Rider University, USA

John Baer

Domain specificity of creativity: Theory, research, and practice

Abstract:

Research over the past two decades has shown that the cognitive skills underlying creativity in diverse domains vary widely. Some people evidence creativity in many domains, of course (and many show little creativity in any domain), but this is not because of some underlying creativity-relevant cognitive skill, personality trait, motivation, or attitude that can be deployed across domains, but rather because of a variety of such skills, traits, motivations, and attitudes, each contributing to creativity in different domains. Creativity has commonly been thought of either as a set of domain-general skills that can be applied broadly like a special kind of intelligence or as a general personality trait that colors a person's approach to any kind of task or problem, but these ways of thinking about creativity are misleading. A better metaphor for creativity than either intelligence or a personality trait is expertise. This paper will review research that demonstrates the domain specificity of creativity (including research in creative writing); explain what that research means in terms of our understanding of the cognitive processes underlying creativity in different domains; and suggest how a domain-specific understanding of creativity can guide and enrich the work of those who wish to nurture creativity in writing.

Biographical note:

John Baer is a Professor at Rider University. His research on the development of creativity and his teaching have both won national awards, including the American Psychological Association's Berlyne Prize and the National Conference on College Teaching and Learning's Award for Innovative Excellence. He currently serves on the editorial boards of the *Journal of Creative Behavior*: *Psychology of Aesthetics, Creativity, and the Arts*; and the *International Journal of Creativity and Problem Solving*. His books include *Creativity and Divergent Thinking: A Task-Specific Approach*; *Creative Teachers, Creative Students*; *Creativity Across Domains: Faces of the Muse*; *Reason and Creativity in Development; Are We Free? Psychology and Free Will;* and *Essentials of Creativity Assessment*.

Keywords:

Creativity – Domains – Domain specificity – Expertise – Creative writing

Introduction

It is common to refer to people as 'creative' (or 'extremely creative,' 'not very creative,' etc.), but what do such attributions imply? Does this suggest that the person so identified is creative in everything (or at least most things) she does? Should we expect someone who is creative in one area to be generally above-average in creativity across the board? Put another way, do the skills that lead to creative performance in one domain typically transfer in ways that promote creativity in other, unrelated domains? These are questions that have been important to creativity researchers and theorists (e.g., Amabile 1983, 1996, Baer 1993, Gruber & Davis 1988, Kaufman & Baer 2005, Kaufman & Sternberg 2005, Runco 1989, Silvia, Kaufman & Pretz 2009) and to creativity trainers (e.g., Baer 1997, Baer & Kaufman in press).

Although psychologists who study creativity have reached no firm and uncontestable answers to these questions, the consensus in the field has moved over the past quarter century from a belief in domain generality to one of domain specificity. The first (and to date only) Point-Counterpoint debate ever sponsored by the *Creativity Research Journal* (Baer 1998, Plucker 1998) focused on this question, which is central to our understanding of creativity. Because an accumulating body of research in the decade preceding this debate had suggested that the skills, dispositions, aptitudes, traits, propensities, and motivations that lead to creative performance vary from domain to domain (Baer 1991, 1993, 1994a, 1994b, 1996, Feist 1998, Runco 1988), even the author arguing *for* domain generality in that *Creativity Research Journal* Point-Counterpoint debate on this question acknowledged that domain specificity theory seemed to have already won the argument, overturning years of mistaken notions of domain generality:

> Recent observers of the theoretical (Csikszentmihalyi 1988) and empirical (Gardner 1993, Runco 1989, Sternberg & Lubart 1995) creativity literature could reasonably assume that the debate is settled in favor of content specificity. In fact, Baer (1994a, 1994b, 1994c) provided convincing evidence that creativity is not only content specific but is also task specific within content areas (179).

