

A 21st-Century Art Room: The Remix of Creativity and Technology

BY COURTNEY BRYANT

The bell rings. Excitedly I barrel through the door to the shiny new Mac lab. I am the first to arrive in the graphic design class and I greet the teacher with a shifty, silent smile—the perfect image of a surly teenager. I turn on the computer and immediately start toying with the tool bar in one of the programs. The teacher begins by distributing a handout with step-by-step instructions as well as a picture printout of exactly what we will make today. Then she proceeds to bark out instructions. I somehow manage to keep up through the first several steps. She stops to clarify directions for one student and I pass the time by manipulating the image on my screen.

The teacher resumes barking, but I am too far past the point of undoing what I have done—I panic and restart at step one. I am able to get back to where I was, but now the group has moved on. Distressed, I ask my neighbor for help, who quickly pulls me back into line. Unfortunately, we soon realize the class has moved on and we are both lost. HELP! My right hand flies up and I wait to be noticed. I noisily spin in my chair, talking with friends—all while intermittently trying random stabs at solving my problem. The bell rings. I save my humiliation for another day. I know tomorrow my anxiety, stress, and unease at re-making the teacher's vision will begin anew.

Flash forward 15 years. I am an art teacher sitting in the front row of my own high school students' first annual film festival. I watch their movies, once again uncomfortable. I realize that my students' astute technical work all looks boring. I think back to my classroom of this past year and how students sat, miffed with their hands in the air. I came to the sickening realization that I was teaching the way I had been taught. And it was not working.

With this, my qualitative case study was born. I decided on this methodology because a "case study investigates a contemporary phenomenon within its real-life context" (Merriam, 1999, p. 27). I wondered if my students could acquire necessary techniques while expressing creativity in their own voices. Consequently, for my case study, I selected my high school Introduction

to Animation class, an elective in the Computer Animation pathway at my school. This course involved instruction of basic technical applications in stop-motion animation and allowed promotion of creative problem-solving strategies. I observed the class of 21 students and reviewed their sketchbooks for insights on implementation of creative problem-solving strategies. Through purposeful sampling, (Merriam, 1999), I selected three students to study in depth based on their personalities, gender, availability, and willingness to participate. These students, Quentina, LaDarrion, and Terique (pseudonyms), became the voices of my study as I explored possibilities of combining technical instruction with creative problem-solving strategies.

In this study in a computer animation unit, I explored urban high school students' use of creative problem-solving strategies, defined as techniques that offer multiple ways and angles of considering a problem from which an optimal solution may be selected. These strategies included open-ended instructional problems, brainstorming and storyboarding, peer checks, utilizing symbolism and metaphor, and critique. The primary goal for the unit of instruction was to teach students how to create a stop-motion film that used computer programs Photobooth, iPhoto, and iMovie. While these strategies are common in traditional artrooms, I examined what happens when these creative problem-solving strategies were combined with a high-school computer animation unit and what results were obtained.

Creativity and Technical Skill Acquisition

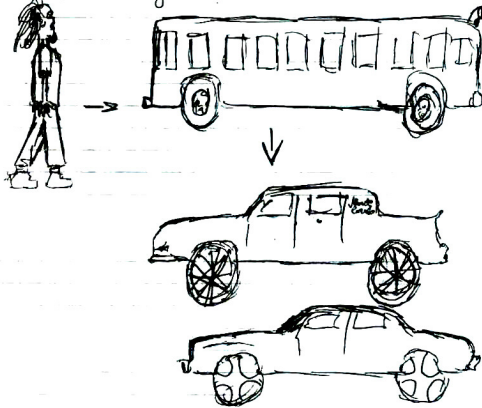
Before beginning a discussion about the importance of combining creativity and technical skill acquisition, clear definitions of creativity and technology/technique are crucial. For the purposes of my study, *creativity* was defined as the individual's use of knowledge, imagination, and judgment within constraints of an environment and its resources (Slocombe, 2000) in order to solve problems in an innovative, high quality, appropriate manner (Kaufman & Sternberg, 2007). Technology and technique share the same root word *techné* which means "art, craft, skill" (Merriam-Webster, 1993, p. 1210). The computer is simply the most recent addition to an artist's tool chest of media necessary for a display of technical skill.

