

Article

# Organic Creativity for 21st Century Skills †

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† This article summarizes a keynote talk I gave at the 2017 World Conference for the Gifted and Talented, in Sydney, Australia (Piirto, 2017).

**Abstract:** This article contains 15 “takeaways” about how to teach organic creativity, from actual teachers with several hundred total years of experience. Teachers of English, physics, Advanced Placement Calculus, science, theater, the visual arts, dance, school administration, school counseling, educational psychology, world languages, mathematics, the education of the gifted and talented, social studies, music, and elementary education describe their strategies for teaching for intuition, imagination, insight, imagery, risk-taking, openness to experience, feeding back, improvisation, and other aspects of creativity that arise from the subject matter.

**Keywords:** organic creativity; creativity; teaching for creativity; creative teachers

## 1. Introduction

Often, how-to-teach advice is given by persons who have little or no experience in the classroom with real, live children and adolescents. The writers, often professors, may have taught in a K-18 classroom many years ago, but only for a few years, before they received their higher degrees, entered the education departments and psychology departments, and did not remain in touch with the academic field in which they taught. As the editor of the *Organic Creativity* book, I asked academic specialists who were also pedagogy specialists how they taught creativity while also teaching subject matter. This article summarizes their thoughts on how to teach intuitively in the academic and arts classroom.

Creativity can be taught and nurtured, and we can build classrooms in which creativity thrives. Twenty-three educators with over 500 combined years of classroom experience in K-18 discussed how they used the Eight I’s (intuition, inspiration, insight, improvisation, incubation, imagery, imagination, and intentionality), the Five Core Attitudes (group trust, risk-taking, openness to experience, self-discipline, and tolerance for ambiguity), and General Practices for Creativity (ritual, exercise, a decision to live a creative life). I have developed the The Five Core Attitudes, Eight I’s, and General Practices for Creativity and based them on the practices of creators, which I have explicated in articles (cf. Piirto, 2009, 2016) and in my book [1]. These 23 educators taught literature, mathematics, social science, science, physics, foreign language, theatre, visual arts, songwriting, dance, music, arts education, educational psychology, gifted education, school counseling, and school administration.

What is Organic Creativity? I coined this term, which some of my colleagues have viewed with humor. By “organic”, I mean creativity that arises from within, with or without intention, as part of the whole. It is unforced, spontaneous, free, pure, living, and animate. Most people think being creative means being in the arts and they say, “I am not creative”. This is a misconception. All people are creative. The working definition of creativity which I have used since I wrote my first book on creativity [2], is this simple dictionary definition: “Creativity is a basic human need to make new” (p. 2). While creativity is the natural propensity of human being-ness, creativity can be enhanced and also stifled. The creative personality can be developed and also thwarted. What is unnatural and sad is for creativity to be repressed, suppressed, and stymied through the process of growing up and being educated. Creativity takes certain habits of mind.



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What I have gleaned about the creative process has been learned through my research method, which is a qualitative biographical approach. I have read over 1000 biographies of creators deemed worthy of having a book written about them and noted how they describe their creative processes. However, I have also read nonscholarly biographies, which include puff pieces, autobiographies, memoirs, and interviews. For example, each issue of the literary journal, *The Paris Review*, includes a lengthy interview of a writer. Many of these interviews were cited in my book about creativity in writers [3] My and these themes were gleaned. For example, in the 1967 interview of poet Anne Sexton, (1928–1974) she was quoted as saying:

Hell, I am undisciplined too, in everything but my work . . . and the discipline, the reworking, the forging into being is the stuff of poetry . . . the original impulse is only that . . . and perhaps poets get that as a gift. However, it is what you do with the gift that makes the difference. Everyone in the world seems to be writing poems . . . but only a few climb into the sky. What you sent shows you COULD climb there if you pounded it into your head that you must work and rework these uncut diamonds of yours.

[4]

I coded this as an example of the core attitude of self-discipline.

