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Towards Wholeness: Exploring the Transformative Healing of the Creative Process with Dr. Patricia Allen

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Abstract

Creativity emerges in all walks of life and disciplines, requiring diverse approaches and ways of thinking. This article series has taken a wide view to exploring creativity through interviews with experts in different fields (Keenan-Lechel and Henriksen 2019). Beyond disciplinary diversity, it is valuable to think broadly about the types of purposes that creativity relates to. Here, we focus on the work of Dr. Patricia (Pat) Allen, a noted art therapist who uses art and creativity toward mental, emotional, and spiritual wholeness. Her expertise relates to artistic, healing, and therapeutic purposes—and she shares ideas about how education and technology have a role in this. Our conversation offered an illuminating perspective on the role of creativity in healing and wellness, and the education possibilities. We distilled the wide-ranging discussion into themes that include: building systems to support human need; connection to the creative source; rethinking art therapy through the Open Studio Process educational applications for creative wellness; and the affordances of technology for creativity and healing.

Keywords Creativity · Technology · Education · Teaching · Art therapy · Healing · Psychology · Open studio

There is no greater agony than bearing an untold story inside you.

~ Maya Angelou

"It is a creative act to figure out how to live the life you've been given with the cards you've been dealt. That is a creative act."

~ Dr. Patricia Allen

Introduction

Creativity emerges in all walks of life and disciplines, requiring diverse approaches and ways of thinking. This article series has taken a wide lens on exploring creativity through

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interviews with experts in different fields (Keenan-Lechel and Henriksen 2019). Beyond disciplinary diversity, it is valuable to think broadly about the types of purposes that creativity relates to. Here, we focus on the work of Dr. Patricia (Pat) Allen, a noted art therapist who uses art and creativity toward mental, emotional, and spiritual wholeness. Her expertise relates to artistic, healing, and therapeutic purposes—and she shares ideas about how education and technology have a role in this.

Dr. Allen is an author, artist, registered art therapist, and teacher who uses the arts and creativity to support wellness and healing from trauma through self-exploration. She has written two books, including, Art Is a Way of Knowing, and Art Is a Spiritual Path, to explore the borders between art, psychology, spirituality, and social action (Allen 1995, 2005). As a respected art therapist known for transformative practices, she has authored many professional articles, and uses her Open Studio Process to teach others. She brings her artistic and healing work to many different settings-from high schools and universities, to community institutions and mental health facilities; and her own artwork has been exhibited in juried and invited exhibits. Having earned her Ph.D. in 1986, she has served on the faculty of the Art Institute of Chicago, and holds faculty appointments with several universities around expressive therapy and arts and consciousness.

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Dr. Allen was a co-founder of the Open Studio Project in Evanston, IL, and founder of Studio Pardes in Oak Park, IL. Here, she provided a community art space to explore the creative process, and directed the *Facing Homelessness Mask Project*. She continues to help people in to discover, claim and rewrite their own stories—even virtually through the pandemic. Our conversation offered an illuminating perspective on the role of creativity in healing and wellness, and the possibilities for education. We distilled the wide-ranging discussion into themes that include: building systems to support human need; connection to the creative source; rethinking art therapy through the Open Studio Process educational applications for creative wellness; and the affordances of technology for creativity and healing.

Building Systems to Support Human Need

Dr. Allen's art therapy journey began in her own experience of grief and trauma, which occurred when she lost her mother to cancer, at fifteen. She described how the grief and shock changed her world, and the experience of her mother's illness "was a trauma at a time when traumas weren't being recognized clearly or articulated certainly by caregivers," saying:

I daydreamed through high school. I would sit in the classroom, and on some level I felt I was breathing my mother...My breathing in and out felt like it was keeping her alive. But one day, I went home, and she no longer was alive. I had been trying to prepare myself for that and couldn't, and didn't have any resources to do that.

Not only did this loss and the medical bills push her family into a marginal economic place, but the systems that were available to her at the time were unhelpful. There was no support from her school or from the Roman Catholic church her family belonged to. Looking back, she became cynical, because previously as a small child she had experienced a sense of wonder, which was ultimately betrayed by the systems around her. Even her experiences with the social services system only further traumatized her family.

