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How to Discourage Creative Thinking in the Classroom

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One would like to know how to teach students to think creatively. There are numerous proposals on the subject and a small amount of encouraging data (Cropley, 1992; Finke, Ward, & Smith, 1992; Nickerson, 1999; Stein, 1974, 1975; Sternberg & Lubart, 1991). I am becoming increasingly convinced that attitudes and beliefs play a much greater role in determining the quality of one's thinking – creative or critical – than is generally recognized. This is not to suggest that skills and knowledge are unimportant but rather that they are only part of the equation, and by themselves are insufficient to ensure that creative thinking will occur.

The idea that attitudes and beliefs are important to creative thinking – as well as to critical thinking – is not novel; many researchers have expressed it (Andrews & Debus, 1978; Baron, 1991; Deci & Ryan, 1985; Dweck, 1975; Reid, 1987). Unfortunately, research has not yet yielded a reliable prescription for promoting the attitudes and beliefs on which creative or critical thinking depends. It occurred to me that it might be easier to specify how to instill attitudes and beliefs that tend to stifle thinking, because, if the conclusions from numerous assessments of the thinking abilities of many students are to be believed, we collectively seem to know how to do this rather well.

While not wishing to claim to be an expert on how to stifle creativity, I know how I would go about it if that were my purpose. The following is a proposed set of rules for fostering attitudes and beliefs that will almost surely inhibit creative thinking by a large majority of nearly any group of students – at least that is my conjecture. The reader may see ways to improve the list.

- Perpetuate the idea that there is one correct way to do any particular task and that there is one and only one correct answer to every question. Emphasize the overriding importance of being right. Insist that students give back on tests precisely what they have been given in class. Tolerate no deviations. Promote the belief that all errors and mistakes are bad – causes for embarrassment. Waste no time in trying to figure out the basis (often

rational [Ben-Zeev, 1998; VanLehn, 1990]) behind incorrect solutions to problems, and make sure that students do not get the idea that errors sometimes give evidence of ingenuity and highly creative thinking, and almost always can be opportunities for learning.

- Cultivate an unquestioning submission to, and preferably a fear of, authority, especially the teacher's. Fear is recognized as a major determinant of conformity of behavior, if not of thought (Crutchfield, 1962; Freeman, 1983). And even if it does not ensure conformity of thought, it lessens the likelihood that unconventional ideas will be expressed. Remind students often of who is in charge and never admit to being wrong. Impress upon them the belief that questioning authority is disrespectful. Reinforce the idea that if something is written in a book, it must be true. Present your own views as the truth – never as opinions – and tolerate no challenges of them. Permit no discussion in class of ideas that you do not thoroughly understand. Never say "I don't know" out loud. Remind students from time to time that you have lived much longer than they and therefore are infinitely more knowledgeable and wise.
- Insist on adhering to the lesson plan at all costs. Let students work only on problems that are prescribed either by you or by their textbooks. Many researchers have stressed the importance of problem finding – as distinct from problem solving – as an aspect of creativity (Campbell, 1960; Getzels & Csikszentmihalyi, 1975, 1976; Mackworth, 1965; Okuda, Runco, & Berger, 1991; Runco, 1994; Runco & Nemiro, 1994; Starko, 1989). Creative students are very likely to want, occasionally, to explore problems other than those that someone else has laid out for them to solve. One may not be able to keep them from doing this on their own time outside the classroom, but one can make sure they understand that they are to work on prescribed tasks while at school, and their own interests are irrelevant.
- Disabuse students of the notion that they should aspire to have original thoughts. Such a notion is dangerous; *creativity* sometimes is defined as a tendency to have original and daring ideas (Cropley, 1992; Feldhusen & Treffinger, 1986). Promote the belief that genius is a rare quality, that few people are born with it, and the rest – the vast majority – must be content with thinking other people's thoughts and should not aspire to originate any of their own. Dismiss any temptation to believe that those researchers who contend that nearly anyone can be creative in one way or another could be right (Amabile, 1983; Cropley, 1992; Treffinger, Isaksen, & Dorval, 1994). When a student tries to express an original idea in class, be quick to point out what is wrong with it. If finding a specific fault is not easy, simply declare it to be incorrect, impractical, or bizarre. The teacher is in charge and not obliged to justify, or even explain, his or her assertions.
- Promote belief in the compartmentalization of knowledge. Be sure students see no connection between what is taught in English class and what