In conceiving the book on organic creativity [5], I considered teaching as a creative domain. I asked 23 creative teachers to write personal essays of about 6000 words on how they teach their academic disciplines creatively. One of the criteria for choosing these people was (1) that they had expertise in the academic subjects they taught—for example, they had undergraduate majors and in many cases, graduate degrees in the subjects; and (2) they had years of experience teaching. After compiling the book, I recapitulated its themes, cross-coding among the teachers' personal essays about how they teach creativity; here are 15 takeaways from their insights.

## 2. Takeaways from the Personal Essays of Creative Teachers

### 2.1. *Teachers Should Resist the Current Climate of Multiple-Choice Assessment, Single-Target Standards*

Peppercorn [6], spoke about the pressure of meeting such standards. He related that creatively in the subject of social studies was extremely important, as students and teachers were subjected to rigid assessments were demoralizing. He related that schools were not businesses, and that “the MBA-ification of schools is interfering with teachers' ability to inspire their students, help them discover their talents and interests, and let them showcase their creativity” ([6], p. 34). The current and recent past emphasis on standardized testing has put the focus on narrow right and wrong answers, and “we're losing sight of the importance of developing students' creative thinking skills, and we're killing students' intellectual curiosity and love of learning.” Peppercorn argued that academic skills such as critical thinking were important. Students should also be helped in discovering what their strengths are, and teachers and schools should “give them opportunities to be imaginative”.

Groman [7], who is now a professor of the education of the talented, found her years of classroom teaching often heartbreaking, being required to check off testing standards instead of teaching with joy and creative energy:

I found that life as a teacher of the gifted is very difficult. Heartbreaking, even. Now when I hear stories of the breaking hearts of teachers around me and the questions my young teachers-to-be ask about the difficulties of the profession, I think back to these days . . . I saw the slow, steady movement toward standardization with the No Child Left Behind and the standards-based legislation and at the same time was aware that teaching could be different—deeper, and more soulful.

([7], p. 273)

She said that her creative work as a jazz singer and singer-songwriter was necessary for her sanity: “I had an outlet for expression when I was frustrated, sorrowful, and ready to give up. I had a connection to like-minded individuals that bolstered me” ([7], p. 273).

### 2.2. *Teachers Should Know Their Students’ Strengths and Teach to Their Strengths*

Nicoll [8] experienced a teaching breakthrough while teaching choreography and dance. She noted that most such classes were very directive, with the choreographer being the leader and boss, imposing the patterns upon the company. Once a 9-year-old student asked her, “When do we get to dance?”. This comment moved Nicoll to reflect on her teaching. To make space for students’ creativity, teachers sometimes need to move aside, even when students request more help. In her essay, Nicoll [8] described how making space for students’ intuition and creativity can be one of the most challenging and essential tasks undertaken by any teacher. Her question for herself was this: “What is the least I can do that will help students discover their own powers as artists?” ([8], p. 109). Nicoll likened her teaching to being a cairn, a wilderness marker on a hiking trail. Instead of freeing her from overplanning her classes, her insight led her to more planning:

Planning became a more intensive process. I spent hours imagining every student and digging around in my memory for what I heard and saw in their dancing. I started hauling notebook and pen around the studio with me, scribbling notes about what students were doing, what questions they asked each other, what thoughts they expressed. Studying the notes later, I asked myself questions. When did this or that student get excited? What did he or she say, or was she mostly silent? To whom should I pay special attention so I would catch that little smile or glimmer in the eye . . . My goal: to pay very close attention and turn the students on to themselves.

([8], p. 114)

### 2.3. *The Teacher Should Teach Improvisationally; That Is, the Lesson Can Be Changed when the Situation Changes*

As an example of teaching improvisationally, Kettler and Sanguras [9] developed a method for teaching literature that utilized four pedagogical strategies. One of these strategies was “disciplined improvisation” ([9], p. 14) which encouraged students to perform their favorite works with verve and emotion. Second is the “centrality of imagination”, which encouraged students to engage with fantasy and to interpret literature using a “what if” strategy:

Depending on their personal experiences and worldviews, perhaps they envision an absentee father, or a series of academic failures, or even a chemical imbalance. The product students create (i.e., an essay, a scrapbook, a series of Facebook posts) is secondary to the true purpose: melding life experiences and imagination to create deep, personal meaning of literature.