This debate is not over, but in the thirteen years since that landmark *Creativity Research Journal* Point-Counterpoint exchange, the evidence for domain specificity has only grown stronger (for a recent summary, see Baer 2010). The question is not one of whether or not the cognitive skills that underlie creativity are domain-specific – to some extent everyone now agrees that they are – but rather whether or not there are *any* creative thinking skills that are truly domain general. As briefly outlined below, the evidence for such skills is surprisingly weak.

The following three sections of this paper will (a) summarize the evidence for domain specificity of creativity, (b) explain how creativity researchers and theorists make sense of these findings, and (c) suggest what this research and the conceptions of creativity that are based on it imply for creativity training, with special attention to the development of creative writing skills.

Evidence for domain specificity

The two competing theories about creativity – that it is domain-general or domain-specific – make very different predictions regarding actual creative performance, and this difference makes testing these theories fairly straightforward. Here's how one creativity researcher summarized how these predictions should differ:

> Domain generality would be supported by high intercorrelations among different creative behaviors and a common set of psychological descriptors for those behaviors, while domain specificity would be supported by relatively low correlations among different behaviors, and a diverging set of psychological descriptors of those behaviors (Ivcevic 2007: 272).

If creativity is a domain-general skill, then it should influence creativity on virtually any task one undertakes. Other things will of course be important (e.g., specialized domain skills, knowledge, and interest), and these will also influence the level of creative performance a person will exhibit in a given domain. But if creativity is domain-general and a person has enough domain knowledge to perform at some level in that domain, then people who are more creative than most other people in one domain should be (on average) more creative in other domains as well.

Domain generality of creativity therefore predicts positive correlations among the creativity ratings of artifacts produced by individuals in different domains. Domain specificity predicts the opposite: low or nonexistent levels of correlation among creative products produced by individuals in different domains. All that needs to done, then, is find out if people who are more creative in domain A tend, on average, also to be more creative in domains B, C, D, and E. That is, are there in fact 'high intercorrelations among different creative behaviors' (Ivcevic 2007: 272), as domain generality predicts?

Assessment of creativity is tricky, but here is one method of creativity assessment that is well-suited to test the domain specificity question: the Consensual Assessment Technique (CAT), originally developed by Teresa Amabile (1982, 1983, 1996) and further developed by others (e.g., Baer, Kaufman & Gentile 2004, Hennessey et al. 2008, Kaufman et al. 2008). Because (a) it is based on evaluations by experts of actual creative performances or artifacts, and is therefore a measure of the actual creativity of those products, not just of things believed by some theorist to be related in some way to creativity, (b) it is not linked to or dependent for its validity on any particular theory of creativity, and (c) it uses essentially the same method for assessing creativity as is used in most domains in the 'real world,' the CAT has sometimes been called the 'Gold Standard' of creativity assessment (Carson 2006). The CAT asks experts to rate the creativity of products in a domain in the same way that, say, the Academy Awards ask experts in the field to rate movies, actors, and directors, or Nobel Prize committees in different fields rate the work of practitioners in their respective fields. The CAT is certainly not perfect (neither, one could argue, are the judgments of Academy Award and Nobel Prize Committees), but it is probably the best available method to assess real-world creativity.

> The CAT is based on this idea that the best measure of the creativity of a work of art, a theory, or any other artifact is the combined assessment of experts in that field. Whether one is selecting a poem for a prestigious award or judging the creativity of a fifth grader's collage, one doesn't score it by following some checklist or applying a general creativity-assessment rubric. The best judgments of the creativity of such artifacts that can be produced – imperfect though these may be – are the combined opinions of experts in the field. That's what most prize committees do (which is why only the opinions of a few experts matter when choosing, say, the winner of the Fields Medal in mathematics – the opinions of the rest of us just don't count). The CAT uses essentially the same procedure the judge the creativity of more everyday creations (Kaufman, Plucker & Baer 2008: 54-5).