Dr. Allen described how her father was a laborer who changed his schedule to work nights, to stay with her mother at the hospital during the day, saying:

There was a social worker in the hospital who had never met my family and didn't know us at all, who told my father, "Teenage girls whose mothers have breast cancer often act out sexually and you can't have your daughter at home unsupervised." My poor father was out of his mind...a working-class Catholic man who's terrified of sexual acting-out anyway, and I have two young brothers...The social service department engineered

having someone come into our house at night to supervise during the evening, supposedly to help us, but it was a disaster. The woman was awful. She told us how she had recommended children be taken from their families. No one asked our family what would be helpful.

Experiences like this, where a system layered trauma-onto-trauma, left an indelible mark. After the death of her mother, Dr. Allen carried "a shell of depression with her," which she can still observe in old photos. Yet, at the time, there were no psychological supports in place to name this or help her. Things began to change after she transferred from college to art school, as she noted, "when I got to art school and into therapy, I began to reclaim and recontact a sense of feeling. The fact that imagery and art gave me a way to explore and enter into it was lifesaving."

While in art school, she met Margaret Naumburg—one of the founders of the field of art therapy who had retired to Boston (she was not on the faculty of the art school)—who inspired Dr. Allen with methods that were more sustaining than other art school curricula. Naumburg's methods,

...involved soaking heavy watercolor paper in the bathtub and painting with big brushes and painting from dreams, which was really sustaining. It got me into a place where I could unpack the experiences that I had and begin to understand how they were preventing me from living life fully.

Naumburg was a psychologist, who had inherited practices from her sister Florence Cane—an artist who passed away in the 1950's. Dr. Allen reflected that Naumburg came of age as a psychologist in the 1930's when the unconscious (the notion that we have thoughts and feelings outside of our awareness) was a new idea. Yet Naumburg was wedded to the idea of psychoanalytic methods and interpretations:

So, when I would bring artwork to Margaret, she would want to interpret it psychoanalytically. There was something in me that rose up against that... I felt like trying to make this make sense according to a psychoanalytic rubric was a violation of creativity... my soul rebelled.

While Naumburg's work was of value to Dr. Allen, there was also a pathologizing, medicalizing, and analytical element that she found deeply problematic. The field of art therapy, in Dr. Allen's view, followed that trend of the clinical medical approach to its detriment. This limited the voices of marginalized people (Stepney 2019) as well:

Early in our field we had some incredible practitioners of color, people of color. Black art therapists who were silenced. They had incredible insights and they were not 248 TechTrends (2021) 65:246–252

allowed into what became the canon of art therapy because the understanding was, "We need to align with the medical field, we need to align with these doctors in order to make this field something"...I appreciate the desire, it was mostly women who wanted to be taken seriously, and I understand their impulse. But they didn't trust the creative process to take them where they needed to go, and I think that was unfortunate.

She noted the example of Lucille Venture, one of the first black art therapists who offered highly-valuable therapeutic insights about people of color (Venture 1977). Venture's views did not align with typical clinical and white ways of approaching therapy, thus her work was ignored. Dr. Allen's own work has in some ways been on the margins of the field. Having witnessed how systems can oppress diversity, silence helpful voices, or re-traumatize the people they aim to heal, Dr. Allen has focused on empowering the creative healing she sees as a fundamental capacity of all people. As she says, "I am committed to the creative source, not to the field of art therapy... the creative process is durable and will not betray you. That's where my loyalty lies."

Connection to the Creative Source

Dr. Allen describes herself, prior to her mother's illness, as "a dreamy mystical child who was very interested in the trees, and the clouds, and the stars." This sense of enchantment she felt from a young age with the natural world connects deeply with her experience of the essence of creativity:

I believe that creativity is an inherent part of every human being, and it's an inherent part of the larger system we're embedded in. Creativity is a force that is larger than any human being, and yet it's something that attaches us to something larger than ourselves. I call it the creative source, other people call it God, whatever... It's apparent in nature. If you actually look at nature, creativity is apparent constantly. Adaptations are being made by the systems in ways that are sometimes invisible to scientists because they have an idea of how it should be. Creativity is a basic operating principle of all life and it's one that many of the systems we have actually worked against.

Dr. Allen believes the field of art therapy is at its best when focused on helping individuals connect to their inner creative source and the self-guiding wisdom available there. This sense of human interconnectedness and connections to the earth and life is also revered and celebrated by many indigenous cultures (Cajete 2019). The creative process ultimately puts us in

touch with our fundamental nature and reminds us what means to be alive:

I always have an altar in the studio that have objects on it that meant something to me about the creative process, which is life on one side, death on the other, and transformation in the center. I have visual objects that convey that, like a dried pomegranate and a fresh flower, a bowl of water. Kids would ask all the time, "Why do you choose those things?" And then they would totally connect...it opened them in a way.