([9], p. 9)

Snowber [10] also advocated that teachers be willing to “see what happens” and to enter the classroom willing to improvise: “I may come in with a lesson plan, but I may find out that day that there was a huge tragedy, and the only way the class could bear this” is to write or move honoring the grief and loss” ([10], p. 257). Snowber called this “the emergent curriculum”. The teacher must be open, fluent, and aware of the textures of creativity. “I am more interested in what I do not know than what I know” ([10], p. 258). The teacher must embrace vulnerability, “for the creative process is seldom neat and is an invitation to both wonder and difficulty, but it is a process, which resides in the text of our bodies and souls” ([10], p. 258). The teacher should feel free to stray from the lesson plan and use his or her intuition to determine the direction of the classroom situation and the lesson, encouraging students to use their imagination.

#### 2.4. *The Teacher Should Seek to Develop a Climate of Feedback in the Classroom where the Students Trust Each Other*

Developing a trusting atmosphere in the classroom requires skill. The teacher should demonstrate an acceptance of students' stories and comments, without putting down students' ideas. World languages teacher, F. Christopher Reynolds [11] has developed a process called "feeding back". There are four responses for when a student presents a product or idea.

1. Reminds me of;
2. Occurs to me;
3. Art answers art;
4. Silence.

Firstly, the class and the teacher draw upon their own past experiences, and comment on the work noncommittally, saying, "Your work reminds me of . . ." This is a sharing exercise and not a value judgment. Reynolds [11] related, "This level invites you to allow the creativity to inspire you to remember and to share your memories" ([11], p. 81). The second level of feeding back adds a little more specificity. Feeding back is not evaluative. It does not say, "Cool, dude!" or "What's up, man?" or gush about how awesome or beautiful the work is. Works are taken seriously, perhaps with the class walking about the room silently and quietly looking at their classmates' work in a respectful manner, as at an art show. Then, the student or teacher pins the image to the wall or board, and the person who constructed the image listens quietly and nondefensively while the rest of the people begin their sentence with the words "I see". We tell the students: "You will receive insights into your work (and self) that you did not know you were putting into the work, if you listen to the feeding back". This is said carefully and tenderly, with no evaluation, but just description or association: "While I was looking at this, something just popped into my mind". Other possible responses are these: "This work reminds me of". A higher, more engaged level of feeding back is answering art with art: "I want to make a work of art to respond to your work of art", or, most profound of all, being rendered silent by the power of the work [12].

#### 2.5. *Students Should Be Encouraged to Learn from Failure and from Vulnerability*

The arts of dance and theater are particularly suitable for learning from failure and vulnerability, as much of the learning is improvisational and requires trial and error as the students gain skills and remember lines, notes, and routines. The fear of failure is always present, but the teacher can mitigate this by encouraging risk-taking. Dubin [13], a teacher of theatre, related that students were hungry for a non-judgmental atmosphere which encouraged experimentation and "unfettered exploration" ([13], p. 124):

Risk-taking is an inherent part of the creative process. If students are to realize their potential, to develop the skills in which they are the least confident, to step outside of what is comfortable, they need to have the freedom to indulge in unfettered exploration. They have to be willing not only to go out on a limb, but to leap, hop and jitterbug on that limb. What stands in the way of their arboreal Lindy-Hopping, is that ubiquitous question "What if I fall?" . . . it is necessary to have a safe environment; an environment in which failure has been de-stigmatized, in which it is encouraged and even celebrated.

([13], p. 125)

Dubin argued that failing with permission is liberating, and thus it is "an invaluable tool of learning and growth" ([13], p. 125). He uses circle meditation and a bevy of trust exercises to help students to conduct the risk-taking.

#### 2.6. *The Teacher Should Use Creative Humor which Teaches and Engages Students*

Social studies middle school teacher, Daniel Peppercorn [6], is known throughout his school for his joke contests and humorous stories, and parents clamor to attend the

class as guests. He said that comedians are known for their ability to surprise people with ideas that are unique and original, and that he welcomed class comics into his classes because the other students were engaged and the teacher always had a foil. He described his parents' nights:

During our annual Curriculum Night, I try to incorporate humor into the presentation to give my students' parents a sense of what my class is like. For example, sometimes I give them current events challenge questions and they win bills from our classroom currency for answering questions correctly. One question was: "According to a study by psychologists, do our memories get more or less positive over time?" After a parent correctly answered that our memories get more positive over time, I said, "Hopefully your son or daughter will really like my class. However, even if they do not, in ten years they'll love the class".