Experts rate the creativity of a set of things people have created by comparing them to one another. The experts are given no other instruction because it is important that they use their own expert sense of what is creative in a domain. It is also important that they work independently of one another so that they cannot influence one another's judgments in any way (which would artificially inflate their levels of agreement). Despite working alone and without outside guidance, inter-rater reliabilities tend to be quite good, generally in the .80-.90 range (Amabile 1982, 1983, 1996, Baer, 1991,1993, 1994a, 1994b, 1994c, 1996, Baer, Kaufman & Gentile 2004, Kaufman et al. 2008).

Two issues regarding the CAT deserve special mention: the qualifications of those serving as judges, and the validity of the CAT in regard to judging paradigm-shifting work. Regarding the qualifications of judges, it is important to bear in mind that the CAT is grounded in judgments of what recognized experts believe is creative in their respective domains, and in fact most work using the CAT carefully delineates the expertise of the raters actually used in each study. (A single study may use multiple groups of raters because creations in more than one domain are involved.) There has also been much research focusing on the question of who qualifies as an expert in a domain, especially when judging the work of research subjects who are not highly skilled in the domain, such as when judging the writing of college students or even younger students. There have been studies comparing the ratings made by experts (e.g., in judging the creativity of poetry this might include groups of published poets and poetry critics, each making their creativity ratings independently; the number of such experts might range from 5 to 25, depending on the study, with larger numbers of experts preferable) and either novices (people with no special expertise; these are often college students because of their ready availability) or what might be termed 'quasi-experts' (e.g., high school English teachers or graduate students in English literature). In general this research has shown that novice judgments do not match those of experts well at all; that ratings made by quasi-experts are somewhat correlated with those of experts, sometimes at a high enough level that they can be used as replacements for experts; and that these correlations vary across domains (e.g., novices come closer to expert judgments of short fiction than of poetry). What is consistently demonstrated, however, is that experts tend to agree with one another, even though their ratings are done entirely independently of one another, with coefficient alphas (a measure of inter-rater reliability) typically reaching .80 or higher

for groups of judges (Amabile 1983, 1996, Baer, Kaufman & Gentile 2004, Baer, Kaufman & Riggs 2009, Kaufman, Baer & Cole 2009, Kaufman, Baer, Cole & Sexton 2008).

Regarding genius-level creative work, the CAT has not been used as a research tool to assess creativity at the highest level (what might be termed paradigm-shifting creativity; cf. Kuhn, 1973). It is unknown how well such assessments might work at this level – one might expect that the CAT would break down for truly paradigm-shifting work because in a period of paradigm transition the very foundations (and standards) of a domain are in dispute – but this is not really relevant to the way the CAT is in fact used in research, which is always in judging the creativity of what creativity researchers call 'little-c creativity' (as opposed to 'Big-C creativity'; see Beghetto & Kaufman 2007) In this research, the CAT has demonstrated exceptional reliability and validity (Kaufman, Plucker & Baer 2008).

CAT and CAT-like assessments of the creativity of subjects in diverse domains have been conducted, and the result is generally quite low inter-correlations among the creativity ratings of artifacts in different domains produced by the same subjects. This has been true of subjects of all ages from kindergarten through adulthood, and it has been true both in essentially random samples of subjects and with subjects who have evidenced considerable degrees of creativity in different domains. When variance attributable to math and verbal standardized test scores has been removed statistically, the inter-correlations hover around zero. (For a summary of this evidence, see Baer 2010; Silvia, Kaufman & Pretz 2009).

Domain specificity theorists have also discussed the existence of polymaths, people who excel (and are creative in) many different areas (Kaufman, Beghetto & Baer 2010, Kaufman, Beghetto Baer & Ivcevic 2010). If creativity is domain-specific, one might ask, how could one person be so creative in several domains? But this is something of a red herring, and in fact one might instead ask the opposite question: If creativity is domain-general, why are there so *few* polymaths?

