A creativity model and matrix are presented to help art educators teach and assess creativity as an important skill, and relay its importance to stakeholders.

Leading Change:
The Art Administrator's Role in Promoting Creativity

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What role can district visual art administrators play in articulating an educationally valuable conception of creativity and in establishing a culture that targets creativity as an educational goal?** How can art administrators help teachers implement creativity goals? How can we communicate creativity's importance to principals, parents, and other stakeholders? What tools do we need for long-term, systemic change that supports the development of creativity in schools?

In this article I present two essential tools for answering these questions: (1) a model that promotes a common understanding of creativity, and (2) a Creativity Instructional Matrix based on this model that provides a set of detailed objectives that clarifies creativity learning outcomes for each grade level. Together, they inform lesson planning, point to assessments that can be presented to administrators skeptical of abstract concepts such as "creativity" and "imagination," and are also important tools for systematic change at the district level in terms of curriculum and policy. By articulating a vision of what creativity entails and why it is important, these tools also provide a foundation for leading change and working with stakeholders. It is my hope that these tools will be used as a starting point for those teachers and school districts interested in ensuring the creative development of students. As will be seen, they are not intended as universal, final prescriptions but as exemplars for engaging and guiding staff and other stakeholders in making locally based decisions for a comprehensive K-12 approach to developing creativity.

Imagine you are observing an art class. The art teacher explains the assignment, shows a model of what it should look like, and exclaims, "Try anything—use your creativity!" The teacher then turns away, satisfied this will develop creative thinkers. While this scenario might seem like an exaggeration, as the Director of Fine and Performing Arts for the Atlanta Public Schools (APS) and an instructor in Georgia State University's undergraduate and graduate programs, and now as Assistant Dean for Arts Education at Utah State University, I have seen it often. "So what," you say? Let me reframe the situation by asking another question: If you were teaching high school science, would you give an assignment and then declare, "Remember to use your quantum mechanics!" as if such a skill were self-evident? **The point is that creativity is a sophisticated mindset that needs to be consciously taught, learned, and developed no less than the complex mindsets needed in other intellectually challenging disciplines.**

Table 1. Creativity Matrix

STAGE 1: IDEA-FORMATION SKILLS Blue = Skill introduced Yellow = Ongoing skill development The student…	K	1	2	3	4	5	6-8	9-12
Mentally recalls/produces visual images using art materials	Blue	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Follows prompts inherent in the character of art materials	Blue	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Generates multiple interpretations for an object or image		Blue	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Mentally manipulates images and meaning		Blue	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Improvises in response to unanticipated insights, deviations or teacher-imposed constraints that reframe experience		Blue	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Makes multiple representations of a single theme using varied media and approaches			Blue	Yellow	Yellow	Yellow	Yellow	Yellow
Mentally envisions what cannot be directly observed by depicting imaginary worlds, machines with mysterious functions, embodiments of mythical beings, intangible forces, values, etc.			Blue	Yellow	Yellow	Yellow	Yellow	Yellow
Recognizes that interpretation relies on context (the implicit and explicit cues/clues that suggest how we should assign meaning to something); combines cues/clues from disparate contexts in an artwork to generate unusual meaning				Blue	Yellow	Yellow	Yellow	Yellow
Uses strategies, such as those found in SCAMPER (Eberle, 1996), McKim (1980), Roukes (1984), to alter/generate visual images and how they are perceived				Blue	Yellow	Yellow	Yellow	Yellow
STAGE 2: CONCEPT FORMATION SKILLS The student…	K	1	2	3	4	5	6-8	9-12
Explains how changing an artwork's visual language changes its meaning; see Madden (2005)					Blue	Yellow	Yellow	Yellow
Adapts/uses a visual language to connect one idea to other ideas using a range of strategies, such as metaphor, narrative, irony, appropriation, etc.; seeks/employs visual and conceptual patterns to make connections					Blue	Yellow	Yellow	Yellow
Conducts ends/means analysis by: 1.) Identifying ambiguous, indeterminate, conceptually or emotionally dissonant topics as themes for artworks; 2.) Determining strategies and criteria for investigating them artistically.						Blue	Yellow	Yellow
Develops iterative mindset by consciously forming provisional answers, testing, revising, testing, etc.						Blue	Yellow	Yellow
Reflects on portfolio and identifies patterns to revise or generate new work						Blue	Yellow	Yellow
Questions hierarchies of value and logic by critiquing and producing artworks.							Blue	Yellow
STAGE 3: CREATING SKILLS The Student…	K	1	2	3	4	5	6 -8	9-12
Generates problems by: 1. Setting personal objectives (themes/topics for investigation) 2. Identifying personal standards (adapting/going beyond exemplars) 3. Identifying personal rationale (interests/passions); 4. Identifying preferred materials and working methods; 5. Developing personal viewpoint/context for working (parameters based on beliefs, experiences, emotions, social awareness, personality traits, media, etc.)							Blue	Yellow