([6], p. 35)

### 2.7. Administrators, Counselors, and Teachers Should Not Be Afraid to "Trust the Gut"

Rebecca McElfresh [14] wrote about being an elementary school principal and Maria Balotta [15] wrote about being a middle school counselor. Both emphasized that such work is improvisational and requires intuition as decisions are made on the fly when situations arise throughout each day. Balotta illustrated this through four case examples—of a girl who was being bullied by other girls, and so brought a knife to school intending to deal with them violently; of a boy whose macho Latino father would not accept that he was gay; of a Russian immigrant girl whose mother was so busy with her other six children that she could not perceive the needs of her oldest child; of a bright, achieving native Spanish speaking girl who was being refused the class valedictorian honor because of her background. Balotta [15] related:

I feel blessed to have discovered the voice within. This thing that we call *intuition* leads me to carve new paths when at times the road seems to have reached its end. Not all the stories are about students whose lives have been in danger, or students denied their earned rewards. The incubation period for creative solutions is frequently seconds long, but as I look back at my journey as a school counselor, I cannot think of any story where intuition did not play a significant role.

([15], p. 311)

### 2.8. Music, Theatre, Art, Dance, Foreign Language, and Athletics Are Not Extras, but Vitals

McElfresh [14] also wrote about seamlessly weaving the standard curriculum and the arts together through shared activities, field trips, and residencies by artists, writers, musicians, dance companies, and so on. Every day, in the schools she led, students would have music lessons embedded into their literature, mathematics, science, history, and other lessons as a matter of course. When the bombings of 11 September 2001 happened, she gathered her teachers, students, and staff for the making of art as a response:

It seemed natural to us to respond organically through the creation of art. Students created art, teachers created art, poems, and song. We gathered in a large group assembly, surrounded by our art, and listened to poetry and music. We had found confidence in this way of working and we were able to turn to it at a time when we knew little else to do.

([14], p. 324)

### 2.9. Techniques Such as Meditating, Slowing Down, Paying Attention, and Mindfulness Should Be Part of a Teacher's Repertoire

I discussed the use of meditation in the classroom. Meditation is a part of the creative process in all domains [11]. Meditation seems to be a theme in the discussions of creators on how they create. Religion is most likely not a reason; creators seem to meditate in a



spiritual, individual sense. Here, are some ways teachers can use the general creativity practice of meditation in their classrooms:

- Pause. Breathe. Don't rush. Begin activities with closed eyes and a deep breath.
- Have students "put on their game face" before performances or practices by encouraging them to close their eyes, sit still, breathe, and visualize themselves.
- Talk about and research the classroom uses of meditation.
- Use bells or a bronze begging bowl with a mallet to signal a period of quiet and mindfulness in the classroom. The very sounds of these musical instruments seem to induce a creative frame of mind.
- Emphasize slowness and thoroughness rather than quickness. ([1], p. 137)

#### 2.10. *The Use of Field Trips Increase the Likelihood of Students' Engagement, Remembering, and Transfer*

Nowadays, and throughout history, schools have debated the usefulness of field trips. Just do it, as Nike says. Even as a college professor, I require field trips for all of my undergraduate and graduate students; getting away, seeing things with one's own eyes, socializing, and being somewhere physically cannot be beaten. Gardner's [16] work on "teaching for understanding" emphasized the "museum curriculum", noting that transfer is achieved through the concrete apprehension of learning through the body. Johnson [17], who taught poor, rural Appalachian students was adamant that they took trips out of their school and local region. He even conducted field trips to the nearest McDonald's 30 miles away, for his students, who had never eaten out, teaching them about mathematics, economics, and nutrition.

