TEACHING FOR CREATIVITY: TWO DOZEN TIPS

By Robert Sternberg and Wendy M. Williams

What makes a person creative? Why are some people more creative and others less so? We often think that the creative people are the ones who have some rare and unattainable ability, but it is not so. Creative people are ones who make a decision: They decide to buy low and sell high in the world of ideas. [...] We describe 24 tips you can use in your teaching in order to foster creativity in your students and in yourself.

[...]

You can foster creativity by buying low and selling high in the world of ideas--defy the crowd. Creativity is as much a decision about and an attitude toward life as it is a matter of ability. We routinely witness creativity in young children, but it is hard to find in older children and adults because their creative potential has been suppressed by a society that encourages intellectual conformity. We begin to suppress children's natural creativity when we expect them to color within the lines in their coloring books.

[...]

Twenty-Four Tips for Developing Creativity

1. Model Creativity

The most powerful way to develop creativity in your students is to be a role model. Children develop creativity not when you tell them to, but when you show them.

The teachers most of you probably remember from your school days are not those who crammed the most content into their lectures. The teachers you remember are those whose thoughts and actions served as your role model. Most likely they balanced teaching content with teaching you how to think with and about that content. [...]

2. Build Self-Efficacy

[...] All students have the capacity to be creators and to experience the joy associated with making something new, but first we must give them a strong base for creativity. Sometimes teachers and parents unintentionally limit what students can do by sending messages that express or imply limits on students' potential accomplishments. Instead, help students believe in their own ability to be creative.

3. Question Assumptions

When Copernicus suggested that the Earth revolves around the sun, the suggestion was viewed as preposterous because everyone could see that the sun revolves around the Earth. [...]

Sometimes it is not until many years later that the crowd realizes the limitations or errors of their assumptions and the value of the creative person's thoughts. The impetus of those who question assumptions allows for cultural, technological, and other forms of advancement. [...]

Make questioning a part of the daily classroom exchange. It is more important for students to learn what questions to ask - and how to ask them - than to learn the answers. [...] Avoid perpetuating the belief that your role is to teach students the facts. Instead, help the students understand that what matters is their ability to use facts. [...]

We all tend to make a pedagogical mistake by emphasizing the answering and not the asking of questions. The good student is perceived as the one who rapidly furnishes the right answers[...] As John Dewey (1933) recognized, how we think is often more important than what we think. We need to teach students how to ask the right questions (good, thought-provoking, and interesting ones) and lessen the emphasis on rote learning.

4. How to Define and Redefine Problems

Promote creative performance by encouraging your students to define and redefine problems and projects. Encourage creative thinking by having students choose their own topics for papers or presentations, choose their own ways of solving problems, and sometimes choose again if they discover that their selection was a mistake. Allow your students to pick their own topics, subject to your approval, on at least one paper each term. Approval ensures that the topic is relevant to the lesson and has a chance of leading to a successful project.

A successful project (1) is appropriate to the course's goals, (2) illustrates a student's mastery of at least some of what has been taught, and (3) can earn a good grade. [...] You cannot always offer students choices, but giving choices is the only way for them to learn how to choose. [...] Give your students latitude in making choices to help them to develop taste and good judgment, both of which are essential elements of creativity. [...]

5. Encourage Idea Generation

Once the problem is defined or redefined, it is time for students to generate ideas and solutions. The environment for generating ideas must be relatively free of criticism. [...] Aim to identify and encourage any creative aspects of the ideas presented and suggest new approaches to any ideas that are simply uncreative. Praise your students for

generating many ideas, regardless of whether some are silly or unrelated, while encouraging them to identify and develop their best ideas into high-quality projects.

[...] Teaching students the value of generating numerous ideas enhances their creative-thinking ability and benefits them now and in the future.

6. Cross-Fertilize Ideas

Stimulate creativity by helping students to think across subjects and disciplines. The traditional school environment often has separate classrooms and classmates for different subjects and seems to influence students into thinking that learning occurs in discrete boxes - the math box, the social studies box, and the science box. But creative ideas and insights often result from integrating material across subject areas, not from memorizing and reciting material.

Teaching students to cross-fertilize draws on their skills, interests, and abilities, regardless of the subject. For example, if your students are having trouble understanding math, you might ask them to draft test questions related to their special interests - ask the baseball fan to devise geometry problems based on the game. The context may spur creative ideas because the student finds the topic (baseball) enjoyable and it may counteract some of the anxiety caused by geometry. Cross-fertilization motivates students who aren't interested in subjects taught in the abstract. [...]

