

Creativity: New Views from Psychology and Education

Two Orders of Creativity

Was Mozart just like the rest of us? Could any of us actually have composed fiction like Virginia Woolf, danced like Martha Graham, or made the scientific discoveries for which Marie Curie was awarded the Nobel Prize? If the answer to any (or all) of these questions is an unambiguous “No,” we may ask in which ways these three individuals differed from a random sample of humanity. But suppose, on the other hand, that at least some continuity obtains between these individuals of singular achievement, and the rest of us. We may then turn our attention to the question of how any of us might resemble a Mozart or a Curie, and what kind of regimen might bring such singular achievement within our grasp.

Though I have yet to use the word, it should be evident that I have been speaking about human “creativity.” Moreover, implicitly, I have been playing on the two meanings of this term. In English, we apply the term “creative” in two quite distinct senses. We label as “creative” those individuals who are able to accomplish feats at the very height of their profession — those composers, dancers, writers, or scientists who are admired and emulated by practitioners of their craft and by other individuals as well.

Yet, in almost the same breath, we also use the word “creative” to refer to mundane activities that fall within the purview of the proverbial man on the Clapham omnibus: if he does not take part in the officially organized activities of “creative dance” or “creative writing,” he certainly can point to the drawings that his daughter creates or to the imaginary terrain that he envisioned when he was a child exploring on the trails near his home.

Psychologists and other social scientists have often exploited the ambiguity in the term “creativity.” Some scholars focus on the achievements of masters, while others investigate the kind of invention, exploration, and experimentation that falls well within the capacities of ordinary youngsters and oldsters. While there was perhaps a tendency some decades ago to emphasize the differences in personality or mentation between a creative titan and the rest of us, nowadays there has been a correlative proclivity to assume that the creative giant does not differ in any deep way from her peers. Still, acknowledging that most of us are not at risk of winning the Nobel Prize, many scholars have followed the lead of Margaret Boden (1990) and in effect introduced a distinction between P (for Personal) creativity and H (for Historically recognized) creativity.

In what follows, I initially defy the current trends. I describe a study of individuals who are truly extraordinary and explain the ways in which I find them to be different from you, me, and the fellow on the omnibus.

But then, joining forces with my contemporaries, I conclude by indicating some features that may yet link us with these extraordinary individuals, and by suggesting some ways in which we might foster creativity in ourselves or in others for whose development we are responsible.

Roots of Study

My study has two principal roots. The first is personal. Some years ago I developed a theory of intelligence, called the theory of multiple intelligences, which rejects the notion of a single intelligence (or *g*) as measured by a standard intelligence test (Gardner, 1993a, 1993b). Drawing on various strands of information, ranging from studies of prodigies to explorations of the brain, I proposed that a more adequate view of cognition can be secured if we think of human beings as having evolved over the millennia to carry out at least seven kinds of information-processing and problem-solving. My seven intelligences encompass language, logic and mathematics, spatial thinking, musical intelligence, bodily-kinesthetic problem-solving, and two forms of personal intelligence: interpersonal and intrapersonal.

Having made the case that intelligence is better construed (and perhaps even lexicalized) as a pluralistic entity, I pondered the phenomenon of creativity. I concluded that it is highly unlikely that there exists a general “across the board” creativity. Instead, I posited that each form of

intelligence may harbor, within it, its own form of creativity. Individuals have the option of developing this creative potential, in light of their own desires as well as the dictates and options of their society.

I could have elected to study ordinary individuals but I thought that the essential characteristics of creativity would emerge more sharply if I were to examine a population that consisted of individuals who stood unambiguously within the highest, creative ranks. Desiring to narrow the field down to a set of comparable individuals, I chose one person per intelligence from the ranks of those who lived a century ago. In *Creating Minds* (Gardner, 1993c), I present an anatomy of creativity as seen through the lives of Sigmund Freud (my representative of intrapersonal intelligence), Albert Einstein (logical-mathematical intelligence), Pablo Picasso (spatial intelligence), Igor Stravinsky (musical intelligence), Martha Graham (bodily-kinesthetic intelligence), T. S. Eliot (linguistic intelligence), and Mahatma Gandhi (interpersonal intelligence).