#### 2.11. *The Classroom Is a Mutual Learning Environment, where Both Students and Teachers Learn Together*

Science is a subject that is often challenging for both teachers and students. Taber [18] said there are three myths about how to creatively teach science. The first myth is that science is about facts. This is false. Science is about data from which facts are creatively extrapolated: "In terms of cognitive processes, this means *inventing* patterns that can make sense of the data. Scientists *imagine* possibilities to best fit data, and then *invent* ways of testing those imaginary possibilities by doing further data collection" ([18], p. 49). Making models to explain phenomena is also part of creativity in science. The second myth about teaching science is that students can memorize concepts by rote. In fact, when a model is presented to explain a phenomenon, the student must encounter the model with an imagination similar to the imagination with which the model was invented. Understanding is necessary. The third myth is that memorizing a set of facts increases knowledge of science. Taber [18] related that, while it is convenient to know that water is H<sub>2</sub>O,

Arguably, we should be more impressed by the student who can devise a role-play; or develop a graphical representation; or construct a narrative; or build a model—which shows some understanding of the concept of element, than the student who can select, or even regurgitate a formal definition.

([18], p. 114)

However, creatively teaching science requires that the teacher have at least enough knowledge of the concepts to be able to simplify them so that the students can apprehend them at a level which they can understand. This is often accomplished through the use of "metaphors, similes, and analogies between the target knowledge and what is already familiar to learners" ([18], p. 115). The teacher must be able to build cognitive bridges between the textbook and the individual student's level of understanding. The teacher must have "knowledge of the subject matter, preparation in the pedagogy, and a good deal of insight into learners and their ways of thinking" ([18], p. 115).

Tolan [19], a Newbury Award-winning children and young adult fiction writer, who has given thousands of author workshops and readings to teachers and children, spoke

about emphasizing the magic of a story when working with students. She also listed several ways that children's creativity and intuition can be hindered. These are (1) criticisms, both good and bad, including grades; (2) an overemphasis on *product* rather than on the process of creating; (3) an overemphasis on *revision*, which "should not be regularly expected of children, whose focus is the adventure of seeing where the story goes. Revision should seldom be required earlier than middle school" ([19], p. 179); (4) requiring students to always pay attention and work hard can kill creativity, as day-dreaming, looking out of the window, and sitting quietly with a thought are necessary for creativity; (5) movement, recess, walking, running around, are also necessary; and (6) an emphasis on creative courage:

*Fear.* This comes in part from criticism (grading) or the idea that every creation must be appreciated by someone else. Creation involves the ability to take a risk, and all creators experience times when they are not sure they'll be able to finish something they've started, or come up with another new idea. Share this fact with the kids, and maintain as much as possible a sense of play and exploration. Regularly remind students that creators need to be courageous.

([19], p. 186)

#### 2.12. *Self-Knowledge Tools Such as Mandalas, Walking the Labyrinth, Reflections, Nature Walks, and Similar Tools Help Give Students Insight and Inspiration*

Burnett [20], an actor and dancer who engaged in the highly cognitive Creative Problem-Solving Process (CPS) as a professor, decided to include a softer intuition within the CPS process in order to round it out, aligning the process with what creators do while creating. She encouraged her students at the State University of Buffalo to slow down while practicing CPS. She called this "passive intuition":

- When students become stuck on what to do next, ask them to take an incubation break.
- Ask students to do short bursts of exercise in between divergence and convergence.
- Put the problem away until the next day.
- Go for a quiet walk outside of the building.
- Do not try to do too much in one session. Instead, give students time to reflect and think about their processes. ([20], p. 289)

Burnett also described the addition of "active intuition": "visualization and imagery, artistic tools, the use of analogies, centering tools such as meditation and labyrinths, and the deliberate focus on an intuitive response e (i.e., —what does your gut say?)" ([20], p. 291).

#### 2.13. *Talent Is Omnipresent, but There Is a "Certain Something" beyond Talent That Is Indefinable, That Experts and Audiences Know when They See It*

Many experts suggest that a certain number of repetitions, say 10,000, or ten years of deliberate practice can trump the presence of talent (cf.: [21,22]). The writers of chapters in the book being discussed here [5] beg to discuss this. Oreck [23] was the organizer and leader of a program, ArtsConnection, in over 150 NYC public schools that identified children with talents in dance, music, circus, and theatre. Oreck was interested in creativity and motivation:

That creativity and motivation were considered essential to artistic ability and success is not at all surprising. When discussing the roots of their own success and that of their most promising students, accomplished artists often mention attitude—of curiosity, openness, risk-taking—as key to their development . . .