A Model of Creativity

I believe a primary, unique benefit of visual art education is learning how to develop, shape, and use innovative ideas in a non-rule-governed way. As a result, I began wondering how to help teachers in my district see that creativity is not something that "just happens," but rather needs constant cultivation given today's rule- and rubric-governed school environment (Claxton, Edwards, & Scale-Constantinou, 2006). Many teachers would like to develop creativity although they are not sure how to do it (Kampylis, Berki, & Saariluomaa, 2009). I realized that teachers need a model that paints the theoretical "big picture" that can support long-term change—but also need a practical, step-by-step guide that breaks the complexity of creativity down into specific objectives and actions.

Subsequently, I developed the following toolkit for thinking about, teaching, and assessing creativity. This toolkit contains (1) a general model of the creative process and (2) a matrix of specific instructional objectives (see Table 1). This toolkit has informed the process of writing Georgia's Performance Standards in the Visual Arts, which emphasize creative thinking, and is incorporated into the new Atlanta Public Schools arts curriculum. Its purpose is to develop a creative mindset over the course of a student's experiences in a K-12 visual arts program.

According to a meta-analysis of research by Scott, Lerits, and Mumford (2004), successful creativity training relies on a coherent model of creativity as opposed to a grab bag of random tricks and techniques. Because there are many different conceptions of creativity, a model is important to establish a common language and to clarify values and goals in an educational setting. Some administrators might wish to start by bringing staff together to decide on a creativity model; due to a variety of constraints, as the Director of Fine and Performing Arts in APS I opted to start with a model that could then be adapted over time through interactions with staff. This model of creativity is based on the work of Ludvigsen (1980). It has three stages:

Stage 1: Students develop imaginative ideas by producing innovative imagery and exploring the many meanings that images might have;

Stage 2: Students generate a framework for enlarging these ideas through an iterative process by questioning existing hierarchies of thinking and seeing, investigating how they might change or connect to other ideas and practices (Boden, 1994; Radford, 2004);

Stage 3: Students develop a creative stance. This means developing an approach to artmaking that results in a collection of purposeful, related endeavors that is: (1) shaped by the creator establishing an alternate, personal system of values, concepts, and preferred working methods, and (2) infused with sufficient passion for sustaining inquiry in the face of the unknown (Boden, 1994; Radford, 2004; Dasgupta, 2008).

It should be noted that a creator might move back and forth between stages multiple times while engaged in a creative endeavor. But clarifying these goals helps teachers understand that creativity can be developed in an orderly fashion or broached from various starting positions. For instance, the Creativity Matrix (Table 1) based on this three-stage model introduces skills that help develop and sustain imagination in the lower grades, but revisits and actively reinforces these same skills in the upper grades. It shows how skills introduced in one stage are reinforced as students grow.

We see how aspects of each stage might look in Figures 1 and 2, which represent a high school student's larger body of work. In Figure 1, we laugh at the absurd, unexpected

Figure 1 (far left). Rafael Velez, *Untitled*. AP Visual Arts, Grady High School, Atlanta Public Schools. Art teacher: John Brandhorst.

Figure 2 (left). Rafael Velez, *Untitled*.

juxtaposition of disparate meanings and visual codes. The artist makes a surprising analogy between abstract contour lines that seem to reference veins, neurons, elevation marks on a map, and the movement of a human body. He then juxtaposes this with a lady's head, whose expression mirrors our own surprise at her strange situation. In Figure 2 the analogy is weaker because the man's head is less integrated into the whole, but taken together these images show application of all three stages in this creativity model:

- Idea-formation through the imaginative exploration of image and meaning;
- Strategies that align multiple perspectives into a coherent system of relationships; and
- Hints of an emerging creative stance which is shown by (a) a preferred working method (contour drawing and collage), which is integral to (b) an objective defined in terms of personal interests, and (c) an ironic, humorous viewpoint. The similar "finish" of both pieces suggests a standard for determining when a work is satisfactorily complete.