is taught in history or physics. Try to prevent them from getting the idea that the problem-solving approaches that are useful in one domain might have some applicability in another. This is very important, especially in view of Koestler's (1964) warning that a sure sign of creativity is a capacity to make connections that most people overlook.

- Use slogans to prove points. It matters little what point one wants to prove; one can always find a slogan that will fit. If you want to justify increasing the size of a working group, point out that "Many hands make light work"; if you want to decrease the size, use "Too many cooks spoil the broth"; if you want to hurry the class up, note that "He who hesitates is lost"; and if you want to slow it down, point out that "Haste makes waste." The important thing to get across, by illustration, is the idea that if one has an adequate stockpile of such handy maxims, one need never give much thought to one's behavior, because one can almost always find a pithy saying with which to justify it.
- Discourage curiosity and inquisitiveness. One might think this would be difficult because children seem to be naturally curious and inquisitive about all manner of things, but the evidence is quite compelling that it can be done fairly easily. When a persistent child insists on asking questions for which you do not know the answers, take the opportunity to point out their absurdity. "What a silly question" should suffice to do the trick in most cases; ridicule is a devastatingly effective tool. Make it clear that awe and amazement at anything are childish reactions and need to be outgrown. Persistence in the entertaining of questions that generally only children entertain has been credited with the formulation of Einstein's theory of relativity, one of the most impressively creative scientific theories of all time (Holton, 1973). The sooner that children are disabused of wondering about unanswerable questions, the better. Never admit to being amazed or to wondering "why" about anything yourself. Promote the idea that science is a catalog of facts. Be sure the students do not have a chance to come to think of it as a quest, as a dynamic process of information seeking, or as an exciting intellectual adventure.
- Promote beliefs that are antithetical to the development of creative thinking. Researchers have identified many of these. The belief that intelligence is a genetically determined and unchanging property of an individual, for example, can demotivate children from making an effort to excel at intellectually demanding tasks (Dweck, 1975; Dweck & Bempechat, 1983; Elliot & Dweck, 1988; Stevenson, Cheng, & Lee, 1993). A closely related and equally destructive belief is that if one is sufficiently gifted, one need not learn a lot about a domain to be creative in that domain, and if one is not gifted, any effort to be creative in that domain will be futile. One wants to guard diligently against the belief that creativity is determined to a large degree by commitment and hard work.

- Above all, never permit learning or problem solving to be fun. Be sure students understand that one cannot work hard and have fun at the same time, that one cannot expect to enjoy the effort of trying to accomplish something of intellectual value. If children are encouraged to think, especially about problems in which they are genuinely interested, there is a real risk that they will experience the deep satisfaction that Csikszentmihalyi (1996), among others, has written about that can come from being engaged in creative work. Be very sure they never have the opportunity to make a real discovery; this can give a boost to the creative instinct from which they might not recover (Finke et al., 1992). Here, again, it is important to set a proper example. Intellectual enthusiasm is contagious; treat it like a disease. It is risky to show enthusiasm or excitement about anything!

I do not claim that this list is exhaustive or even that it is the best one that could be generated. I believe, however, that if one wishes to stifle creative thinking in the classroom – or elsewhere – the application of these rules with a modicum of consistency will accomplish that goal. Usually it should not be necessary to apply all of them; often one or two will suffice. My favorite is the last; it alone should do the trick in many cases.

Of course, there will always be the occasional child who will think creatively, despite one's best efforts to discourage it. There is little to be done in such cases except to insulate the rest of the class, insofar as possible, from the influence of such a child. One can be sure that if one applies these methods, such children will be rare; moreover, one or two here or there can be used to advantage. They will provide many opportunities to point out to the class forms of behavior that are not to be tolerated.