([23], p. 95)

While Oreck [21] is in agreement with the necessity for repetition, deliberate practice, and so on, he contemplates, in this chapter, about the obvious "artistry . . . in untrained children working in the arts . . . . An artistic attitude, emotional connection, and aesthetic appreciation, signal the artist at work" [23], p. 97). He came to call this "A". We might refer to this general artistry as an "*A factor*", a range of abilities and attitudes that can explain and predict outstanding performance in a variety of artistic experiences and settings. It

is crucial to recognize that *A* is equally important at both ends of the continuum: "from Carnegie Hall to the gym at PS 130" ([23], p. 98). Further, correlational studies with a large grant program, which Oreck ran in Ohio, showed the existence of a *g*-factor in artistic talent across domains; children showed *general* talent: "What was striking was the magnitude of the statistical correlation among the art forms—almost perfect across the three performing arts and just a bit lower when visual art was added in". ([23], p. 99).

#### 2.14. "Know Thyself" Is a Goal for Teaching and Living Creatively

Visual arts professor, Charles Caldemeyer [24], noted the presence of talent in students in advanced painting classes. Often, his students were feted and honored for their work in, say, landscape, or in decoration, and thus they continued to work in the fields in which they had garnered praise. They were certainly talented, but they had not explored their inner selves, nor had they used their intuition in creating. He stated that "The artistic process is only vibrant when it is one of discovery" ([24], p. 210). He urged that young artists develop their intuitive skills: "Techniques we use to develop intuitive skills involve (a) elimination of routines, (b) the re-contextualization of everyday events, and (c) the use of associative patterns to view life, as well as painting, experiences" ([24], p. 211). Caldemeyer reminded students that their paintings "stand halfway between the artist and the viewer, reflective of the artist's intent, yet equally interpretable by the viewer in their terms" ([24], p. 211). Yet, the student's personal symbol system needs to be developed, a system that is not too esoteric nor too clichéd. Each individual artist needs to examine their inner self and to reflect on their personal references and images:

Ideas are gifts from the great unknown. It is important for artists to follow their ideas, because ideas that are dispensed but ignored will slowly drive one insane, or at least lead to compensatory neuroses and insecurities. Developing one's ideas allows an artist to understand and order his/her world, and to reconcile outer and inner experiences.

([24], p. 220)

Montgomery [25] emphasized that teachers teaching creatively must assess what their students already know and build upon this. She operates with two guidelines: "(1) I will not teach what is already learned and (2) I cannot teach what learners are not ready developmentally to learn" ([25], p. 264). Montgomery developed a model that emphasized transformational thinking called The Holistic Model. The Holistic Model included (1) The Mind, (2) The Body, (3), The Spirit, and (4) The Heart. ([25], p. 248).

She worked with her graduate students on opening up their preconceived notions of knowledge, leadership, and dominance, utilizing tools such as walking the labyrinth, meditation, movement, creating a mandala, memory work, and so on, using the Medicine Wheel as an example. Montgomery worked in the highly indigenously populated state of Oklahoma with many mentors who helped her to create this model. "The medicine wheel was the inspiration for the Holistic Model. The Medicine Wheel focuses on the four geographical directions (east, south, west, and north) or areas of development—physical, social, emotional, spiritual, and intellectual" ([25], p. 248).

#### 2.15. Students Should Be Encouraged to Improvise, Theorize, Elaborate, Discuss, Explore, Create, Conjecture, Ask Why, and Not to Just Focus on "the Right Answer"

George Johnson [17], a long-time Gifted Intervention Specialist, shared his 40 years of practices that inhibited or encouraged creativity in the Appalachian G/T classroom where creative innovation is a way of life for both parents and teachers. The author concluded that the single most important factor in the creative classroom is a teacher and students who ask "Why?" the title of his essay was "Cars on Blocks and Roadkills", exemplifying the way of life of his economically challenged community and school. Johnson wrote, "I have found that the easiest and most consistent way to encourage creativity in the classroom is to ask the question "Why?" ([17], p. 222). He described the guided imagery that he practiced with his students. "In a relaxed setting, allow students to close their eyes and



use their mind's eye to see. There must be time to incubate, to allow the images to come forward. Try reading selections from appropriate literature with highly descriptive scenes" ([17], p. 224).