7. Allow Time for Creative Thinking

Ours is a society in a hurry. We eat fast food, we rush from one place to another, and we value quickness. Indeed, one way to say someone is smart is to say that the person is quick (Sternberg, 1985), a clear indication of our emphasis on time. Just take a look at the format of our standardized tests. Lots of multiple-choice problems are squeezed into a brief time slot.

Most creative insights, however, do not happen in a rush (Gruber, 1986). We need time to understand a problem and to toss it around. If we are asked to think creatively, we need time to do it well. If you stuff questions into your tests or give your students more homework than they can complete, then you are not allowing them time to think creatively.

8. Instruct and Assess Creatively

If you give only multiple-choice tests, students quickly learn the type of thinking that you value, no matter what you say. If you want to encourage creativity, you need to include at least some opportunities for creative thought in assignments and tests. Ask questions that require factual recall, analytic thinking, and creative thinking. For example, students might be asked to learn about a law, analyze the law, and then think about how the law might be improved.

9. Reward Creative Ideas and Products

It is not enough to talk about the value of creativity. Students are used to authority figures who say one thing and do another. [...] Reward creative efforts. For example, assign a project and remind students that you are looking for them to demonstrate their knowledge, analytical and writing skills, and creativity. Let them know that creativity does not depend on your agreement with what they write, only that they express ideas that represent a synthesis between existing ideas and their own thoughts. [...]

Some teachers complain that they cannot grade creative responses with as much objectivity as they can apply to multiple-choice or short-answer responses. They are correct in that there is some sacrifice of objectivity. However,
[...] if the goal of assessment is to instruct students, then it is better to ask for creative work and evaluate it with somewhat less objectivity than to evaluate students exclusively on uncreative work. Let your students know that there is no completely objective way to evaluate creativity.

10. Encourage Sensible Risks

[...] Creative people take sensible risks and produce ideas that others ultimately admire and respect as trend setting. In taking these risks, creative people sometimes make mistakes, fail, and fall flat on their faces. We emphasize sensible risk-taking because we are not talking about risking life and limb. To help students learn to take sensible risks, encourage them to take some intellectual risks with courses, activities, and teachers - to develop a sense of how to assess risks.

Nearly every major discovery or invention entailed some risk. When a movie theater was the only place to see a movie, someone created the idea of the home video industry: Skeptics wondered if anyone would want to see videos on a small screen. Another initially risky idea was the home computer: Would anyone have enough use for a home computer to justify the cost? These ideas were once risks that are now ingrained in our society. [...]

11. Tolerate Ambiguity

People like things to be in black and white. We like to think that a country is good or bad (ally or enemy) or that a given idea in education works or doesn't work. The problem is that there are a lot of grays in creative work. Artists working on new paintings and writers working on new books often report feeling scattered and unsure in their thoughts. They need to figure out whether they are even on the right track.

A creative idea tends to come in bits and pieces and develops over time. But the period in which the idea is developing tends to be uncomfortable. [...] Tolerating ambiguity is uncomfortable. [...] To help students become creative, encourage them to accept and extend the period in which their ideas do not quite converge. Ultimately, they may come up with better ideas.

12. Allow Mistakes

[...] People often think a certain way because that way works better than other ways. But once in a while a great thinker comes along -- a Freud, a Piaget, a Chomsky, or an Einstein -- and shows us a new way to think. These thinkers made contributions because they allowed themselves and their collaborators to take risks and make mistakes.

Many of Freud's and Piaget's ideas are wrong. Freud confused Victorian issues regarding sexuality with universal conflicts and Piaget misjudged the ages at which children could perform certain cognitive feats. Their ideas were great not because they lasted forever, but because they became the basis for other ideas. Freud's and Piaget's mistakes allowed others to profit from the ideas and go beyond the earlier ideas.

Schools are often unforgiving of mistakes. [...] When children go outside the lines in the coloring book, or use a different color, they are corrected. In hundreds of ways and in thousands of instances over the course of a school career, children learn that it is not all right to make mistakes. The result is that they become afraid to risk the independent and the sometimes-flawed thinking that leads to creativity.