None of these suggestions requires the expenditure of extra time by the teacher or the introduction of additional or nonstandard subject matter. They all are matters of projecting and reinforcing beliefs and attitudes in the normal course of events in the classroom.

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2

Teaching for Creativity in an Era of Content Standards and Accountability

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INTRODUCTION

Teaching for creativity and teaching specific content knowledge need not be in opposition, as is often feared by educators. Creative thinking actually *requires* significant content knowledge, and thinking creatively about a topic helps deepen one's knowledge of that topic. Many creativity-relevant skills, such as divergent thinking, can be used in ways that increase both creativity and knowledge of specific content. There are also ways to make use of rewards and evaluations judiciously that will allow teachers to help students become more creative thinkers and also acquire important domain-specific skills and content knowledge. This chapter summarizes relevant research to provide a theoretical framework and describes specific classroom techniques that promote both creativity and the acquisition of content knowledge.

MUST CONTENT STANDARDS AND ACCOUNTABILITY BE IN CONFLICT WITH CREATIVITY?

The past two decades have seen a major and unrelenting call for more testing of students and more explicit and more detailed content standards that form the framework for such assessment. Although No Child Left Behind legislation has played a prominent role in recent educational policy formulations, federal mandates have not been the only force pushing for greater accountability (Fuhrman, 2001; Ladd, 1996). This movement includes both state initiatives and nongovernment, nationwide efforts like the Core Knowledge Foundation's Core Knowledge Sequence (Core Knowledge Foundation, 1998; Hirsch, 1987, 1991–1997, 1996). We will not argue the merit (or lack of merit) of an increasing reliance on standardized testing or the wisdom of fine-grained, grade-by-grade content standards. That debate is ongoing, and for the moment we will take the current situation, and a near-term future that seems to be heading toward ever more explicit content standards, as a given that any educational goals or

activities must acknowledge and, to some extent at least, accommodate. We will argue that these initiatives (both the focus on explicit and detailed content standards and the standardized test-based accountability to which these standards are often closely linked) need not doom the teaching and promotion of creativity in the classroom. Teaching for creativity and detailed required content standards can coexist quite comfortably and, although they may seem at times to be working at cross purposes (and, indeed, this is sometimes the case), they just as often work synergistically, such that teaching for creativity helps meet content standards goals and teaching detailed content knowledge can reinforce and enhance student creativity.

At first glance, creativity and accountability do appear to be at odds. Most educators readily associate creativity with divergent thinking (coming up with many possible ideas in response to an open-ended prompt). For example, Woolfolk (2001) noted that "encouraging creativity in a classroom means to accept and encourage divergent thinking" (p. 102). They may also associate accountability with convergent thinking (finding a single correct or best answer to a problem) and/or evaluative thinking (judging whether an answer is accurate, consistent, or valid). The concepts of divergent, convergent, and evaluative thinking originated in Guilford's Structure of the Intellect Model, and because divergent thinking is widely believed to be an important component of creative thinking, the improvement of divergent thinking skills has often been the goal of creativity training (Baer, 1997a; Guilford, 1956; Woolfolk, 2007). In addition, the most widely used tests of creativity – the Torrance Tests of Creative Thinking – are actually not tests of creativity but rather tests of divergent thinking (Kim, 2006; Torrance, 1966, 1974, 1998; Torrance & Presbury, 1984). So these common associations are not unexpected.