The existence of polymaths, and their scarcity, can actually be explained rather easily under either theory; polymaths are certainly interesting, but they actually tell us nothing about the domain specificity or generality of creativity. Here's an analogy: someone can have a rich vocabulary and also be a fast runner, and yet these can remain distinct domains with distinct underlying abilities required for success. A person who is creative in two domains doesn't demonstrate that creativity is domain-general any more than a fast runner with a rich vocabulary demonstrates that running and vocabulary acquisition rely on the same basic abilities. Only if *most* fast runners had rich vocabularies (and most slow runners had poor vocabularies) would this demonstrate a linkage between the two abilities. If the two skills are unrelated, then one would expect some fast runners to have rich vocabularies and some to have poor vocabularies – which is exactly what we observe.

In the same way, if creativity is domain-specific, then one would *expect* some people to be highly creative in more than one domain[1]. Domain specificity doesn't predict that people will be creative in only a single domain. It says only that the skills, knowledge, aptitudes, or talents underlying creativity in different domains are

different, and for this reason creativity in one domain does not predict creativity in other domains. Assuming that such domain-based creativity-relevant talents are randomly distributed, one would *expect* that a few people would be creative in many domains, that some people would be creative in several domains, and some others would be creative in few domains or none, based on a normal distribution of unrelated abilities. So the presence of a few da Vincis does not disprove domain specificity. It is *exactly* what domain specificity predicts.

The scarcity of polymaths doesn't rule out domain generality either. It is true that most genius-level creators are *not* extremely creative outside the one domain in which they show excellence, but this is easily explained by what psychologists call the 'ten year rule' (Hayes 1989), which argues that it takes many years of preparation before even the most talented people can reach the levels of knowledge and skill necessary to produce ground-breaking work in any domain. As Gruber and Davis wrote, 'Perhaps the single most reliable finding in our studies is that creative work takes a long time' (1988: 264). These long years of intense preparation must be spent in 'deliberate practice and the development of expert performance' (Weisberg 1999: 233). So if it takes ten years just to *prepare* one's self for the kind of paradigm-shifting creative work that may one day come to be called a work of genius, it should come as little surprise that few people manage to reach the highest levels of creative accomplishment in several fields in a single lifetime. Even if creativity were domain-general, polymaths – at least at the level of genius – would be rare.

The theory of domain specificity argues that we should expect to find a few creative artists who are also creative musicians, and a few creative teachers who are also creative poets; we just shouldn't expect to find a general correlation between the two skills (Kaufman, Beghetto & Baer 2010, Kaufman, Beghetto, Baer & Ivcevic 2010). The existence of polymaths does nothing to disprove domain specificity. Similarly, the many geniuses who failed to find even modest success in other fields do not disprove domain generality, because most geniuses commit to one field and are simply unable to give as much attention and effort and time to any other pursuit.

One area that has drawn intense interest is the possible relationship between creativity and mental illness. This is an area where the domain-general approach to creativity that was once widely accepted has misled researchers. Recorded observations that the incidence of mental illness was higher among creative people go back almost a century (Ellis 1926). Research has shown that creative people tend to be both *less* sane and *more* sane than their less accomplished counterparts, which has led to very hard-to-resolve disputes and data interpretation (Simonton 2010).

The problem, however, seems to be the domain-general nature of the questions that have been asked. In some fields, such as the arts, there is a positive correlation between creativity and mental illness. In contrast, creators in other domains, such as the sciences, may show no mental illness-creativity connection. Even within larger domains (like the arts) where the evidence generally points in a single direction, there may be very distinct micro-domain differences. For example, a fairly consistent finding in creativity research has been the tendency of poets – and especially female poets – to suffer from mental illness, more so than their counterparts in other fields of

writing, and far more than highly creative people in the sciences. It should be noted that this is true of genius-level writers, not necessarily of writers in general. But among this rarified group of extremely creative people, there are reliable differences in the rates of mental illness, based on the field of accomplishment (Kaufman 2001a, 2001b, Kaufman & Baer 2002). As Simonton wrote,

> the rate and intensity of adulthood symptoms vary according to the particular domains in which creative genius is expressed. … geniuses in the natural sciences tend to be more mentally healthy than in the social sciences; geniuses in the social sciences, more so than those in the humanities; and geniuses in the humanities, more so than those in the arts (2010: 226-28).