When your students make mistakes, ask them to analyze and discuss these mistakes. Often, mistakes or weak ideas contain the germ of correct answers or good ideas. In Japan, teachers spend entire class periods asking children to analyze the mistakes in their mathematical thinking. For the teacher who wants to make a difference, exploring mistakes can be a learning and growing opportunity.

13. Identify and Surmount Obstacles

Creative thinkers almost inevitably encounter resistance. [...] We understand why so many young and promising creative thinkers disappear. Sooner or later, they decide that being creative is not worth the resistance and punishment. The truly creative thinkers pay the short-term price because they recognize that they can make a difference.

Describe obstacles that you, friends, and famous people have faced while trying to be creative; otherwise your students may think that obstacles confront only them. Include stories about people who weren't supportive, bad grades for unwelcome ideas, and cool receptions to your ideas. [...]

When a student attempts to surmount an obstacle, praise the effort, whether or not the student is entirely successful. Point out aspects of the student's attack that were successful and why, and then suggest other ways to confront similar obstacles. You can also tactfully critique counterproductive approaches by describing a better approach, as long as you praise the attempt. Ask the class to brainstorm about ways to confront a given

obstacle to get them thinking about the many strategies we can use to confront problems. Consider the student who has always been too nervous to act in school plays or to sing a solo. Spend a half-hour asking students to generate strategies for dealing with performance anxiety and to chronicle personal examples that show how nervousness can be disabling. List ideas on the board and ask the class to critique them. Encourage students to try a couple of the strategies and praise them for any attempts at overcoming performance anxiety. The emphasis on tackling obstacles should help students focus on solving problems instead of being limited by them.

14. Teach Self-Responsibility

Part of teaching students to be creative is teaching them to take responsibility for both success and failure. Teaching students how to take responsibility means teaching students to (1) understand their creative process, (2) criticize themselves, and (3) take pride in their best creative work. Unfortunately, many teachers and parents look for - or allow students to look for - an outside enemy responsible for failures.

[...] In practice, people differ widely in the extent to which they take responsibility for the causes and consequences of their actions. Creative people need to take responsibility for themselves and for their ideas.

15. Promote Self-Regulation

You cannot help each student during each creative process. Your students must take control of the process. After forming initial creative products and awakening the joy of creating in your students, teach them strategies for self-regulation. Self-directed creating is how most of us work throughout our lives - and especially in our lives outside of school. Here are some things students can do to promote their self-regulation: 1. List multiple ideas for an assignment, 2. Assess ideas for creativity and pursue one, 3. Defend your choice, 4. Develop plans for completing the assignment, including how and where to find information, and how and when you will finish the project, 5. Keep a daily log of progress, roadblocks, and how you surmounted problems, 6. Participate in daily class discussions regarding progress on the report and physical distractions (e.g., being hungry or tired), 7. Discuss teacher feedback on finished projects, and 8. Assess a classmate's project and review and discuss peer evaluations.

16. Delay Gratification

Part of being creative means being able to work on a project or task for a long time without immediate or interim rewards. Students must learn rewards are not always immediate and that there are benefits to delaying gratification. Many people believe that they should reward children immediately for good performance, and that children should expect rewards. This style of teaching and parenting emphasizes the here and now and often comes at the expense of what is best in the long term.

An important lesson in life - and one that is intimately related to developing the discipline to do creative work - is to learn to wait for rewards. The greatest rewards are often those that are delayed. Give your students examples of delayed gratification in your life and in the lives of creative individuals and help them apply these examples to their lives. Hard work often does not bring immediate rewards. Children do not immediately become expert baseball players, dancers, musicians, or sculptors. And the reward of becoming an expert seems far away. [...] Ninth-grade students may not see the benefits of hard work, but the advantages of a solid academic performance will he obvious when those students apply to college. [...] By working on a task for many weeks or months, a student learns the value of making incremental efforts for long-term gains.

17. Encourage Creative Collaboration

Creative performance often is viewed as a solitary occupation - we picture the writer sitting alone with her writing pad, the artist painting feverishly at 4 a.m., or the musician playing for his cats into the wee hours. In reality, people often work in groups. Collaboration can spur creativity. Encourage your students to collaborate with creative people because we all learn by example. Students benefit from seeing the techniques, strategies, and approaches that others use in the creative process. Also, students absorb the enthusiasm and joy many creative people exude as they go about the business of making something new.

Finding practical ways to encourage creative performance in groups of students is essential because you cannot work with students one-on-one all of the time. Because life often involves working with others, it is worthwhile to give students the chance to work collaboratively and to make the process of collaboration more creative.