The second root of my work derives from the way in which I have come to think about creativity. Here I find myself relying heavily on the work of two colleagues: Mihaly Csikszentmihalyi (1988) and David Feldman (1994), both American psychologists (see also Feldman, Csikszentmihalyi, & Gardner, 1994). In our view, creativity cannot be thought of simply as the property of a

single individual with her own brain and personality, no matter how brilliant and unusual that person might be. Rather, creativity is necessarily an interaction, a dynamic, among three discrete constituents:

- The individual, with his or her distinctive abilities, styles, needs, desires, and program;
- The particular domain or discipline of knowledge within which that person is trained and within which that person now works;
- The field — that collection of individuals and institutions which offer training, positions, and awards, and which eventually make decisions about the merits (or lack of merit) of particular products fashioned by the individual.

Note that, according to our analysis, it makes no sense to speak of the individual, the domain, or the field as creative or non-creative in itself. Rather, the possibility of creativity emerges only when an individual carries out work within a domain and the field ultimately comes to value that work. Indeed, the individuals whom we consider most creative — like the septet of individuals that I studied — actually change the nature of the domain. As a consequence, the next generation of individuals will actually study a domain that has been somewhat differently configured. And this dynamic operates in a similar manner, whether one is probing Picasso and cubism, Eliot and poetry, or Einstein and the theory of relativity.

Exemplary Creators

Armed with a definition of creativity and a cast of fascinating individuals, I immersed myself in their lives and times. It was time well rewarded. I found that in many ways the lives of these seven exemplars were surprisingly similar. A fictional individual whom I dubbed E. C. (for Exemplary Creator) was born in a locale somewhat removed from the center of her society. She grew up in a home that was reasonably supportive though also one that required disciplined work. By the end of adolescence, at a time when the ultimate domain or career had typically not been chosen, the future creator already had moved to a metropolitan area (Vienna, Paris, New York), where she sought out the companionship of other talented and energetic young people like herself.

Whatever their ultimate degree of sociability, aspiring creators turn out to be relatively gregarious during their early adult years. They discover, or return to, a domain and master it, a process that takes upwards of a decade. Their personality is such that they do not readily accept limits or standard practices: they want to try something new. This pull toward novelty often isolates them; and yet at the time of most intense immersion in an unexplored territory, the future creator needs some kind of support from other human beings — cognitive support from an individual who understands the nature of the “domain breakthrough” that is imminent; and affective support — from someone who loves them

unconditionally and assures them that they are not mad. Realization of a breakthrough takes many years; it is characteristic of the most outstanding creators that they may preside over a number of breakthroughs during their lifetime, each of which takes about ten years to bring to fruition. Typically, there is resistance to each breakthrough; the creator comes to expect opposition and may paradoxically even gain sustenance from the struggle with the protectors of tradition.

The framework of intelligence-domain-and-field proved useful for organizing my findings. For example, while I had expected (indeed, virtually stipulated) that each individual would exhibit an outstanding intelligence, I actually found that all these individuals were excellent in more than one area of intelligence; and that their breakthroughs often in fact depended upon an unusual combination of intelligences. For example, Freud stood out as a scientist in terms of his remarkable linguistic and personal skills, while Einstein exhibited unusual spatial skill as well as logical-mathematical ones. Nearly all of the creators were also decidedly weak in one of the areas of intelligence. I also discovered that these creators were, or at least became, difficult persons: demanding, self-promoting, tough-skinned and sometimes even sadistic. When I first presented these findings in Britain in early 1990s, a local newspaper ran the headline: "Einstein = Genius minus Niceness." While I am loathe to add to the literature of pathography, I have to concede merit in this pithy formulation.

The perspectives of the domain and the field also yielded insights. In some cases, for example those of Picasso and Stravinsky, the creators worked in domains (painting and music) which were already well-established. But Martha Graham found it essential to forge a new domain called modern dance, and both Freud and Gandhi are more legitimately thought of as inventing their own domains (psychoanalysis, peaceful resistance or satyagraha) than as practicing in domains that were already constituted. The status of fields also differed from one creative life to another. In the case of a political leader like Gandhi, his effects had to be appreciated by thousands if not millions of individuals. In contrast, so long as the few leading physicists in Einstein's time attested to the merit of his work, its reputation and influence were virtually assured.