But creativity is not just about divergent thinking; it also requires evaluative and convergent thinking, as well as a great deal of domain knowledge and skills (Kaufman & Baer, 2006; Runco, 2003; Simonton, 1999, 2006). For example, one of the best studied and most influential models of creativity, Campbell's blind-variation and selective-retention model, requires a combination of chance variation to produce new ideas (divergent thinking) and selective retention of more workable ideas (evaluative and convergent thinking) to produce creative breakthroughs (Campbell, 1960; see Simonton, 1994, 1998, and 2004 for more recent versions of this model). The Creative Problem Solving (CPS) model, which may be the most well-validated practical approach to creativity enhancement on the level of more everyday creativity and problem solving, also requires both divergent thinking and evaluative judgment as part of each and every step in the process (Baer, 1987a, 1997a; Isaksen & Treffinger, 1985; Puccio, Murdock, & Mance, 2007; Treffinger, Isaksen, & Dorval, 2006). So, although divergent thinking might be the first thing to come to mind when one thinks of creative thinking, it is not all there is to creativity; judgment, evaluation, skills, and knowledge all play important roles.

Creativity and content knowledge and skills are not (or need not be) orthogonal variables. They interact, and creativity is dependent on domain knowledge and skills. Nonetheless, the pressures of accountability and testing naturally affect the ways teachers teach, and one common fear is that creativity may be lost in the shuffle (Baer, 1999, 2002; Beghetto & Plucker, 2006; Fasko, 2001).

The effort to devise and implement detailed content standards has had many critics, many of whom have charged that attention to such content standards will detract from student thinking and creativity. Several have suggested that adherence to content standards like those exemplified by the Core Knowledge Sequence will result in the unthinking, uncritical, and uncreative absorption of knowledge (Orwin & Forbes, 1994; Schear, 1992; Vail, 1997). One critic called students in Core Knowledge schools "informational blotters" (Paul, 1990, p. 431) and claimed that these students would be able to do very little interesting or productive thinking with the knowledge that they obtained in Core Knowledge schools. There is a sense among many educators that the push for stricter content standards will decrease the amount of time teachers can allocate to the teaching of thinking skills. There is also a concern that content standards will encourage teachers to limit their instruction to that which will be tested (Jones, Jones, & Hargrove, 2003; Olson, 2000, 2001; Tucker, 2002).

We cannot deny that this happens. But there is significant evidence that the introduction of explicit content standards does not lessen students' creativity; in fact, it may do just the opposite. In the one large study (N = 540) to date that has looked directly at this issue (Baer, 2003), students in Core Knowledge middle schools had as high or higher creativity ratings than matched students in non–Core Knowledge middle schools. This study looked at actual performances of students on creativity-relevant tasks (such as writing stories and poems), not simply scores on divergent thinking tests. Contrary to the predictions of critics like Paul (1990), students in schools with detailed content standards and a strong focus on teaching to those content standards were not less creative than similar students in schools with less-detailed content standards. They were several creativity measures in this study, and on some of the measures, the Core Knowledge students were judged to be more creative, while on others, there was no statistically significant difference between the two groups. In none of the creativity assessments was the Core Knowledge group judged to have lower creativity than the matched non–Core Knowledge group.

The possibility that teaching for creativity and emphasizing content knowledge may be in conflict is part of the larger question about the relationship between learning content and learning to think more effectively (see, e.g., Chi, Glaser, & Farr, 1988; Feldhusen, 2006; Glass & Holyoak, 1986; Hirsch, 1996; Johnson-Laird, 1983; Karmiloff-Smith, 1992; Kaufman & Baer, 2006; Mayer,

2006; Paul, 1990; Chase & Simon, 1973; Woolfolk, 2007). It is also related to questions about the possibilities of transfer of learning and of teaching to promote such transfer (see, e.g., Gage & Berliner, 1992; Mayer, 1987; Perkins & Salomon, 1988; Salomon & Perkins, 1989; Woolfolk, 2007). It has become increasingly clear that thinking depends quite heavily on knowledge, that mistakes in everyday critical thinking are more often the result of faulty premises (i.e., incorrect factual knowledge) than a lack of general problem-solving skills, and that teaching for transfer requires a great deal of context-specific training or practice in any domain to which transfer is desired (Ashcraft, 1989; Baer, 1993, 1996; Kaufman & Baer, 2006; Weisberg, 1988, 1999, 2006; Willingham, 2001; Woolfolk, 2007). It seems that content knowledge is essential to serious thinking, that teaching content-free thinking skills is not possible, that higher-level thinking requires the automatization of lower-level skills, and that to improve students' thinking in a given domain, students must acquire an understanding of much factual content about that domain as well as a variety of domain-specific cognitive skills.