Daniels [26] discussed how to use creative imagination in teaching physics and Advanced Placement Calculus in a public high school with little funding. She said, "When studying concepts in physics, it is often necessary to use visualization and imagery" ([26], p. 19). Few high schools can afford simulators that can let students feel inertia or conduct field trips where students can experiment with weight loss or gain in a pool or a moving elevator. Using dummies to simulate the force of car crashes with or without seatbelts is also not feasible. "For these examples, and many more, I ask the students to imagine how they would feel. I ask them to close their eyes and think about the situation, and then visualize what they would see, how they would move, and what they would feel" (p. 19). Daniels lectures and demonstrates, yet "the students gain a better understanding of the concepts from visualization and imagery" ([26], p. 20). She encourages students to use their imaginations when concrete experiments that use the senses of sight, hearing, and touch are not possible.

Stephenson [27] taught music to young children, and she believed that the songwriting experience with them was one of the most "inestimable" ([27], p. 146). She had several tips for writing songs with children:

- Solicit ideas from the children, both for the theme of the song itself, and for words and phrases to include in the lyrics.
- Ask the children for suggestions for a first line, and lines to follow. It is surprising how easily this comes to children—rhythm and rhyme are their natural languages.
- Invite the children, once part or all of the lyrics are created, to sing a possible melody for each line.
- Plan a way to record the finished song immediately upon completion. This will serve to capture the musical ideas before they can be forgotten, and gives the children immediate positive feedback for their creative work. ([27], p. 154)

Two teachers of physics [28] talked about the improvisation needed in order to teach so that the students could trust their own observations and theories. The teaching style in such an active setting must be flexible and adaptable. They used the Socratic method so that students could proceed individually, finding answers, observing results, or having ideas that might be shocking, as well as intriguing, to their classmates and their professors. The professors often had to rethink their own preconceptions about the experiments. Michael related:

It is easy to walk into a classroom and tell the students what you know but it takes a lot of creative courage to walk into a classroom and to let the class be led by the students and to follow them as the professor . . . It requires a confidence in your understanding of the material and a certain willingness to grasp the material deeper than you may have in the past.

([28], p. 62)

The nature of the subject matter of physics encourages design and experimentation as students build devices to illustrate the principles of physics. They said, "Throughout these experiments and projects, the students must use their intuition, visualization, imagery, and creative abilities to transform ideas into plans, then build actual devices using their plans" ([28], p. 71).

### 3. Summary

In summary, organic creativity rises from the creator who has self-knowledge and who is not afraid to express it. Certain exercises help to enhance this by focusing on the various processes such as the Eight I's: (1) Insight; (2) Intuition; (3) Incubation; (4) Imagination; (5) Improvisation; (6) Inspiration; (7) Imagery; (8) Intentionality; the Five Core Attitudes: (1) Openness to experience or naivete; (2) Risk-taking; (3) Tolerance for Ambiguity; (4) Self-

Discipline; and (5) Group trust. Additionally, there are several general practices: (1) the need for solitude; (2) creativity rituals; (3) meditation; (4) exercise, especially walking; (5) the quest for silence; (6) divergent production practice; and (7) creativity as the process of a life ([1–3,5,29–32]). With these suggestions, those who want to teach creativity will find many avenues to explore.

Experienced teachers who have not only extensive subject matter knowledge, but also extensive pedagogical knowledge have various ways of teaching for organic creativity. This article has shared a few of these ideas.