Because researchers were for so many years looking for large-scale, domain-general answers to the genius-madness question, a great deal of excessive disputative heat was generated. Once researchers began asking more domain-specific questions, however, the answers they discovered brought clarity to a previously murky area of research. This has also been true in research about personality traits associated with genius. There are such traits, but they vary greatly depending on the domain.

How can we best understand what it means to say that creativity is domain-specific?

In thinking about creativity, the model most often used has been intelligence rather than the much more useful and appropriate model of expertise. That was once true of creativity theorists (until the domain specificity revolution), and it is still the most common way of thinking about creativity by those outside the field. People tend think of themselves (and others) as generally creative (or generally not very creative). I won't argue here the merits and problems of intelligence testing (see Neisser et al. 1996, for a excellent summary of what we know about intelligence and its assessment) beyond noting that the evidence from IQ testing makes it clear that there is a skill or set of skills that correlational evidence suggests must be at least moderately important in many domains. This means that there is *something* domain-general about intelligence, and speaking of a person as intelligent, without specifying a particular field in which that person is intelligent, therefore makes sense: it means that a person so identified has abilities of the kind measured by IQ tests that are significantly above average and that, on a wide range of tasks from diverse domains, the person is likely to do comparatively well on most of those tasks. There is no need to qualify such claims by naming the specific domains in which the person described is intelligent (although it is also true that most people have greater and lesser abilities in some areas than others). If someone is intelligent, then it is reasonable to assume that they will have abilities in quite a few unrelated areas.

Expertise, in contrast, is commonly thought of as being very domain-specific. Saying that someone is an expert makes little sense unless the domain is in some way specified. Even in referring to people who have expertise in several domains it still makes sense to specify those domains; without such specification, it would be impossible to understand what it means to call someone an expert. We don't normally say that anyone is simply an expert without at least implicitly limiting this to specific

areas. (We have all know people who believe themselves to be the world's foremost authority on everything, of course, but we all also know this cannot be true of anyone.) Expertise varies widely by domain. Knowing that someone is an expert in Italian wines does not lead us to assume that person will also be an expert in statistics, field hockey, or pre-Columbian pottery.

Thinking about creativity in the way we think about expertise would be both more accurate (because both are highly domain-specific – and to the extent they are not, much of what little shared variance there may be is probably largely attributable to differences in general intelligence and access to educational opportunities) and because thinking of creativity in this way will lead to more accurate assessment and better programs to nurture creativity.

A recent hierarchical model of creativity provides a comprehensive general framework. This APT Model[2] (Baer & Kaufman 2005, Kaufman & Baer 2005) includes:

- a few very general factors like intelligence that impact creative performance to some degree across many domains,
- a small number of general thematic areas that describe large domains like science or writing that share some creativity-relevant skills, and
- many more specific domains and micro-domains that require skills and expertise that matter for creative performance only in one or a few very constrained domains or micro-domains.

The first level is very general, and each subsequent level gets more and more domain-specific.

There are some general factors that, although they are applicable across domains, nonetheless have very domain-specific manifestations. For example, one must be motivated to be creative, and intrinsic motivation (doing something simply because one finds it interesting or personally rewarding) has been shown to lead to much higher creativity than extrinsic motivation (doing something to earn a reward or to receive a good evaluation from others). This is true across domains. But motivation is actually very domain-specific. One cannot simply take one's motivation to write and apply it somewhere else. (One cannot, e.g., turn one's love of writing into love of balancing one's checkbook, doing one's math homework, or working out at the gym – although it is possible to use writing as a reward for doing something else that one is not otherwise motivated to do.) Even within a general thematic area like writing, one may be very interested in some kinds of writing but find other kinds of writing sheer drudgery, and the likelihood that someone will find every task or challenge in every domain interesting or be motivated to do all varied those tasks is vanishingly slim. Doing something in any domain requires motivation of some sort, and intrinsic motivation is generally more conducive to creativity than extrinsic motivation, but motivation is not fungible. It is very domain-specific.

