

May 25, 2019

Creativity and Creativities: The Challenges Ahead

In tribute to Teresa Amabile

By Howard Gardner

© Howard Gardner 2019

I am pleased to have the opportunity to pay tribute to Teresa Amabile, perhaps the outstanding empirical researcher on creativity of our time. Certainly no one is more outstanding! Her contributions are multiple and have been transformational to the field—both methodologically and substantively.

One way of paying tribute to Teresa would be to chronicle her accomplishments and to delineate the ways in which they differ from work that my colleagues and I have undertaken over the decades. But ever foresighted, Teresa herself undertook this task several years ago and did a masterful job (Amabile, 2014). As she described it, her own work has focused on “little c” creativity—how to understand it, how to facilitate it. In contrast, my work has focused primarily on “Big C Creativity”—what enables some individuals to change a domain and what the rest of us can learn from such paragons, from artists like Pablo Picasso or Virginia Woolf, scientists like Charles Darwin or Albert Einstein, and societal leaders like Eleanor Roosevelt or Martin Luther King, Jr.

As a “senior” member of the group of researchers that have worked on creativity in recent decades, I’d like to delineate the challenges that lie ahead for the next generation:

Building a bridge between studies of Big C and little c creativity

Until recently, researchers have focused either on outstanding examples of creativity—so-called Big C (Csikszentmihalyi, 1997; Gardner, 1993; Gruber, 1982; Simonton, 1994)—or on ordinary, everyday examples of creativity—so-called ‘little c’ creativity (Amabile, 1983, 1996; Torrance, 1988).

But there is no reason why this division of labor needs to continue. Indeed, in our recent works, both Teresa and I have been moving to the middle ground in the study of creativity—Teresa in her study of problem solving and finding in the workplace (Amabile & Kramer, 2011) and our research group in the study of youth who have published works of visual art and works of literary art (Gardner & Davis, 2013).

In this context, it is appropriate to cite the extremely influential “systems model of creativity” as proposed thirty years ago by Csikszentmihalyi (1988). According to this model, creativity occurs in the interplay between individual creators, specified domains and fields of knowledge, and influential judges and gate keepers. While developed principally to account for ‘big C’ creativity, the model can be brought to bear to the range of creative persons and activities.

With the advent of social media, as exemplified by the brief messages conveyed on Twitter, do we need to add a fourth C—a mini-C—to the old trio of Big, middle and little C?

And can mini-C give rise to the larger Cs, or is it consigned to remain in a digital purgatory indefinitely? Emily Weinstein and I consider these possibilities in a recent review (Gardner and Weinstein, 2019).

Going forward, to what extent will creativity become the province of groups, rather than individuals?

These groups could be as small as the legendary “skunk works” where a small group of individuals with complementary expertise are given carte blanche to proceed in whatever way they like; or as large as the worldwide network of users of the Internet who are called on to solve a problem; or the teams of many hundreds of scholars who can converge on a puzzle in genetics or in astrophysics. A clue is found in recent research in the sciences, where the work of groups has become norm. Research by Wu, Wang, and Evans (2019) suggests that highly original work is more likely to come from small groups of researchers than from large teams.

Will the study of creativity—once the province of humanistic and social scientific approaches—draw increasingly on the biological sciences?

So far, the contributions of neuroscience to our understanding of creativity has been modest. Personally, I find most interesting the recently discovered role of default networks in creating the time and space for creative thinking (Kandel 2016; Starr 2013). In addition, we are at the very beginning of our understanding of possible genetic contributions to creative potential and creative achievement. I suspect that there is a significant heritable component to various intellectual capacities (Gardner, 1983) as well as to personality characteristics like energy, drive, persistence, and self-confidence—and some of these may well prove be important traits of creative individuals engaged in challenging projects.

In the era of digital media, will the incidence of creativity increase or decrease?

I often raise this question when I am addressing an audience and ask the members to predict whether student creativity is greater now than it was 20 years ago, in a pre-digital era.

The question turns out to be a trick question; neither of the stated alternatives is correct. Rather, as Katie Davis and I have reported (Gardner and Davis, 2013), the answer depends on the medium involved. Comparing student productions in the visual arts, between 1990 and 2010, we found that the works of the latter group were judged as more creative. But then, when we examined student literary productions across the same years—1990 and 2010—we found that the stories and poems were judged as less creative. Marshall McLuhan put it succinctly: “the medium matters.”

Does the story of creative thought and work, as described in Western social science, play out similarly across cultures?