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## References

- Piirto, J. *Creativity for 21st Century Skills: How to Embed Creativity into the Curriculum*; Sense Publishers: Rotterdam, The Netherlands, 2011.
- Piirto, J. *Understanding Those Who Create*; Ohio Psychology Press: Tempe, AZ, USA, 1992.
- Piirto, J. *“My Teeming Brain”: Understanding Creative Writers*; Hampton Press: New York, NY, USA, 2002.
- Sexton, L.G.; Ames, L. *Anne Sexton: A Self-Portrait in Letters*; Houghton Mifflin: New York, NY, USA, 1977.
- Piirto, J. (Ed.) *Organic Creativity: Teaching to Intuition in Academics and in the Arts*; Prufrock Press: Waco, TX, USA, 2014.
- Peppercorn, D. Thinking outside the blocks: Organic creativity in teaching social studies. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 31–44.
- Groman, J.L. The mirror: Creativity as seeing and being seen: Autoethnography of a teacher. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 267–285.
- Nicoll, J. Learning to be a cairn. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 107–120.
- Kettler, T.; Sanguras, L. Naïveté, imagination, and a glimpse of the sublime: Organic creativity in teaching literature. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 3–16.
- Snowber, C. Visceral creativity: Organic creativity in teaching arts/dance education. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 253–266.
- Reynolds, F.C. Let the beauty we love be what we do: Organic creativity in the high school world language class. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 75–90.
- Piirto, J. *Understanding Creativity*; Great Potential Press: Tempe, AZ, USA, 2004.
- Dubin, J. Embracing vulnerability: Organic creativity in teaching theatre. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 121–134.
- McElfresh, R. Imagining school communities: Organic creativity in elementary school administration. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 313–328.
- Balotta, M. That “Uh-Oh” feeling: Organic creativity in school counseling. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 299–312.
- Gardner, H. *The Unschooled Mind*; Basic Books: New York, NY, USA, 1991.
- Johnson, G. Cars on blocks and roadkills: Organic creativity in teaching in the G/T resource room. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 221–236.
- Taber, K. Once upon a time, there were no acids: Teaching science intuitively and learning science creatively. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 45–58.
- Tolan, S.S. The magic of writing: Organic creativity in teaching fiction writing. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 177–188.
- Burnett, C. The missing link: Teaching the Creative Problem-Solving Process. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 285–299.
- Ericsson, K.A. (Ed.) *The Road to Excellence: The Acquisition of Expert Performance in the Arts and Sciences, Sports, and Games*, 2nd ed.; Psychology Press: New York, NY, USA, 2012.
- Gladwell, M. *Outliers*; Little Brown: New York, NY, USA, 2008.
- Oreck, B. Looking for artistry. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 91–106.

24. Caldemeyer, C. On ideas: Organic creativity in teaching visual arts. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 203–220.
25. Montgomery, D. Toward a more holistic approach to teaching: Organic creativity in teaching educational psychology. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 237–252.
26. Daniels, E. The mess of creativity in math. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 17–30.
27. Stephenson, S. Tapping into the sounds of the universe: Organic creativity in music-making and songwriting. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 149–162.
28. MacDowell, K.; Michael, R. Beginning with the totally unexpected: Organic creativity in teaching physics. In *Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts*; Piirto, J., Ed.; Prufrock Press: Waco, TX, USA, 2014; pp. 59–74.
29. Piirto, J. The creative process as creators practice it: A view of creativity with emphasis on what creators really do. In *Perspectives in Gifted Education: Creativity*; Cramond, B., Ed.; Institute for the Development of Gifted Education, University of Denver: Denver, CO, USA, 2009; pp. 42–67.
30. Piirto, J. Visual and performing arts talent development. In *Critical Issues and Practices in Gifted Education*; Callahan, C., Plucker, J., Eds.; National Association for Gifted Children: Washington, DC, USA, 2014; pp. 723–734.
31. Piirto, J. The Five Core Attitudes and Seven I's for enhancing creativity in the classroom. In *Nurturing Creativity in the Classroom*, 2nd ed.; Kaufman, J., Beghetto, R., Eds.; Cambridge University Press: New York, NY, USA, 2016; pp. 142–171.
32. Piirto, J. Organic Creativity in the Classroom: Teaching to Intuition in Academics and in the Arts. [Keynote Address] World Conference for the Gifted and Talented. Sidney, AU. Available online: <https://www.youtube.com/watch?v=NvjDT48avo4> (accessed on 21 July 2017).