Although inseparable from our human essence, art need not be an explicitly spiritual practice in secular settings, such as educational or business environments. Yet, due to her intrinsic connection between creativity and spirituality, Dr. Allen shared that:

I used to present a lot with a friend of mine in the business world, and she would always say to me ahead of these presentations, "Don't talk about spirituality." But I would say something, and then somebody in the audience would bring that up and suddenly everything opened.

Connecting to the essence of creativity almost always involves being in touch with human suffering. Her profound suffering through the loss of her mother at a young age, which was left unaddressed by systems such as social services that pathologized her, or schooling, which overlooked her suffering, led her to carry with her unresolved grief. This led to a dissatisfaction with the heavily analytical or "pathologizing" aspects of traditional art therapy—which ultimately led to her own transformative work.

Rethinking Art Therapy through the Open Studio Project

In response to her concerns about traditional art therapy, Dr. Allen, along with two of her graduate students, created the Open Studio Project (originally in Chicago and now located in Evanston, IL). There they developed the Open Studio Process, a way of working that allows each person to own and define their own journey. The Open Studio Process both draws on and critiques art therapy—using what works about the field while making it more accessible and egalitarian (see Appendix for a process overview). While relying on each participant's ability to connect with their creative experience, spontaneous creation, and writing in response to creating, the therapist does not provide psychoanalytic interpretation of images. Rather they guide sessions as a "companion," making art alongside and functioning as participant-facilitators, leading with their artist-self.



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The facilitator, who need not be an art therapist, provides structure in terms of following the Open Studio Process and assists participants in exploring options for working with materials. A sense of power and control is placed within the hands of participants, who receive tools to moderate their experiences in a group setting. Much the way that mindfulness allows practitioners to engage the parasympathetic nervous system to bring about more soothing emotional and physiological states (Kabat-Zinn 2013), the process of working with art materials has a similar effect. Participants bring up difficulties to work with and then use the art materials and creative processes to promote states of wellbeing and address difficulties through free expression. Similarly, when participants write their intentions at the start and end of the session to respond to their creations through witness writing, they engage the prefrontal cortex, the same part of the brain that is activated when labeling emotions using mindfulness (Lieberman et al. 2007). This allows for higher-level thinking, including insight (Kabat-Zinn 2013). The model uses art as a fundamentally empowering practice and allows participants to purposefully work with emotions or experiences that may be difficult and purposefully move into more soothing states of being along with higher order cognitive processes. Dr. Allen describes the process:

The first step is to make an intention, then you release it to the universe, and then you make art. Depending on the situation, sometimes that art is facilitated with an introduction to a material. But it's not a directive, so you have an experience of pleasure in working with materials, you follow pleasure. What pleasure does is relax your nervous system and your physical body to allow for something to emerge. But there's a limited amount of time that you have, and then you write in response to whatever came up. Then you have an opportunity to read what you wrote, but not talk about it. The only rule is, no comment.

Dr. Allen described how this process settles the autonomic nervous system, allows the participant to activate and become aware of feelings to the degree that they want to or are able to, then calms things down. She notes that the writing brings things into the cognitive rational realm, allowing people to process, to feel okay and be ready to move on more productively. She is also explicit about the value she has seen using this process in education settings.

Educational Applications for Creative Wellness

Dr. Allen is passionate about the applications of her therapeutic art processes for teaching and learning. She directly

connects the Open Studio Process to possibilities for K12 classrooms and beyond, pointing to the work of her colleague and former student, Maria Kim (2020), who brought this studio process into classrooms. Dr. Kim's work, training teachers to use this method with teachers both the U.S. and Korea, had transformative results in a mixed-methods study (2020) where the children had an Open Studio Process session weekly. Offering this approach to teachers first, to learn themselves, helps them to "understand it personally, indigenously." Children can use this method to learn about and process their own feelings, emotions and experiences—which is not only a valuable survival and life skill, but also critical for helping them to fully engage in learning without being held back by what troubles them. Dr. Allen reflected on her experiences, where she has worked with schools to send at-risk children to her Studio Pardes:

Kids that were kicked out of the high school would come to my studio ostensibly to get their art credit, but really to learn a method in which they could look at, "Why did I get kicked out of school and what's going on with me?"...I cannot tell you how heartbreaking it was to hear the stories of some of these kids and why they got kicked out of school, because the behavior was the only thing the school could see.