Technique and creative expression need not preclude one another. Victor D'Amico (1953) suggests that teachers should give as much instruction as a student needs, satiating curiosity while not overwhelming with too much information that could derail a student's original intent about his or her artwork. More importantly, D'Amico also believes that "a technique is not taught as an isolated activity, or as an end in itself, but as a means of helping the child to express himself" (p. 20). In today's strongest art programs, teaching content and process as well as allowing students to use content for artistic self-expression are of primary importance (Anderson & Milbrandt, 2005). Based on my peers' anecdotes about their own experiences in the computer-based art room, however, I fear this balance of technique and creative expression, found in many art classrooms, is lost when entering a computer lab.

With any media, especially computer technology, it is tempting to assume that students will be motivated to learn a technique as a result of its novelty. All too often, this is only temporary (Gouzouasis, 2006). Eventually the newness factor abates and if substantive knowledge or intrinsic motivation is lacking, artmaking can become rote, purposeless, and, in some cases, ceases completely.

A still from Quentina's film. Her father, the black bird, is shown being liberated from the cage that represents his jail cell. In her film the father bird's color shifted from multicolored to black as he sat in the cage. This represented his change and the dark period in Quentina's life.

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My transformation is a big one for me. First I will be walking. Then somehow I will come up to a car. In the middle I will be riding the marta bus. I will end up with two cars. I will be riding a big. Somehow I need to get a bus.



LaDarrion's storyboard: he will walk, then ride the bus, and then drive. In the written reflection that accompanies the drawing, he plans to "get a bus" for the movie. Storyboarding helped LaDarrion establish a list of props necessary for production.



A 21st-Century Artroom

Computers are everywhere: in restaurants, homes, schools, and increasingly in art classrooms. Art teachers must not only master and teach computer technology, but also sustain a focus on creative problem solving. Additionally, art teachers of the 21st century hold responsibility for educating students about the purposeful and artistic use of technology through the study of visual culture (Duncum, 2001). Teaching students to critically examine images made with technology fosters students' creation of their own complex imagery. Furthermore, it contributes to development of a future work force. Daniel Pink (2006) believes that:

We'll need to supplement our well-developed high-tech abilities with abilities that are high concept and high touch... high concept involves the ability to create artistic and emotional beauty; to detect patterns and opportunities, to craft satisfying narrative and to combine seemingly unrelated ideas into a novel invention. (p. 51-52)

Recall now my students' first annual film festival. The films may have been technically sound, but lacked "high concept." These issues of creativity and technique in today's classroom led me to implement the following strategies.

Creative Problem-Solving Strategy 1: Open-Ended Assignments

The open-ended assignment was: Tell of a period of personal transformation in your life using the programs Photobooth, iPhoto, and iMovie to make a stop-motion film of the experience. Students used this prompt to present their own agendas or personal feelings about a topic. This not only liberated, but also motivated them. Quentina very concisely explained why she enjoyed the personal choices innate in open ended problems: "[When I] find something that I like, I—I just like to stick with it because it's part of me and it's what I feel." This motivation carried her through to an elaborate, original outcome that had personal meaning and value.

Kay (1998) and Carroll (2007) also believe open-ended assignments, or elegant problems, allow for "flexibility, fluency, elaboration, and originality of responses"

(Kay, p. 281). Integrating an elegant problem into a unit of instruction allows students at all ability levels to make choices and create original works that have personal significance (Carroll, 2007). Art educators may inspire for a plethora of creative solutions by presenting a problem open for interpretation and students benefit by having an opportunity to share their own lived experiences.

In addition, Howard Gardner (2006) offers this suggestion to today's parents: "make sure that ... children pursue hobbies or activities that do not feature a single right answer" (p. 86). With this, he implies that development of more than one solution to any problem will serve students better when working for modern companies such as 3M, Google, Ebay, and Amazon (Gardner, 2006). Encouraging multiple solutions does not endorse a total disregard of structure; to the contrary, structure is essential in art and business as it is in education.

Creative Problem-Solving Strategy 2: Pre-Production: Mind-Mapping, Brainstorming, Storyboarding

For some artists and art students, planning before doing is second nature. Once individuals arrive in a technically charged environment, however, preproduction planning may be regarded as a waste of time. In fact, planning may be the most important part of any digital artwork (Mayo, 2007).

In this study, students were asked to make mind-maps, graphic organizers that allowed students to record all ideas and begin to see connections or overall themes in their ideas. After choosing an idea they were asked to brainstorm possible storylines. Next I showed them how to complete a storyboard. Finally, they made a list of all the materials needed and where they would acquire these materials. Several students consequently realized they would need materials from home. Most important, they could finally visualize how to complete this momentous task.

