need? Can we allow the driven, wildly imaginative few to move ahead with their education, challenging them and mentoring them along the way? Can we redesign our identification procedures to profile innovators so they can get individualized mentoring in their areas of expertise? We have the knowledge and methods – see *Profiling Potential Innovators* (Kerr & McKay, 2013) – but we need to use them. Can we assign resources to fund their projects, to create incubators, and to bring them together in creative communities? Doing these things is what it means to bet on ingenuity.

- Buck, L. (2012) Nobel Biography. Retrieved 9/25/2013 from http://www.nobelprize.org/nobel_prizes/medicine/laureates/2004/buck-bio.html
- Colangelo, N., Kerr, B., Hallowell, K., Huesman, R., & Gaeth, J. (1992). The Iowa Inventiveness Inventory: Toward a measure of mechanical inventiveness. *Creativity Research Journal*, 5(2), 157-163.
- Kerr, B., & McKay, R. (2013). Searching for Tomorrow's Innovators: Profiling Creative Adolescents. *Creativity Research Journal*, 25(1), 21-32.
- Kerr, B., Hu, B., & Vuyk, A. (2013). *Predictors of academic achievement and gifted education status of creative students*. Paper presented at American Psychological Association, Honolulu, HI, August. Available from bkerr@ku.edu
- Torrance, E. P. (1993). The beyonders in a thirty year longitudinal study of creative achievement. *Roeper review*, 15(3), 131-135.
- Kerr, B. A. & Multon, K. D. (in press). Gender identity, gender role, and gender relations in gifted education. *Journal of Counseling and Development*.