Her dream would be to see more schools have a studio space where, when a child is upset and cannot process the subject matter or learning goals, or exhibits behaviors indicative of anxiety, stress or trauma, the first step is to give them time for the Open Studio Process:

They can go there and make an intention to understand, "Why am I so upset? What is preventing me? What are the feelings?" and be guided with a place to process...I had a girl in my class who had been kicked out of school, who asked me to help her write an autobiography. Her autobiography discussed how she came home from school and found her mother dead in the backyard from a drug overdose...How do you go to school? How do you function, if that's the story?

Dr. Allen's work points to a need to more carefully consider Maslow's hierarchy of needs for children while attending to their learning. She noted examples of children she had worked with who were stressed and anxious due to hunger—so their most fundamental physical needs required attention. Further, their emotional needs for wellbeing and safety also must come before higher-order thinking and learning on the hierarchy. As a society, "if we aren't going to look at the very basics of life with kids in school, then we're kidding ourselves if we think we can educate them."

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The benefit of this approach is that it is doable in schools. Her work, and Dr. Kim's, have shown how feasible such processes are for teachers. Teachers also experience stress reduction which allows them to be more present in the classroom. The formal methodology is accessible for teacher training, and has safeguards that make it work:

It has things built into the process to ameliorate too much happening...What the Open Studio Process does, number one, is it puts the control in the hand of the person because they write their intention...It's a formal process that has rules and builds trust in the process. The role for the teacher is just to hold the space by observing the rules. "Okay, we're going to do this for five minutes. We're going to write the intention for five minutes, then we're going to make art for 30 minutes, then we're going to write for 10 minutes. If you want to read, you read for 10 minutes, but you don't have to read. Boom, I'm ringing a bell, it's over."

Teaching the techniques is simple, inexpensive and not complicated, however, it implies the undermining of an authoritarian system, which scholars have noted is grounded in the notion of creating workers to keep the machine going (Phelan 2009). As Dr. Allen points out, "we say we want creative ideas about how to make schools better, but what we really want is people to listen and do what they're told." She commented that many of the larger issues that we experience in our society could be addressed more helpfully at the root source within schooling, if they were "dealt with kindly and with love, and through creativity as opposed to rigidity."

Affordances of Technologies for Creativity and Healing

Dr. Allen takes a positive view of the possibilities that new technologies can bring to creativity and learning. She emphasized how digital access to information and connectivity gives educators options to engage children in what interests them. Her prior experiences with at-risk youth demonstrated to her that children will spend hours learning about what they're interested in. She had worked with a young woman who was not interested in schoolwork, but who was pregnant and therefore interested in finding out what personal habits might endanger that baby:

Being willing to have that conversation in a matter-offact kind of way like, "Ok, you smoke weed every day before school, let's find out what that might do to your unborn child. I'm okay with talking about that...You also smoke cigarettes? Let's find out."...So there was a pragmatic entry there, and she did her own research and changed many habits out of her own will because she had a vested interest. Asking kids, what's your interest? This is the best starting place. The internet, my God, what an incredible opportunity...It doesn't all have to flow from the teacher.

Before the pandemic, Dr. Allen was already using Zoom frequently because people around the world have taken up Open Studio Process. She has had students and colleagues in Taiwan, Korea, Colombia, Mexico, India, and many other places—who otherwise would not have been able to connect with her and others globally. This has provided different views on what her own process looks like in different contexts and countries:

It's not just an alternative to art therapy through a psychoanalytic lens...but actually, how does this process grow when it's planted in Mexico...When I began working online, I noticed something interesting that happened that didn't happen in-person. I'm looking at their faces, it's a different quality of eye contact and reading emotions. I would notice that often, at the end of a session, the last five minutes, there'd be a change of affect. People, sometimes would tear up or have a change of affect that would make me ask one more question, and we would get to something that we wouldn't have otherwise.

Her reflections suggest that online connections—which are sometimes considered a poor substitute for face-to-face connection—may have affordances and possibilities for connections that can go beyond in-person settings. She noted an example from a colleague doing a social justice workshop with 12 people:

My colleague said, "I'm going to ask you to find one person online and make eye contact." Now you may not be making eye contact with the same person who is making eye contact with you, but there's a quality happening on Zoom that is different than in person. And that seems counterintuitive or like an oxymoron, but there's a way in which you can be almost more open in connecting like that because you're in your own safe space.