18. Imagine Other Viewpoints

An essential aspect of working with other people and getting the most out of collaborative creative activity is to imagine ourselves in other people's shoes. We broaden our perspective by learning to see the world from a different point of view, and that experience enhances our creative thinking and contributions. Encourage your students to see the importance of understanding, respecting, and responding to other people's points of view. Many bright and potentially creative children never achieve success because they do not develop practical intelligence (Sternberg 1985, 1997; Sternberg et al., in press). They may do well in school and on tests, but they never learn how to get along with others or to see things and themselves as others see them.

19. Recognize Person-Environmental Fit

[...] The very same product that is rewarded as creative in one time or place may be scorned in another.

In The Dead Poets' Society, a teacher whom the audience might well judge to be creative is viewed as incompetent by the school's administration. Similar experiences occur many

times a day in many settings. There is no absolute standard for what constitutes creative work. The same product or idea may be valued or devalued in different environments. The lesson is that we need to find a setting in which our creative talents and unique contributions are rewarded or we need to modify our environment. [...] Encourage your students to examine environments to help them learn to select and match environments with their skills.

20. Find Excitement

To unleash your students' best creative performances, you must help them find what excites them. Remember that it may not be what really excites you. People who truly excel in a pursuit, whether vocational or avocational, almost always genuinely love what they do. Certainly the most creative people are intrinsically motivated in their work (Amabile, 1996). Less creative people often pick a career for the money or prestige and are bored or loathe their career. These people do not do work that makes a difference in their field.

Helping students find what they really love to do is often hard and frustrating work. Yet, sharing the frustration with them now is better than leaving them later to face it alone. To help students uncover their true interests, ask them to demonstrate a special talent or ability for the class. Explain that it does not matter what they do (within reason), only that they love the activity.

21. Seek Stimulating Environments

Help your students develop the ability to choose environments that stimulate their creativity. Although you try to present a stimulating classroom environment every day, your students spend many hours outside of school, eventually graduate, and either stagnate or grow in their creative development. Adults who continue to grow creatively visit and immerse themselves in environments that foster creativity.

To encourage students to develop skills in selecting environments that enhance creativity, choose some environments for the class to explore and help your students connect the environments with the experiences, creative growth, and accomplishment. Show students that creativity is easier with environmental stimulation. Plan a field trip to a nearby museum, historical building, town hall, or other location with interesting displays and ask your students to generate and examine creative ideas for reports. Read excerpts from a book about a creative pioneer in the discipline being studied or the fieldtrip destination you have targeted - a great paleontologist if the focus is on dinosaurs, or a great astronaut if the focus is on space travel. Get students involved in role-playing. [...] Give them a lifelong gift by teaching them how to choose creative environments that help ideas flow. Knowing how to choose a creative environment is one of the best long-term strategies for developing creativity.

22. Play to Strengths

Show students how to play to their strengths. Describe your strengths to your students and ask them to declare their strengths. [...] By helping students identify the exact nature of their talents, you create opportunities for them to express and use their talents.

Any teacher can help students play to their strengths. All you need is flexibility in assignments and a willingness to help reluctant students determine the nature of their interests and strengths.

23. Grow Creatively

Once we have a major creative idea, it is easy to spend the rest of our career following up on it. It is frightening to contemplate that the next idea may not be as good as the last one, or that success may disappear with the next idea. The result is that we can become complacent and stop being creative.

Sometimes, as experts, we become complacent and stop growing. Teachers and administrators are susceptible to becoming victims of our own expertise - to becoming entrenched in ways of thinking that worked in the past, but not necessarily in the future (Frensch & Sternberg, 1989). Being creative means stepping outside the boxes that we - and others - have created for ourselves.

24. Proselytize for Creativity

Once you have mastered a few of these techniques to develop creativity and made them part of your daily teaching routine, spread the word. The virtues of teaching your students in order to develop their creativity and your own multiply from reinforcement. Make the difference by telling your colleagues, associates, administrators, principal, school board members, and everyone else how important it is to develop creativity in students.

Use examples of creative student work, particularly from students who are not gifted in traditional academic abilities, to demonstrate the difference it makes to teach for creativity. Describe how every student can be reached with patience and a few techniques for developing creativity. [...] Richer, funnier, wilder, and generally far more interesting assignments, book reports, and projects make our lives less boring. It is, in fact, a good example of enlightened self-interest for teachers to give students creativity training, because creative students are more motivated and more involved with their schoolwork, and their work becomes more interesting.