Unexpected Findings

While it is pleasing to find one's framework appropriate and one's expectations confirmed, a choice dividend for any researcher inheres in the surprises that are uncovered. I have already mentioned a few: the unexpectedly difficult personalities of these individuals; the fact that they each needed both cognitive and affective support from sympathetic others at the time of their crucial breakthroughs. Let me now mention a few other unanticipated findings:

1. *Not prodigious in early life* — I had anticipated that

most of these individuals would be prodigies. But except for Picasso, this was not the case. Indeed, one could not have predicted the future careers of most of these individuals had one encountered them at age 20. There are four possible relationships between early and late achievements:

- The individual, like most of us, who is neither prodigious nor an ultimate domain-breaker;
- The case of a prodigy who never fulfils his or her promise (most chessplayers, musicians, and mathematicians);
- The rare case of a prodigy who also becomes an adult creator, like Mozart or Picasso;
- The creator of the modern era, who first becomes a certain kind of hard-driving personality and then selects the domain of expertise, making the selection so from constrained options.

2. *A Faustian bargain with work* — Though not all these individuals would have been termed workaholics in their youth, they all became totally involved in their work to the extent that nothing else mattered. The Romans had a phrase for the option faced by maturing persons: *Libri aut liberi* (books or children). Even those of our creators who spawned children paid little attention to them; as the creators got older, all of their (perhaps waning) energies were devoted to what they perceived as their most important legacy — the future fate of their work.

3. *Five varieties of creativity* — When I began my work, I thought, in common with most students of creativity, that creation consisted of various forms of problem-solving. It is true that some of the work of these individuals, and particularly those with scientific interests, can be adequately thought of as a variety of *problem-solving* (Variety 1). Yet, most activities were more adequately characterized in terms of four other descriptors:

- *Creation of a general framework or theory* — prototypical examples include Freud's theory of the unconscious or Einstein's theory of relativity;
- *Creation of a work in some kind of enduring genre* — the best description of the symphonies, plays, dances, etc. produced by the artists;
- *Staging of a routinized performance* — what performing artists like Martha Graham achieve: their creation occurs in their actual dance at a given historical moment, and not in the notated or recorded version of that dance;
- *Staging of a high-stake performance* — Gandhi's creativity inhered significantly in his ability to stage an effective protest or fast; since this interactive activity could not be planned out entirely in advance, Gandhi had to be able to perform adaptively on the spot, with the costs of failure possibly being very high.

Relation Between Creative Heights and Ordinary Experience

My brief survey of a lengthy book suggests that the lives led by creative individuals are not just like the lives led by the rest of us. To start with, we may well not have had the home life of these individuals; or the peculiar blend of intellectual strengths and weaknesses; nor will we have necessarily developed the requisite tough-skinned, probing, and iconoclastic personality. Should we resemble the future creators on these entry-level requirements, there are still the additional burdens of spending ten years working in a domain, shifting willingly to a new and risky line of endeavor, and ultimately devoting one's life to one's work. Even if assured that one could reach a reasonable level of creativity by following this plan, one might well elect not to — and, indeed, given the pressures and challenges that each creator had to confront, one might well decide not to encourage one's children or younger friends to reach for the proverbial Promethean fire.

If, on the other hand, one wanted to achieve the heights of creativity oneself, or to guide a student in that direction, clear implications follow from my study. To begin with, an individual must learn to lead a life of discipline, to master an area, usually by working under some kind of guidance for a period of up to ten years. Even Picasso and Mozart required lengthy apprenticeships at the hands of their demanding fathers; however, the apprenticeships ended when the men were still so young that Mozart had

another 20 years, and Picasso, another 75 years, to go beyond the teachings and examples of their fathers. The aspiring creator must master the tradition yet not be so overwhelmed by it that he fears going beyond established practice. That, indeed, is the challenge for the prodigy; many more can master the discipline than can turn their backs on some of its guiding precepts, once that discipline has painstakingly been mastered.

In addition to the discipline, intelligences, and perseverance that are needed, the future creator must evolve into a certain kind of person. He or she cannot be too ready to please, too influenced by the surrounds, too upset by critical feedback — or, perhaps an even more painful possibility, by the absence of feedback at all. Here is where shrewd parenting and teaching come in. It is equally damaging to tell the youngster that everything that she fashions is great, as it is to rip everything that she does to shreds. The educator of the future creator needs to walk a fine line, always encouraging the youngster to stretch, praising her when she succeeds, but, equally important, providing support and a non-condemnatory interpretative framework when things do not go well.

Eventually, the aspiring creator can supply much of this support, scaffolding, and interpreting framework for himself; and yet; my study suggests, when the most demanding creative work is being tackled, it is important to have at one's side another human being who can provide sustenance. Alas, my study also suggests that this

act of kindness is not likely to be required: more often than not, the creator feels he owes his debt to posterity, rather than to those who happen to have helped him during his brief time on earth.