The Creativity Instructional Matrix

The second part of the toolkit is the Creativity Instructional Matrix, an edited version of which is presented in Table 1; it provides a list of learner objectives for each of the creativity model's three stages. The first set of objectives asks elementary teachers to introduce "creative thinking techniques" exploring the dynamic interplay between imagery and meaning (Ludvigsen, 1980; McKim, 1980). An example of this interplay occurs in the museum when people glance quickly at a contemporary artwork before spending the rest of their time ignoring it to read the wall text. Confronted with the unfamiliar, people naturally look for a context to help them understand. Just as a diamond can mean different things depending on the physical and social setting in which it is placed—for instance, think of the meanings a diamond might have when found in a wedding ring, a crown, a drill, or a courtroom exhibit—so too images change meaning depending on their context.

Stage 1 objectives, therefore, challenge students to develop imaginative ideas using creative thinking techniques in two ways.

(The term technique is here used to refer to an approach using one or a limited number of steps; Ross (2006) has identified 10 core techniques that serve as the basis for many creative thinking programs, such as those identified below.) The first way is image-based: students manipulate or generate images (using techniques such as distortion, addition, reversal, etc.) until arriving at an unexpected result that cannot be easily labeled or categorized. The second approach is context-based: by combining or dissecting the everyday labels and associations we use to navigate life, students generate suggestive or unusual meanings that invite open-ended speculation. As shown by the behavior of people in museums and in Figures 1 and 2, these approaches play on the mind's tendency to seek meaning when shown a hard-to-label image. Other examples of this tendency include Rorschach tests, where people find imagery in abstract inkblots, and the Thematic Apperception Test, where people tell stories about uncaptioned photographs that reveal more about themselves than the "truth" of the picture.

The art administrator who wants to help teachers develop creative students needs to encourage risk-taking and mental playfulness
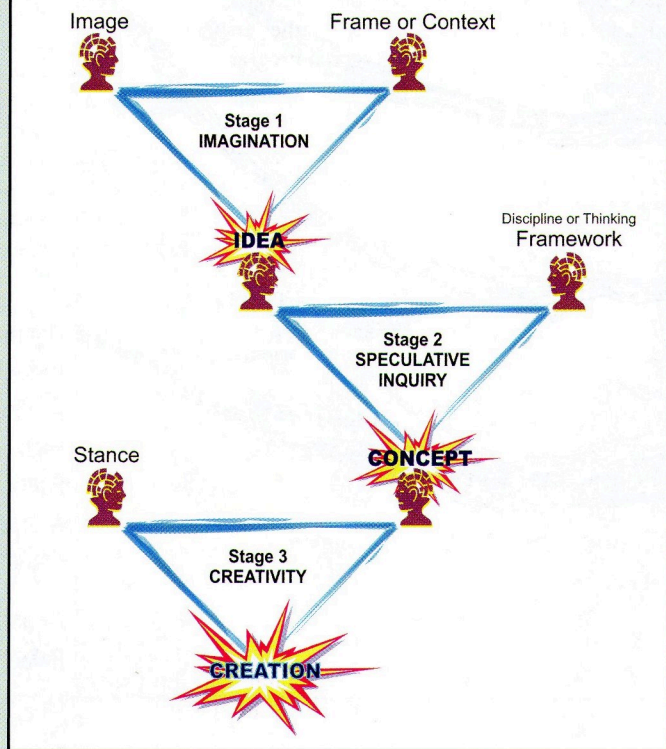
The Creative Process

Image

Frame or Context

Stage 1
IMAGINATION

IDEA

Discipline or Thinking
Framework

Stage 2
SPECULATIVE
INQUIRY

Stance

CONCEPT

Stage 3
CREATIVITY

CREATION

Figure 3. A model of the creative process (adapted from Ludvigsen, 1980).

Creativity

Meta-Cognition

Higher Order Thinking

Affective Domain Skills

Basic Reasoning Skills

Psychomotor Skills

Figure 4. Creativity as an executive-level cognitive process.

in the classroom—and to communicate why this is important to principals and stakeholders. Instead of acquiring knowledge by casting the meaning of symbols and the rules for combining them in mental cement, creativity teachers ask students to play with the building blocks of ideas—images and the different meanings that we assign to them. In Stage 1, multiple possibilities for combining imagery and meaning become possible, none of which are necessarily privileged over the others until a student identifies one as worth pursuing. There are many reasons why these skills are valuable, including:

- Being able to reframe experience from multiple perspectives develops disciplinary mastery and enables us to find unique, novel problems—and finding problems where others fail to see them is both a key factor in creativity and a valued workforce skill (Gardner, 2007).

- Mental skills that enable us to re-categorize what we think and experience are valued by art school foundations programs, which are increasingly emphasizing conceptual skills (Catterall & Nugent, 1999).