If you spread the word about the importance of teaching for creativity in schools, homes, and communities, this approach to teaching will become more common and benefit teachers and students everywhere. Small changes in the way questions are asked, assignments are worded, and tests are crafted can make big differences in the lives of students. We hope that we have provided ideas you can use immediately to start teaching for creativity.

Cross-curricular teaching and learning 5: Definitions

with 7 comments

My book has defined cross-curricular teaching and learning in the following way:

A cross-curricular approach to teaching is characterised by sensitivity towards, and a synthesis of, knowledge, skills and understandings from various subject areas. These inform an enriched pedagogy that promotes an approach to learning which embraces and explores this wider sensitivity through various methods.

I will justify this definition in two ways. Firstly, by considering some of the key words with the definition; secondly, by drawing together some of the themes from the previous four posts.

1. Sensitivity, Synthesis and Subjectivity

These are key words in the definition. They refer to the ways in which teachers should approach the knowledge, skills and understanding inherent within every curriculum subject. These are exemplified in curriculum documents but also have a historical legacy that is underpinned in various ways, not least in teachers' and others' conceptions about a particular subject and how it should be taught. Understanding this is a vital step that needs to be taken before moving into collaborative curriculum ventures.

These words also refer back to the act of teaching. In other words, they are important, informing teaching principles that impact on learning. Cross-curricular teaching is not about weakening and watering-down subjects in any way. Rather, it is about the development of an enhanced pedagogy that a skilful teacher adopts for the explicit purposes of enhancing teaching and learning. This leads on to the second set of key words.

2. Enriching, Embracing and Exploring

The new, enriched pedagogy of cross-curricular teaching will embrace and explore the teacher's sensitivity towards, and synthesis of, the different knowledge, skills and understanding within curriculum subjects. In order for this to happen, there are at least two premises: firstly, teachers will need to understand their own 'intrinsic', and their subject's, 'subjectivities'; secondly, teachers will need to ensure that their subject knowledge is extended beyond their own subject areas. When this occurs, teachers will be in a position to develop a cross-curricular approach to learning that utilises as range of methods or techniques in line with the following principles and purposes.

The Principles of Cross-Curricular Teaching and Learning

Cross-curricular teaching and learning is:

- Based on individual subjects and their connections through authentic links at the level of curriculum content, key concept or learning process, or through an external theme/dimension;
- Characterised and developed by individual teachers with excellent subject knowledge, a deep understanding of their subject culture and a capacity to reconceptualise this within a broader context of learning beyond their subject, and with sensitivity towards other subject cultures;
- As much about a the development of a skilful pedagogy as anything else;
- Coherent in its maintaining of links with pupils' prior learning and experience;
- Contextualised effectively, presenting opportunities for explicit links with pupils' learning outside the formal classroom;
- Demanding in its use of curriculum time and resources, requiring flexibilityand often needing the support of senior managers if collaborative approaches are to be implemented effectively;
- Underpinned by a meaningful assessment process that is explicitly linked to, and informed by, the enriched pedagogical framework;
- Normally collaborative in its nature, requiring meaningful and sustained cooperation between subject teachers with support from senior managers.

The Purposes of Cross-Curricular Teaching and Learning

The purposes of cross-curricular teaching and learning flow from an understanding of the definition and principles described above. As with the principles, these purposes benefit teachers and pupils alike. The purposes of cross-curricular teaching and learning are to;

- Motivate and encourage pupils' learning in a sympathetic way in conjunction with their wider life experiences;
- Draw on similarities in and between individual subjects (in terms of subject content, pedagogical devices and learning processes) and make these links explicit in various ways;
- Provide active and experiential learning for pupils;
- Develop meaningful co-operation and collaboration between staff leading to the dual benefits of curriculum and professional development;
- Contribute towards a broad range of teaching and learning opportunities located within individual subject teaching, across subjects and in relationship to specific external curriculum themes or dimensions;
- Promote pupils' cognitive, personal and social development in an integrated way;
- Allow teachers the opportunity to evaluate and reflect on their teaching and be imaginative and innovative in their curriculum planning;
- Facilitate a shared vision amongst teachers and managers through meaningful collaborations at all levels of curriculum design.

http://jsavage.org.uk/?p=568