What the domain specificity of creativity means for creativity training

If creativity were domain-general, then whatever creativity-relevant skills one might have should positively influence creative performance in all domains. And if creativity training improved one's creativity in one area, it would improve one's creativity in all areas (just as domain-general intelligence – what psychologists call *g* – is expected to influence intellectual performance across all domains, so if one had a way of increasing a student's *g,* one would presumably increase that student's intellectual skills and performance across domains). One would still need to know a great deal about music to write a symphony, and one would need to know very different kinds of things to write a sonnet or create a soufflé. But just as *g* claims to influence performance in math, writing, and many other areas, domain-general creative thinking skills, if they existed, would influence creative performance across domains.

The most common exercises used to promote creativity are those aimed at divergent thinking skill. Divergent thinking is the ability to come up with many different and unusual ideas in response to an open-ended question or prompt. If creativity were domain-general and a teacher wanted to have students do a number of divergent thinking exercises to increase their creative thinking skill, the content of those exercises really wouldn't matter. It would not matter at all whether one practiced by brainstorming unusual uses for a brick, words that rhyme with June, or things that taste like chicken. The effect would be the same – an increase in divergent thinking skill that would be equally applicable in any domain.

Unfortunately, creativity doesn't work that way. Just as to increase our muscle strength in general we have to do lots of different kinds of exercises that focus on different groups of muscles, to increase our creative thinking skills we need to do lots of different kinds of exercises in different content domains to increase a wide range of divergent thinking skills.

Because the content of the divergent thinking exercises matters, training that employs divergent thinking exercises with just one type of content would be expected to improve creative performance *only in that domain* – and in fact, this is exactly what happened in an experiment designed to test just this proposition (Baer 1996). In that study, middle school students were led through a variety of poetry-relevant divergent thinking exercises. They later wrote both poems and short stories. Expert judges (fiction writers, poets and teachers of fiction- and poetry-writing) who were unaware which students had been trained judged the poems of the trained students to be significantly more creative than those of the untrained students, but the training had no observable effect on the creativity of the students' short stories.

If one's goal is to increase one's students (or one's own) creative thinking abilities in a single domain, then doing a variety of different exercises in that domain makes most sense. For example, in the study focusing on poetry-writing creativity, the students did the following kinds of exercises (bear in mind these were middle school students with no special aptitude or interest in poetry):

- finding many words that sound like a given word (rhyme and assonance),
- finding many words that have the same initial sound as a given word

(alliteration),
- finding words that could stand for or in some way represent a given thing or idea (metaphor), and
- inventing phrases or descriptions of things that are richly suggestive of other things (images).

If one's goal were to enhance creative thinking skills in another area, then different content would be appropriate. Suppose one wanted to improve divergent thinking skills in the area of graphic arts. Here are three kinds of skills that might contribute to creativity in this field that might be used as the basis for brainstorming exercises:

- thinking of interesting ways to make use of a particular graphic element,
- thinking of interesting ways to represent a given object or idea using different graphic elements, and
- using color and/or texture to suggest different moods or feelings.

If one wished to improve creative thinking skills in a variety of domains, then divergent-thinking exercises with a much wider range of content would be appropriate.

Of course, divergent thinking skills are only one part of the domain-specific skills and knowledge one needs to be creative in a given domain. There is also much about the domain that must be learned, and many domains specific skills that must be acquired. The advice of teachers for millennia to learn from those who have preceded us – such as suggestions that one should read as much great writing as possible and practice many different kinds and styles of writing – will also be key to developing creativity as a writer. There are no shortcuts or one one-size-fits-all solutions to the creativity conundrum. Creativity is like expertise in many ways. It is very domain-specific, and it takes time – and often a great deal of hard work – to develop. But if it were easy, it wouldn't be nearly so interesting a subject, would it?