So far I have spoken primarily about the individual as a creator, and about the circle around him or her. Paradoxically, by the time that one is an adult, these are the factors least likely to be susceptible to change. Where the would-be creator can work effectively to separate herself from the pack is through attention to the other two factors discussed above: the domain and the field.

Every aspiring creative individual must work in some kind of domain. In most cases the domain is already well-established; in rare instances, the creator must help to construct the domain, in the way that Freud and Graham did. Having a sense of where the domain has been, where it might be headed, and where it could just possibly be nudged, is a crucial requirement for a creator. If the creator is stuck in the same mold as everyone else, she is unlikely to be able to sense a potential breakthrough. On the other hand, if the creator is too removed from the domain, too much inhabiting his or her own world (as in the case of the schizophrenic artist, for example), there will not be any rules by which to operate, and those knowledgeable about the domain will be unable to relate to the work that is produced. A finely tuned sense for domain evolution is a vital skill — and if one does not receive help from a master, one needs to develop this skill on one's own.

The field is equally vital for any aspiring achiever. In the absence of knowledgeable others, who can apprehend and judge what one has created, one's work is consigned to a kind of limbo. It is a matter of luck that we have been able to appreciate the poetry of Emily Dickinson, the canvases of Vincent van Gogh, or the genetics of Gregor Mendel, for their contemporaries apparently could not discern the quality of their work. On the other hand, the individuals whom I studied were all well aware of the existence and operation of the field; unwilling to leave their fate to the vagaries of posterity, they devoted efforts to ensure that their work came to the attention of the appropriate influential gatekeepers and judges.

Now it is surely premature to approach the ordinary or the talented five or six year-old and require her to pay attention to the ways in which judges approach her work. But by later childhood, it is not inappropriate to begin to introduce the standards of the domain and to allow the student to see how judgments of quality are made. To be sure, the field is not always correct; indeed, the history of creativity is virtually a history of judgments that were initially misguided. But the point is: one simply cannot do without some kind of evaluative field. When the field's judgments are negative or "off-the-mark," one either has to educate the field, hoping that it will somehow educate itself, or create a new field to replace one that is irremediably wrong-headed.

My focus on domain and field should not be taken as a signal that the actual quality of the creator's work is unimportant. I certainly do not believe that this is the case; indeed, espousing a decidedly non-postmodern view, I believe that it is legitimate to speak about the quality of a work and I believe as well that quality will out. The RSA (Royal Society for the Encouragement of Arts, Manufacturers and Commerce) presumably shares this ancient prejudice. But I hope to have convinced you that quality in itself has no meaning in the absence of a domain where it is realized and a field by which it is judged. And perhaps I have also prompted you to consider that creative individuals may differ less in the initial properties of their nervous system than in their pursuit of a single-minded aim, their knowledge of how their domain operates, and a correlative sensitivity to the operation of the institutions that make judgments of quality, such as this venerable Society.

Creativity in School

While few would state outright that they oppose the cultivation of creativity in school, it is probably accurate to say that the promotion of creativity is, and has traditionally been, a low priority in schools all over the world. This state of affairs exists not only because there is much else that has to be accomplished in school, from fostering civility to teaching calculus (or at least calculation). It is also because, in fact, the cultivation of creativity in school makes the classroom a more disruptive place. Do we

really want students who are tough-skinned and who ignore most social signals? Do we want to encourage the breaking of rules of a domain? Do we want youngsters to “psyche out” the practices of taste-makers, particularly ones who may be on the lookout for iconoclasm?

My guess is that most teachers, and most non-teachers, are just as happy if the cultivation of creativity is consigned to after-school, extra-curricular activities, if not to the *atelier* or the madhouse. Or perhaps it is less cynical to suggest that creativity is a luxury, which might be cultivated in a few progressive schools, or in a few opulent surroundings that can afford both “the basics” and “the icing.” To be sure, at the workplace, or on the stock exchange, at least a few creative souls may be at a premium; but most of us are quite willing to let these individuals be selected by a societal Darwinian mechanism rather than spawned by a school test or curriculum (Hudson, 1966).

Were one benighted enough to wish for a more creative student body or for student work that merits the epithet “creative,” how might one go about achieving that end? I am convinced that students watch what we do, rather than what we say, and I suspect that creative students are most likely to emerge in those home, school, and after-school settings, where domain mastery goes hand in hand with constant challenging and at least periodic irreverence. I do not know about the schooling of the four Beatles or the creators of *Beyond the fringe*¹ but I suspect that there

were some iconoclastic mentors and models around, on the media if not in the home or community setting.