In creativity, technology, and learning, Dr. Allen sees how we might engage children's natural interests in technology, then extend this into activities that have them create. She advances a constructionist learning paradigm for creativity—which puts kids in the driver's seat of designing and creating with technology (Ackermann 1996). In seeing her grandson's excitement about certain video games, she said:

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I'm trying to ask, when do they ask to go on games or watch a video, and what does it accomplish for them? Is it after a period of intense learning? Are they using it to transition? I've noticed that they want a lot of interaction even when they are on games. They love the tropes of video games like the levels and these other things. But given the opportunity to make up a game to play, they will use those same tropes, but translate them into actual physical gameplay.

She sees this as a beginning point to consider questions like, how does playing video games translate into making up a game? She noted that, "Video games give you a world...What do you like about that world and what doesn't work for you, and where are places where I can help you create other opportunities to do that?" She gives the example of having one of her grandsons create his own Pokémon cards:

What if we take what you like there and we extend it in a creative way? We have a whole set of Pokémon cards that are characters that he's made up...They evolve. The concept of an image evolving into a more complex state is really exciting. It gives the child a metaphor for his own growth and evolution.

When it comes to a forward-looking view on technology, she encourages people to view issues with nuance and not simply jump to the views that all technologies are alike, or that the effects are all bad or good. In many ways, her thoughts evoke social views of learning that see technologies as tools to think with—where we as humans can dictate what that thinking looks like, and if or how we use tools creatively (Barak 2017). She asks, "how do these things not become a binary of, 'Oh, this is bad and this is good,' instead of asking, how do they interact? How do they overlap and how can I find a way to join them in what they love?" A key to entering the realm of creativity is to adopt an attitude of curiosity about whatever is at hand. Curiosity requires that we suspend judgment and let go of preconceived ideas.

Conclusion

Creativity in education is often viewed through an instrumentalist lens, focused on developing creative thinkers who can address complex professional and societal challenges (Henriksen and Mishra 2020); and there is value in helping students learn to be creative, to one day devise solutions that benefit their professional life and society. Yet, this perspective on creativity by itself remains incomplete and misses the human-faceted wellbeing aspect that engages students in their own needs for mental and

emotional wholeness. Dr. Allen's work emphasizes that creativity is a natural ability all people possess, not a gift some are born with, but an essential, healing, and unifying thread within the fabric of humanity.

Her work illuminates how that creativity supports healing and wholeness—facets of life that are needed more than ever in a society that is often stressful, distracted, fast-paced, and inequitable. Dr. Allen believes that education systems need to recognize that young people, like adults, have inner and outer lives that extend beyond the classroom. She discussed the "wealth and untapped value" in aspects of life that can bring vibrancy into a classroom setting by honoring traditions and learning about different cultures. Her work also reflects embodied notions of learning, where attending to physical aspects of creative feeling are key. As she put it, "You are traveling this world in this physical body. It will tell you everything you need to know."

Difficult experiences, acute or chronic, make an impact on how children function and can impact their capacity to learn. Yet, they are also the raw material of creative thought. If we give opportunities for students to explore and express their own stories and 'handle' them through using materials in an exploratory way over time, they will transform trauma into wisdom by 'metabolizing' the pain and gleaning the knowledge embedded in the experience (Allen 2005). Young people are vulnerable to such stresses and to traumas in their own lives. A survey on adverse childhood experiences by the U.S. National Survey of Children's Health showed that nearly half of all children have experienced at least one or more types of serious childhood trauma (NSCH, 2011-2012), which are likely to affect their adult physical and mental health. Moreover, almost all young people experience social or emotional concerns, from everyday anxieties or peer pressures to academic or social stresses. However small or large, stressors have the ability to effect social and emotional development across the lifespan. Schools are sites where students develop as people, and are critical in helping them develop the ability to cope, and are a natural context to do so. It would be revolutionary to permission and value the working through of life issues by making time in school for self-exploration. We might imagine teachers and students working side-by-side in a safe studio setting, observing each other's humanity and complexity, valuing one another as fellow travelers for the time they share.