My students seemed reluctant to plan at first, but after seeing the results of planning, changed their minds. Terique openly discussed how brainstorming affected his product: "It will help me 'cause I have my

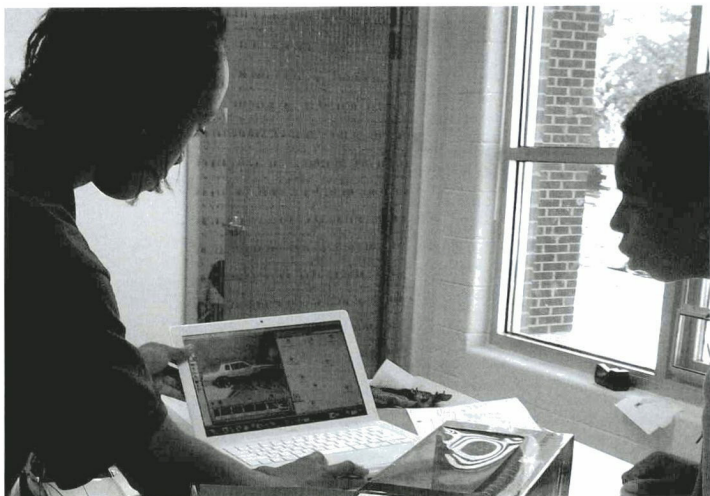
plans already down, so I basically know what to do and I won't stumble through what I have to do. So I be on a roll. And get my project done quicker." LaDarrion noted an additional benefit: "If I take all the information of my brainstorm and put it into my project, I get more things out of the project like details." Extensive brainstorming led to elaboration of the overall concept, netting a quality creative outcome.

Creative Problem-Solving Strategy 3: Inclusion of Symbolism or Metaphor

Creating symbolism for meaning is particular to this study as a creative problem solving strategy, and is supported by the literature. We are in a transition from the Information Age to the Conceptual Age; individuals who are able to create, empathize, and utilize metaphorical thinking, skills attributed to the right hemisphere of the brain, will take center stage (Pink, 2006). Moreover, analogies can be used in art to create new ideas in one's imagination (Roukes, 1982). Marshall (2007) provides additional insight with her belief that "the process of constructing a metaphor is partly rational (connecting the dots) but also imaginative (seeing the dots in a new way)" (p. 31). When students create symbolism for meaning, it allows them to conjure up new ideas and make points in more subtle and distinctive ways. My students were asked to incorporate some form of symbolism in their work, attributing symbolic meaning to everything from decisions about music to inclusion of props.

Quentina explained the significance of symbolism in her project: "Since my daddy has changed, I decided to turn the father bird black. Because he was a normal person, a normal father. But after a while, he came outta jail, he was different. So black is a bold color, and since it was a black stage in my life, I decided to turn him black" Terique also aimed to convey his idea through props embodying his symbolism: "Like when I say I'm evil, I got this little mask that look like the devil. And I got a little hood, put a little hoodie on, make it seem like I'm even more evil." Symbolism allowed my students to show their feelings and concepts without having to use conventional, literal terms.

One of the many times LaDarrion received advice from a peer. This time the two discussed movement for the car in his film. LaDarrion, an avid model car builder, also needed a bus but did not have one in his personal collection. Through peer interactions, he pursued one suggestion from among several alternatives.



Teamwork and peer help were an unexpected windfall of these strategies. Often when students had questions they sought help from one another. These collaborative strategies lead to engagement and ultimately fostered a sense of empowerment never before witnessed in my classroom.

Creative Problem-Solving Strategy 4: *Peer Conversations*

Peer conversation consists of informal student discussions about their work that often leads to greater insights for the students involved. Specifically, this type of group collaboration with adolescents and interactions can prove pivotal and informative for students. A collaborative atmosphere allows creativity to flourish (Moran and John-Steiner, 2003). Damon and Phelps (1989) agree:

"Reported studies have shown that peer interaction is conducive, perhaps even essential, to a host of important early achievements: children's understanding of fairness, their self-esteem, their proclivities toward sharing and kindness, their mastery of symbolic expression, their acquisition of role-taking and communication skills, and their *development of creative and critical thinking*." (p. 135, emphasis added)

Students learn that they benefit from seeking consultants when faced with important decisions. Solutions arrived at in this manner often prove to be stronger than those derived by an individual working alone (Damon & Phelps, 1989). In my study, I encouraged this type of interaction.