Practical techniques for Stage 1 identified in the Creativity Matrix (Table 1) include SCAMPER (Eberle, 1996), the image and context modification techniques found in Art Synectics (Roukes, 1984), the Surrealist and Postmodern methods employed in the Spiral Workshop (Gude, 2004) and the activities in McKim (1980). Because of our test-driven school environment and the widespread use of clear-cut, convergent rubrics, it is important to introduce such open-ended techniques early and reinforce them throughout a student's K-12 career. One policy outcome of this in the APS' art curriculum is that the first unit of instruction at all grade levels is devoted to creative thinking so that students are empowered to take control of the way information, images, and meaning are categorized, processed, and reshaped.

In Stage 2, intermediate teachers help students see artworks as meeting places in which different systems of thinking and seeing come together. By questioning the systems of logic and value embedded in our visual environment, in our inner psychological worlds, in cultural assumptions, and in sociopolitical frameworks, creators reveal points of tension and unity amid the competing networks of meaning that surround us.
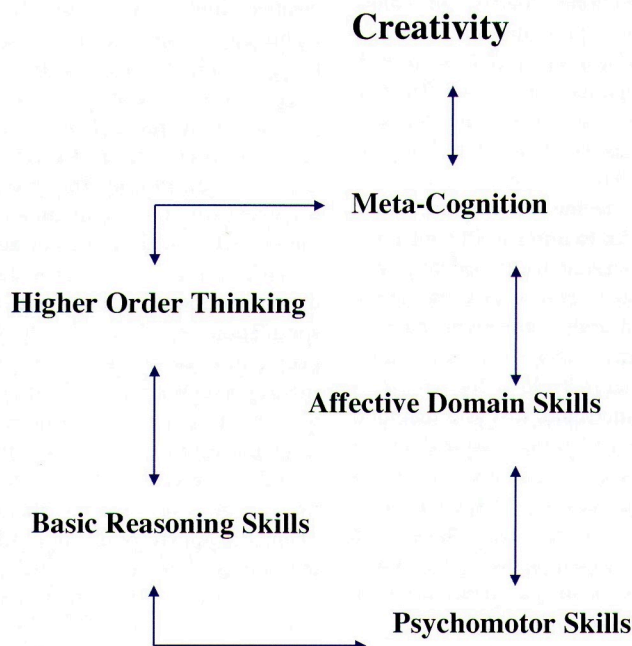
When it comes to exploring and expressing these insights, creators of all ages are often unsure of what steps come next. They learn that stepping out of the proverbial box means that the end product and the process leading to it are initially unclear. Stage 2 is envisioned as a form of open-ended research in which a creator shapes the creative process as it unfolds. Students learn how to proceed in the face of not knowing and to discover what to do when easy, preexisting exemplars no longer help show the way forward.

In Stage 2 students begin deploying knowledge and skills in tandem as a coherent artistic language. Bodies of work at this level are marked by an emerging independence and a reflective, autonomous practice informed primarily by the field of visual art, but which may also rely heavily on other disciplines or concerns. Examples of these concerns range from issues of power and identity arising from the economic, social, and political realms—to the formative contexts of family, peer-group, and classroom—and to works that employ fantasy, irony, parody, and humor. Stage 2 objectives in the Matrix are designed to organize these divergent sources as an expressive language that gives voice to each student's stories and artistic aspirations.

In my experience, some art teachers equate creativity only with brainstorming quick, random, whacky ideas. But Stage 2 objectives—such as developing an iterative mindset—help teachers be attentive to developing metacognitive skills in the creative process. This means developing creative independence by helping students learn to adjust the mode of thought to match the demands of the evolving challenge at hand and how far along one is in meeting it (Gabora, 2002). As shown in Figure 4, the Creativity Matrix helps teachers see the creative process as a long-term, complex process that orchestrates many cognitive and emotional skills.

Finally, the objectives found in Stage 3 of the Creativity Matrix can be metaphorically understood as creators identifying the unique elements of their creative "genetic code" or "creative DNA." After all, the goal of developing creativity is not to have students who are creative only once—say, in the context of a classroom project—but who have developed habits of mind that help them live as creative individuals. So the creative DNA metaphor is meant to imply that creators generate their own unique problems, not just find them. A creative person is one who is engaged in a "network of purposeful enterprises" (Wallace & Gruber, 1989, p. 7)—meaning that creators are "engaged in a collection of 'related projects' all of which continue to contribute to a larger purpose at hand" (Dasgupta, 2008, p. 131). Stage 3 objectives in the Creativity Matrix help students transform knowledge, skills, and the precarious—sometimes vague—mental terrain encountered in the artistic process into a creative stance that generates a collection of personally meaningful, open-ended projects.