Dr. Allen's groundbreaking methods directly relate to learning and school-based contexts, in ways that give students access to their own creative healing, freeing them up to engage in learning. She is explicit about their value in learning settings, where they can offer healing from trauma and provide critical coping skills for psychologically healthy lives. In this, her work offers a potential for change and societal healing at

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the root, addressing the dysfunctions and traumas that societies suffer—by helping and healing the young people that will become the future of those societies.

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Appendix

The Open Studio Process.
Pat B. Allen, Ph.D., ATR.
The process consists of three steps:

- 1. Intention: a statement of what we long to receive addressed to the Creative Source. Intention is stated in the first person, active voice and present tense: i.e., "I relax and open to my own inner wisdom about..." "I receive guidance about my decision to..." An effective intention is clear, simple, specific. We release our intention as we begin to make art. Set it and forget it.
- Art Making: We engage with materials as a pleasurable activity that allows our minds to rest and invites other aspects of knowing to surface. Art making is a means to make energy visible.
- 3. Witness: We write in response to the image we have received. Witness can include description, emotional reactions, and dialogue with the image. It is important to allow all reactions to be included and written down, even and especially negative ones such as "I think this is stupid, I can't talk to an image, I hate my art..." Witness writings can be read aloud but this is strictly voluntary.

Rules:

- 1. The "no-comment" rule is a foundation of the Open Studio Process. We do not make comments about our own or others' work while we are in the space of process. During discussion (after the bell has chimed us out of the witness reading segment) it is fine to ask questions about technique or materials but we reserve any impulse to comment about content or meaning of our own or others' images and invest that impulse back into our own work. How this translates to therapy will be explained*.
- Feel free to 'reference' the images or techniques of others. If you find yourself attracted to the image or style of another artist, feel free to incorporate that into your own work.

- 3. Notice everything, you may find yourself having feelings, being distracted, being attracted to the work of others, feeling resistance to the process. Just notice and allow such things to fall away by focusing on the sensation of your experience, i.e., the way the brush feels on the paper, the tightness in your arm or stomach. In other words, listen with your body. Our only goal is pleasure.
- 4. Continue working until time is called, even if you think you are finished.
- 5. You may ask for help if you are feeling stuck. Ask the image first.

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References

- Ackermann, E. (1996). Constructionism in practice: Designing, thinking, and learning in a digital world. Routledge.
- Allen, P. B. (1995). Art is a way of knowing: A guide to self-knowledge and spiritual fulfillment through creativity. Shambhala Publications.
- Allen, P. B. (2005). Art is a spiritual path. Shambhala Publications.
- Cajete, G., (2019). Foreward. In Miller, J.P., The holistic curriculum, third edition (pp. x-xiii). Toronto, CA: University of Toronto Press.
- Barak, M. (2017). Science teacher education in the twenty-first century: A pedagogical framework for technology-integrated social constructivism. *Research in Science Education*, 47(2), 283–303.
- Henriksen, D., & Mishra, P. (2020). Of metaphors and molecules: Figurative language bridging STEM and the arts in education. *Leonardo*, *53*(3), 316–320.
- Kabat-Zinn, J., (2013). Full catastrophe living: Using the wisdom of your body and mind to face stress, pain, and illness (pp. 312–315). New York, NY: Bantam Books.
- Keenan-Lechel, S. F., & Henriksen, D. (2019). Creativity as perspective taking: An interview with Dr. Vlad Glăveanu. *TechTrends*, 63(6), 652–658.
- Kim, M. (2020). Student wellbeing and open studio process in the school curriculum. (accession no. 27832827) [doctoral dissertation, Leslie University]. ProQuest dissertations publishing.
- Lieberman, M. D., Eisenberger, N. I., Crockett, M. J., Tom, S. M., Pfiefer, J. H., & Way, B. M. (2007). Putting feelings into words: Affect labeling disrupts amygdala activity in response to affective stimuli. *Psychological Science*, 18(5), 421–429.
- Phelan, A. M. (2009). A new thing in an old world? Instrumentalism, teacher education, and responsibility. *Counterpoints*, 334, 105–114.
- Stepney, S. A. (2019). Visionary architects of color in art therapy: Georgette Powell, Cliff Joseph, Lucille Venture, and Charles Anderson. *Art Therapy*, 36(3), 115–121.
- Venture, L. D. (1977). *The Black beat in art therapy experiences* (doctoral dissertation, Union for Experimenting Colleges and Universities).

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