Endnotes

1. The domain specificity of creativity implies that the skills, traits, or other attributes underlying creative performance are not systematically distributed (because if they were, this would imply linkages among these attributes that would lead to domain generality). To the extent that such attributes are randomly (i.e., not systematically) distributed, basic statistics would lead one to expect some people to have many of them, others to have some of them, and still others to have very few. Here's an analogy: If there were a thousand each of red, blue, green, and orange marbles that were randomly distributed among one hundred people, a few people might end up with no marbles of any color and a few other people might end up with several dozen marbles of every color. Most people would get some mix, which might be a modest number of marbles of all colors or lots of marbles of some colors and few of other colors. That's how randomness works. Domain specificity therefore predicts small numbers of polymaths. Domain generality, in contrast, leads one to expect much larger numbers of polymaths because anyone who is creative in one domain (and therefore possesses those domain-transcending attributes that lead to creativity in all domains) would be expected to show creativity in many domains (all those in which he worked). But that is not what one finds in the world, where polymaths are quite rare.
2. APT stands, somewhat whimsically, for 'Amusement Park Theoretical' Model. The idea is that, just as there is a content-based hierarchy in amusement parks (e.g., at Disney World there are four different theme parks, each with its own focus; each park is further subdivided into

more content-specific domains; and within domains there are specific rides or attractions), there is an analogous content-based hierarchy in creativity-relevant skills.

Works cited

Amabile, T M 1983 *The social psychology of creativity*, New York: Springer-Verlag

Amabile, T M 1996 *Creativity in context: Update to the social psychology of creativity*, Boulder, CO: Westview

Baer, J 1991 'Generality of creativity across performance domains' *Creativity Research Journal* 4, 23-39

Baer, J 1993 *Divergent thinking and creativity: A task-specific approach*, Hillsdale, NJ: Lawrence Erlbaum Associates

Baer, J 1994a 'Divergent thinking is not a general trait: A multi-domain training experiment' *Creativity Research Journal* 7, 35-46

Baer, J 1994b 'Generality of creativity across performance domains: A replication' *Perceptual and Motor Skills* 79, 1217-18

Baer, J 1994c 'Performance assessments of creativity: Do they have long-term stability?' *Roeper Review* 7: 1, 7-11

Baer, J 1996 'The effects of task-specific divergent-thinking training' *Journal of Creative Behavior* 30, 183-7

Baer, J 1997 *Creative teachers, creative students*, Boston: Allyn and Bacon

Baer, J 2010 'Is creativity domain specific?', in J C Kaufman & R J Sternberg (eds), *Cambridge handbook of creativity*, Cambridge University Press, 321-41

Baer, J & Kaufman, J C 2005 'Bridging generality and specificity: The Amusement Park Theoretical (APT) model of creativity' *Roeper Review* 27, 158-63

Baer, J & Kaufman, J C (in press) *Being creative inside* and *outside the classroom,* Rotterdam: Sense Publishers

Baer, J, Kaufman, J C & Gentile, C A 2004 'Extension of the consensual assessment technique to nonparallel creative products' *Creativity Research Journal* 16, 113-7

Baer, J, Kaufman, J C & Riggs, M 2009 'Rater-domain interactions in the Consensual Assessment Technique' *International Journal of Creativity and Problem Solving* 19, 87-92

Beghetto, R A & Kaufman, J C 2007 'Toward a broader conception of creativity: A case for mini-c creativity' *Psychology of Aesthetics, Creativity, and the Arts* 1, 73-9

Ellis, H 1926 *A study of British genius*, Boston: Houghton Mifflin

Feist, G J 1998 'A meta-analysis of personality in scientific and artistic creativity' *Personality and Social Psychology Review* 2: 4, 290-309

Gruber, H E & Davis, S N 1988 'Inching our way up Mt. Olympus: The evolving-systems approach to creative thinking', in R J Sternberg (ed), *The nature of creativity*, New York: Cambridge University Press, 243-70