Having borrowed the term from Gardner (2007), I see the creative stance as being composed of five elements that blend together as a creative mindset and which forms the underlying foundation for a creator's ongoing creative activities. The elements of this creative stance are:

• objectives that are unique to an individual;

• a personal rationale that provides the emotional motivation to navigate temporary failures and the courage for enduring the confusion of not knowing the next step;

• a personal viewpoint that sees problems, tensions, and connections where others do not;

• preferred working methods and materials; and

• personal standards that are adequate to and reflect a creator's emerging vision.

The objectives and skills identified throughout the Matrix are organized so that they strengthen these five elements over time. The challenge in Stage 3 is helping students integrate these elements into a whole. From the perspective of a vertically aligned K-12 art program, students who do not experience this culminating stage are at risk of leaving high school with the impression that creativity is only coming up with whacky, impractical ideas. Worse: without experiencing the deep and often transformative nature of developing a body of work, they could look back on the rich skills developed in Stages 1 and 2 as being irrelevant to the necessities of "real" life—especially given the linear, techno-rationalist orientation of today's culture (Radford, 2004).

Assessment

How can this toolkit be put into practice? As an administrator at the district level, I've used these tools—the creativity model and matrix—to engage staff in professional development and values clarification exercises, and to guide curriculum planning so that creative thinking can be infused consistently throughout the curriculum. I've also used these tools to communicate the value and nature of creativity to principals and parents, who benefit by learning that creativity is a complex process whose presence in the curriculum is a vital counter-point to the reductive, linear, convergent teaching that occurs in other school subjects. These conversations are important for establishing what to expect from an art program that emphasizes creativity as an outcome.

The art administrator who wants to help teachers develop creative students needs to encourage risk-taking and mental playfulness in the classroom—and to communicate why this is important to principals and stakeholders.

By having multiple expert teachers rate work submitted from each school, district-wide exemplars for each dimension of creativity can be established (Baer, Kaufman & Gentile, 2004); using this approach, Kimbell (Stables & Kimbell, 2007) has developed an electronic, portfolio-based method of assessing innovative thinking with a remarkable reliability coefficient rivaling that of standardized math tests. Under my guidance, this method of assessment has been piloted by the APS visual art program. Thus, a Creativity Matrix can enable teachers to help students grow into a level of creative practice as determined and assessed by local standards. Since creativity is a long-term process, it also helps push the student body as a whole towards higher levels of creativity as conceived by that district when, for instance, it is embedded in a vertically-aligned, K-12 art program.

But how can an individual teacher determine levels of achievement for each creative objective? Action research and collaborative goal-setting with students both play an important role in answering this question. Using the three-stage model and Matrix as guides, teachers can formulate action research questions designed to establish local standards within a particular class, school, or district. Teachers might ask students what counts for them as unique, risky, transformational, or coherent. With this information they can construct rubrics that set the bar slightly beyond—yet within reach of—students' abilities. For instance, early in the year an art teacher provides students with a wide variety of images and then has them rank the pictures on a continuum ranging from cliché to novel, facilitating a discussion that makes explicit the reasons behind students' choices. This allows students to co-construct a class-specific rubric for innovative thinking while providing information that helps the teacher construct lessons that will expand aesthetic horizons and, hopefully, lead students to explore artmaking beyond their own personal boundaries.
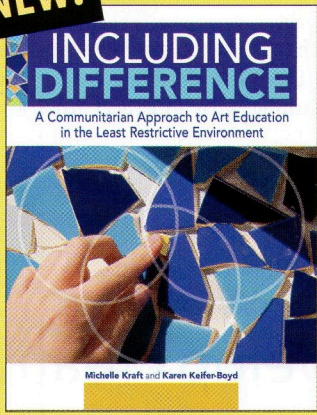
Conclusion

Teachers, principals, and parents should realize that simply throwing out the directive "Use your creativity!" without teaching and cultivating creative skills is a self-defeating formula. Art education administrators play a pivotal role in translating theory and research into practice and in leading a dialogue among all stakeholders about the nature and value of the creative process. Communicating only the "big picture" (or model) without the details provided by a tool such as the Creativity Matrix can leave teachers and stakeholders confused about how to go about improving student creativity. But offering a matrix of objectives without the values and rationale embedded in a theoretical model risks reducing the creative process to a series of formulaic steps—the antithesis of creativity. **By providing both a model and a matrix of objectives for creativity, art education administrators can lead the long-term process of change to establish a culture that supports and enhances student creativity.**

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