So we must teach students content knowledge if we want to improve their thinking. Conversely, often the best way to teach content knowledge is to get students to think about it in some way – to become actively engaged with the content to be learned (Ashcraft, 1989; Craik & Lockhart, 1972; Hirsch, 1987, 1996; Lockhart & Craik, 1990; Mayer, 1987; Woolfolk, 2007; Zimbardo & Gerrig, 1999). Being actively engaged with the content to be learned means being actively engaged *cognitively*, of course. Simply being physically active or emotionally engaged is not what is required (and may even get in the way of meaningful cognitive engagement). An emphasis on the acquisition of content knowledge does not conflict with an emphasis on active processing of information; in fact, the former requires the latter.

For these reasons, an emphasis on content standards need not hinder those who wish to emphasize the development of students' thinking skills, and this is true for creativity just as it is for other kinds of thinking. Having richer and more extensive content knowledge and skills should support, not detract from, creative thinking, just as such knowledge and skills support other kinds of thinking. There is a consensus among creativity researchers and theorists that creative genius in particular requires extensive content knowledge (Gruber, 1981; Gruber & Davis, 1988; Simonton, 1994, 1998, 1999, 2004, 2006; Weisberg, 1988, 1999, 2006), and there is much evidence to support what has come to be known as the "ten-year rule," which claims that it generally takes at least ten years of extensive work and/or study in a field before truly creative work is even possible (see, e.g., Chase & Simon, 1973; Hayes, 1989; Kaufman & Baer, 2002; Weisberg, 1999).

This is not to suggest that all is well and that there is no conflict between content standards (and test-based accountability) and teaching for creativity. There are very real problems, problems that are in most cases avoidable, but

very real problems because they are often not avoided. In fact, teachers' misperceptions of how best to meet accountability standards often result in the worst possible outcomes: lower test scores and lessened creativity. Teachers who feel pressured to raise test scores may drop anything resembling divergent thinking from their lesson plans. They may also emphasize rote memorization at the expense of thinking about and understanding the content they are teaching. But dropping divergent thinking activities and focusing on memorization is not only bad for creativity – it is also bad for the acquisition of skills and content knowledge. As will be argued later, the most effective ways to teach skills and content knowledge often involve the very same activities one would emphasize to promote creative thinking. When teachers banish divergent thinking and replace it with rote memorization, they are creating the worst of all possible educational worlds, one in which both creativity and content knowledge suffer. Although there are situations in which these two goals are at odds, they are more often synergistically linked. More creativity will often lead to more content knowledge, and more content knowledge will generally lead to more creativity. But there are a few bumps on the road to this educational nirvana, which we will explain.

HOW TO EMPHASIZE ACQUISITION OF SKILLS AND CONTENT KNOWLEDGE *AND* ENHANCE CREATIVITY

Teaching Divergent Thinking

The most widely used teaching techniques for improving student creativity are brainstorming activities (e.g., "List as many different possible uses for a brick as you can" or "How many different ways can you think of to get people to use less petroleum?"). The rules of brainstorming are fairly simple:

- *Defer judgment.* The goal of brainstorming is to come up with unusual and original ideas. When ideas are being judged, most people will take fewer risks and self-censor many ideas. Judgment can come later, after all the ideas are on the table. This includes both negative judgments and positive ones.
- *Avoid ownership of ideas.* When people feel that an idea is "theirs," egos sometimes get in the way of creative thinking. They are likely to be more defensive later when ideas are critiqued, and they are less willing to allow their ideas to be modified.
- *Feel free to "hitchhike" on other ideas.* This means that it is okay to borrow elements from ideas already on the table or to make slight modifications of ideas already suggested.
- *Wild ideas are encouraged.* Impossible, totally unworkable ideas may lead someone to think of other, more possible, more workable ideas. It is easier