Hayes, J R 1989 'Cognitive processes in creativity', in J A Glover, R R Ronning & C R Reynolds (eds), *Handbook of creativity*, New York: Plenum Press, 135-46

Hennessey, B A, Kim, G, Guomin, Z & Weiwei, S 2008 'A multi-cultural approach to the application of the consensual assessment technique' *International Journal of Creativity and Problem Solving* 18: 2, 87-100

Ivcevic, Z 2007 'Artistic and everyday creativity: An act-frequency approach' *Journal of Creative Behavior* 41, 271-90

Kaufman, J C 2001a 'Genius, lunatics, and poets: Mental illness in prize-winning authors' *Imagination, Cognition, and Personality* 20, 305-14

Kaufman, J C 2001b 'The Sylvia Plath effect: Mental illness in eminent creative writers' *Journal of Creative Behavior* 35, 37-50

Kaufman, J C & Baer, J 2002 'I bask in dreams of suicide: Mental illness, poetry, and women' *Review of General Psychology* 6, 271-86

Kaufman, J C & Baer, J 2005 'The amusement park theory of creativity', in J C Kaufman & J Baer (eds), *Creativity across domains: Faces of the muse*, Hillsdale, NJ: Lawrence Erlbaum Assoc., 321-8

Kaufman, J C, Baer J & Cole J C 2009 'Expertise, domains, and the Consensual Assessment Technique' *Journal of Creative Behavior* 43, 223-33

Kaufman, J C, Baer J & Gentile, C A 2004 'Differences in gender and ethnicity as measured by ratings of three writing tasks' *Journal of Creative Behavior* 39*,* 56-69

Kaufman, J C, Baer J, Cole J C & Sexton, J D 2008 'A comparison of expert and nonexpert raters using the Consensual Assessment Technique' *Creativity Research Journal* 20*,* 171-8

Kaufman, J C, Beghetto R A & Baer, J 2010 'Finding young Paul Robesons: The search for creative polymaths', in D D Preiss & R J Sternberg (eds), *Innovations in educational psychology: Perspectives on learning, teaching, and human development*, New York: Springer, 141-62

Kaufman, J C, Beghetto, R A, Baer, J & Ivcevic, Z 2010 'Creativity polymathy: What Benjamin Franklin can teach your kindergartener', *Learning and Individual Differences*, 20: 4, 380-87

Kaufman, J C, Plucker, J A & Baer, J 2008 *Essentials of creativity assessment*, New York: Wiley

Kaufman, J C & Sternberg, R J (eds) 2005 *Cambridge handbook of creativity,* Cambridge University Press

Kuhn, T S 1962 *The structure of scientific revolutions,* Chicago: University of Chicago Press

Neisser, U, Boodoo, G, Bouchard, T J, Boykin, A W, Brody, N, Ceci, S J, Halpern, D F, Loehlin, J C, Perloff, R, Sternberg, R J & Urbina, S 1996 'Intelligence: Knowns and unknowns' *American Psychologist* 51, 77-101

Plucker, J A 1998 'Beware of simple conclusions: The case for the content generality of creativity' *Creativity Research Journal* 11, 179-82

Silvia, P J, Kaufman, J C & Pretz, J E 2009 'Is creativity domain-specific?: Latent class models of creative accomplishments and creative self-descriptions' *Psychology of Aesthetics, Creativity, and the Arts* 3*,* 139-48

Runco, M A 1989 'The creativity of children's art' *Child Study Journal* 19, 177-90

Simonton, D K 2010 'So you want to become a creative genius? You must be crazy!', in D Cropley, J Kaufmann, A Cropley & M Runco (eds), *The dark side of creativity*, New York: Cambridge University Press, 218-34

Weisberg, R W 1999 'Creativity and knowledge: A challenge to theories', in R J Sternberg (ed), *Handbook of creativity*, New York: Cambridge University Press, 226-50