Specifically, I suggested that students seek advice from each other and travel around the room to provide feedback on other students' work. I modeled this behavior and then observed many students engaged in the process. Students seemed to not only enjoy the practice; they benefited artistically and emotionally from giving and receiving advice. LaDarrion shared: "I talked with one of my friends, who is also in my visual arts class with me.... He gave me some good advice on how to get my props together... So he gave me some advice to work on it—print some pictures out and place them on cardboard. Create a background for it that would make my video look great."

Creative Problem-Solving Strategy 5: *Critique*

Formal teacher-directed critique is commonly used in traditional art rooms and, if used effectively, can boost creative production through continued idea generation and concept clarification (Carroll, 2007). Teachers must be supportive and honest when giving feedback so that students will learn and practice this kind of interaction with their peers (Shallcross, 1981). During this study, students were asked on several occasions to consider together the overall meaning of an artwork, the effects used to achieve that meaning, and areas for improvement.

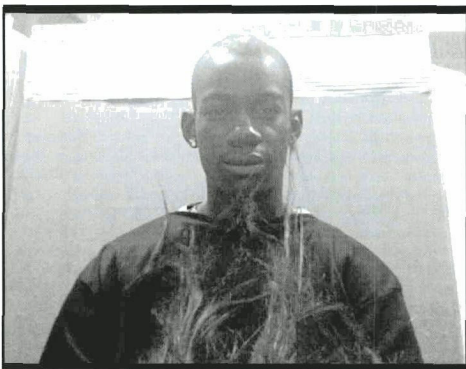
Students benefit from checking the meaning of their work within a supportive whole group context. The overall viewpoint of the audience can be important and influential. When multiple students present the same feedback, the student receiving the feedback is more likely to agree with it (Finken, 2005). Terique explained this phenomenon in terms of his own critique experience: "Well, like we had did this critiquing in da classroom and most folks didn't understand why, um, I had my uniform on and I was takin' it off so that's a big problem so I had went back in and changed it from me takin' a mask off showing that I'm a be myself this time."

Flash Forward: Study Results

Motivation proved to be a non-issue with this unit of study once the students became involved in the activity. After school tutorial attendance doubled and sometimes tripled during this lesson, and students even begged for time to work during lunch. Terique explained the difference in his motivation: "Yeah, cause this time I was more into the project and like all the other times I probably just do, um, this part of the project and I be done with it and I'd probably go talk to somebody, but when I was doin' this project, I noticed that I ain't had enough time to waste so, I had to do what I had to do to get done."

Engagement also increased during the animation assignment. The blending of creative strategies resulted in powerful combinations in which students valued personal meanings and memories of the past; created concrete paths; envisioned everyday concepts in new ways; acknowledged the perspective of others; and understood possibilities for improvement via new ideas from peers. Furthermore, teamwork and peer help were an unexpected windfall of these strategies. Often when students had questions they sought help from one another. These collaborative strategies lead to engagement and ultimately fostered a sense of empowerment never before witnessed in my classroom.

Students were engaged with this project and their individual responses were distinctive so I had good reason to smile when the film festival rolled around again. Each student's movie was unique and told his or her own story through intense visual imagery and captivating soundtracks. I had even more reason to grin as we competed in the city-wide art show this year. A judge indicated that our entries this year were superior and contributed to our earning the coveted High School Art Program of The Year banner. The grin stretched further as my students claimed first, second, and third places in the film category at the same show—with Terique placing first!



Terique's film. In this sequence Terique removes the mask from his face so that the audience may finally see his metaphorical true self. These stills are just three images out of the hundreds he used to tell of his transformation. In the stop-motion process small changes of movement are recorded gradually with individual images from a digital camera, organized into proper sequence, edited for dramatic effect, and finally combined to produce a film.

During the unit, I observed few pauses in work due to confusion or stalling, and no one spun in his or her chair for entertainment. They were too busy working. Students were engaged throughout the classroom and even throughout the school building—on task with movie making. What a difference from my own days as an art student in that computer lab.

In the future I plan to instruct my students to utilize creative problem solving strategies as I teach necessary skill sets for animation units. While I acknowledge limitations of my study, conducted in a specific environment from which readers should generalize only with care, I do recommend that teachers

using technology as a tool for artmaking consider these strategies. Creative problem-solving strategies should be promoted by the art/technology instructor in the same way they would in any other art room. Furthermore, I would like to encourage a paradigm shift: learning highly technical computer skills does not have to come at the expense of creativity. Future studies into the successful fusion of these two pursuits would be worthwhile for educating students of future challenges given the increasing emphasis and importance of high-tech artmaking in both educational and business contexts.

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