Until now, most research on creativity has used Western research methods and models and has focused on societies in the West and those influenced by the West. But it is possible

that the 'story' of creativity could be quite different, if examined with a cross-cultural lens. Indeed, my own studies of creativity in China, carried out a quarter of a century ago, suggest a quite different formulation—with creative work occurring in the latter years of life, rather than in earlier decades? (Gardner, 1989)

Will the systems view of creativity (Csikszentmihalyi, 1988) need to be reconfigured in a digital and "AI" era?

It is possible that instead of individual creators, we will think primarily in terms of groups; instead of individual domains and disciplines, we will think primarily in terms of multi-media and multi-disciplinary endeavors; and instead of a small set of powerful gatekeepers, the field will consist of millions of consumers, who by their 'thumbs up or down' will trigger the fate of specific creators and creations.

Could it be the case that artefactual entities will be able to create works of art, or, indeed, works of science and scholarship, that are judged (by humans or by programs!) as more creative than those issued by ordinary human beings?

Or might it be impossible to disentangle the contributions of the human being from that of the computational devices they have designed?

Contemporary observers are already considering these alternatives. By virtue of AI "deep learning" algorithms, it is now possible to produce works of poetry and scientific abstracts that are considered acceptable by the customary judges in these spheres. At the very least, so-called "normal science" and "normal artistry" may well be the province of such computational entities. The pressure on purely human creators is to push the envelope ever forward. As veteran composer John Adams has put it recently, "We live in a time when there are no templates. Mozart was a genius, but he did not have to find a new template for each piece. Each of us, when we write a new piece now, whether it's a 22-year-old composer or someone my age, we have to decide its form."

If the latter alternative emerges, future Festschrifts will be designed and written by smart programs—and perhaps read and enjoyed by them as well. In which case, one has to ask: whose birthdays, or whose celebrations, will be fêted? Meanwhile, let's toast Teresa Amabile, on whose pioneering work future efforts in this area will be constructed.

References

- Amabile, T. (1983). The social psychology of creativity. New York: Springer Verlag.
- Amabile, T. (1996). Creativity in context. Boulder, CO. Westview Press.
- Amabile, T. & Kramer, S.J. (2011) The progress principle. Boston: Harvard Business Review Press.
- Amabile, T. (2014). Big C, Little C, Howard and me: Approaches to understanding creativity. In M. L. Kornhaber and E. Winner (Eds.), Mind, work, and life A festschrift on the occasion of Howard Gardner's 70th birthday. Volume 1. Available at: https://www.amazon.com/Mind-Work-Life-Festschrift-Occasion/dp/1499381700/ref=sr_1_fkmrnull_1?keywords=%22mind+work+and+life%22&qid=1555857977&s=gateway&sr=8-1-fkmrnull
- Barone, J. (2019). Ades and Adams: Big composers with simultaneous big premiers. The New York Times, March 6, 2019.
- Carey, B. (2019) Can big science be too big?. The New York Times, February 13, 2019.
- Csikszentmihalyi, M. (1988). Society, culture, and person: A systems view of creativity. In R.J. Sternberg (Ed.), The nature of creativity. New York: Cambridge University Press, pp. 325-339.
- Csikszentmihalyi, M. (1997). Creativity, Flow and the psychology of discovery and invention. New York: Harper Torch.
- Gardner, H. (1983/2011). Frames of mind: The theory of multiple intelligences. New York: Basic Books.
- Gardner, H. (1989). To open minds: Chinese clues to the dilemma of American education. New York: Basic Books.
- Gardner, H. (1993). Creating minds: An anatomy of creativity seen through the lives of Freud, Einstein, Picasso, Stravinsky, Eliot, Graham and Gandhi. New York: Basic Books.
- Gardner, H. & Davis, K. (2013). The app generation: How today's youth navigate identity, intimacy, and imagination in a digital world. New Haven: Yale University Press.
- Gardner, H. & Weinstein, E. (2019). Creativity: The view from Big C and the introduction of tiny c. In R.J. Sternberg and J.C. Kaufman (Eds.), The nature of creativity. Cambridge, UK: Cambridge University Press.

Gruber, H. (1982). Darwin on man (Second edition). Chicago: University of Chicago Press.

Kandel, E. (2016). Reductionism in art and science: Bridging the two cultures. New York: Columbia University Press.

Simonton, D. K. (1994). Greatness: Who makes history and why. New York: Guilford.

Starr, G. (2013). Feeling beauty: The neuroscience of aesthetic experience. Cambridge: MIT Press.

Torrance, E. P. (1988). The nature of creativity as manifest in its testing. In R.J. Sternberg (Ed.), The nature of creativity. New York: Cambridge University Press, pp. 43-75.

Wu, L., Wang, D., & Evans, J. H. (2019). Large teams develop and small teams disrupt science and technology. Nature 566, 378-382.