In an effort to engender a more positive attitude toward creative activities, my colleagues and I have recently conducted a small study (Blythe, Li, Policastro, & Gardner, 1994). We worked in two middle school classes (students aged 12–13) in a Boston suburb. In line with the model of creativity introduced above, we reasoned that creative activity made little sense in the absence of some kind of practice where basic rules had already been mastered. And so we decided to encourage creative experimentation in the preparation of book reports (reports of books they had studied) in English class, and essays in social studies (roughly speaking, history) class. In each case, we first reminded students of the usual procedures to be followed in these domains. Then we encouraged them, by precept and example, to take a chance and to prepare written pieces that were non-canonical and yet appropriate and engaging for themselves and for other readers.

The results of this preliminary study were revealing. In most cases we clearly brought about a change in students' attitudes about creativity. Most students initially thought that one could only be creative in the arts and that creativity was an inborn talent. After participating for several months in the program, these students came to believe that creativity was a potential that exists in any domain and that any individual could improve the creativity of his or her work through reflection, experimentation,

and useful critique. Interestingly, while many of the students claimed that their attitudes had not changed much, our analysis of their responses indicated that they in fact had been affected by participation in the program.

What of their actual work? It would be misleading to suggest that a few months' "treatment" produces work that is significantly more creative. Indeed, it goes against the "ten-year rule" to suggest that one can inculcate creativity in a brief span of time. Our "treatment" did encourage students to take chances, to shift genres, to adopt a different style or tone: and so, for example, students handed in illustrated book reports, created new endings for books that they had read, related the historical immigration that they had been studying to contemporary trends within their community, and took other steps which, while within their repertoire, might not have been elicited in school under ordinary circumstances.

Most of the students reported that they liked these exercises, particularly the ones involving the book report. A minority (a few less than 20 per cent) were critical of the endeavor. Either they saw no point to it at all; or they feared that this frill cut into the time that they needed to master the basic curriculum and to prepare for college. I am quite sure that if the teachers had changed their curriculum more radically, these complaints would have been more widely uttered by the parents in this affluent suburb; and perhaps our team of educational

researchers in pursuit of creativity would have been barred from the school in the future.

One final encouraging sign is that we visited the participating teachers some months later and found that they were continuing to use our materials and to encourage these practices. They found that the “turn toward creativity” was effective in class. This result is important, given my belief that genuine creativity is only likely to be achieved if it is modeled, and sought, regularly over a long period of time. Otherwise, curricular interventions like ours will remain just curiosities.

A More Creative Society?

Our study hints at the possibility of a curriculum, and a school, in which creativity is more highly valued. Could one in fact afford to have a society with such a value system? While I would personally enjoy living in a society in which more individuals were challenging convention and fashioning new works in new genres, I am dubious that such a thirst for novelty is widespread. On the contrary, I think that significant amounts of creativity in a significant number of domains is seen as quite threatening to the social fabric (Fromm, 1941). This phenomenon can be seen most dramatically in totalitarian societies where even the ruler who has never spent a minute listening to contemporary music or reading the poets of the time suddenly begins to insert himself into

these domains and does not rest until the innovators have been removed permanently from the society. But I think that actually reflects the basic conservative nature of society, where too much innovation is difficult to handle. As the psychologist Williams James (1890) pointed out a century ago, when the fires of creativity flame too brightly, the society itself is likely to burn.

James wrote around 1900, the time covered in the study that I carried out. I happen to believe that the period from 1890 to 1930 was an unusual time in the Western world, a time when old values and practices were being challenged and a new world view was being forged. We are still living off of the fruits of this creative era in many domains. Such periods are not common: Athens in ancient times, China during the Tang dynasty, Florence in the early Renaissance, perhaps London and Paris in the mid-18th century, and the metropolises of Europe and America in the early part of this century. These occasional epochs are exciting times to live in, and they exert a profound effect on the future, but they do not, and perhaps cannot, last too long. And there is no guarantee that they will be positive periods — perhaps the next eruption of human creativity will turn out to be the last one. Nor is it likely that such epochs can be engineered; the science of creativity may have arrived at the point where it can help us to understand outstanding instances of creativity but it is nowhere near the point where it can predict the next breakthrough or help to bring it about. And perhaps that is just as well.

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Note

1. “Beyond the Fringe” was a wildly popular revue in Great Britain in the 1960s; its members were Alan Bennett, Jonathan Miller, the late Dudley Moore and the late Peter Cook.

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