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Artist Stories of Studio Art Thinking over Lifetimes of Living and Working

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Abstract

Many educational leaders are unfamiliar with learning, teaching, and conveying information through 21st century visual culture and digital products. Insights from individuals who developed skills in a visual environment and experienced technological disruptions throughout their working life might be useful. The six participants in this narrative inquiry study were born in the 1940s, 1950s, or 1960s and experienced the disruptive transition from text- and paper-based environments to the emerging visual culture of 2019. Each participant received studio art training and mastered a professional career in another field while maintaining an active life as an artist who was recognized in their community. These individuals might be uniquely qualified to explain how 21st century mid- or late-career professionals made sense of and applied skills developed through visual arts training and practice during the unsettling 21st century. Results indicated participants developed and continued to

develop complex cognitive and creative skills and habits of mind within a visual rather than text based environment. Participants frequently described symbiotic responses to opportunities or problems that displayed the capacity to envision and select an alternative for action. Maturity allowed the artists in this study to gain self-confidence and a sense of identity expressed as Self-Becoming. Cognitive and creative skills associated with an arts education were shown as deep learning that transferred to a wide range of life activities and challenges. We concluded that participants in the study demonstrated an ability to adapt agilely through synergy and symbiosis to personal or environmental change. For these artists, conditions included an easy transition to technology empowering a visual culture in the early 21st century. Further study is needed on the lifelong value of acquiring and applying visual arts-based skills.

Introduction

Narrative inquiry is about stories and storytelling. This story takes place in the unsettling late 20th and early 21st century, when technology is energizing a new visual culture built on the foundations of earlier disruptive innovations. We briefly track these disruptions from the mid-fifteenth century, when the printing press became a disruptive force that allowed multitudes of people to became literate and acquire powerful forms of verbal thinking and reasoning. When mass-produced printed texts replaced handwritten manuscripts, educators could accommodate many more students, who learned by reading sequential lines of text. In the late 20th century, technology supported a similar disruptive and radical decentralization of education as laptop computers allowed students to access online learning from anywhere. While text-based resources remain the primary tools for teaching and learning in online environments, powerful computers support visually rich, multi-media applications (Psotka, 2013) that could realign and disrupt education to more visual learning experiences.

In the early 21st century, an energized visual culture is accessible anywhere that technology reaches and is transforming the way we think about conveying information and about teaching and learning (Brantley, 2015). Social media, including *Pinterest*, *Instagram, Snapchat, Facebook*, and *Twitter*, as well as other digital media platforms such as *Netflix*, *Hulu*, *Amazon Prime*, etc., are built on a visual framework (Brantley, 2015) and belong to the visual culture. Movies, advertising, augmented reality (AR) and virtual reality (VR) applications convey the immediate sensory quality of visual experiences and images (Ciochina, 2013). Visual technology such as VR and AR supports education in any environment that hosts the requisite hardware and software. The visual nature of these multimedia applications allows viewers to grasp complex ideas and relationships more quickly than when reading lines of text (Onyesolu et al., 2013) and has the potential to disrupt the more traditional, text-based instructional and

curricular practices (Psotka, 2013). The new technology can support a plethora of possibilities. Class materials can contain multi-media links, immersive VR experiences, and much more. However, contemporary 21st century educators rarely take full advantage of the immersive visual experiences possible with this new technology (Psotka, 2013).

Formulating the problem

The broad problem is that most educational leaders have limited understanding about using products of visual culture to communicate or teach and learn. We know a great deal about verbal thinking and learning, but less about how we might think, learn, and convey information through images. Indeed, educators and other leaders may not have the conceptual framework to do so. Insights gained from those individuals with experiences in other more traditional visual contexts may offer some support.

One particular group of individuals may have insights to offer about learning in both a visual and traditional text based environment: individuals who earned the credentials needed to succeed in a professional career and simultaneously maintain a successful presence in the world of visual arts. In one example, a prominent member of this group, Steve Jobs, famously attributed his emphasis on visual aesthetics in computers to experiences in calligraphy class taken as a college student. Many less public figures, however, have had similar experiences in melding seemingly disparate worlds of professional and artistic success. Eisner (2002) believed in the power of an arts education and was convinced that skills developed in the arts could transfer to other arenas in life. Moreover, students who engage in arts curricula may learn skills that are unavailable elsewhere (Bracey, 2001; Eisner, 2017). The present study is an exploratory response to Eisner's call for more research into the practical power of a visual arts education.

For this study, mid-or late-career adults were defined as those born in the 1940s, 1950s, or 1960s before the technology-powered 21st century visual culture. These individuals experienced the transition from a text- and paper-based world to the emerging visual culture of 2018 and might be able to provide insights into this study's research question: how 21st century middle-aged or senior career professionals make sense of and apply the skills developed in visual arts training and through an active art practice over a lifetime of work and learning?

Purpose

The purpose of the qualitative narrative inquiry study was to capture and describe the shared perceptions of older adults who applied both training and practical experiences in the visual arts to shape successful careers throughout their lives. These insights can be useful to

educators adapting to an emerging 21st century visual culture characterized by considerable power and depth (Brantley, 2015) and energized by a fusion of technology and the arts. The intent of this exploratory and descriptive study was to gather reflections from mid- or late career professionals who gained early prowess in visual art education and experienced continued success as both successful professionals and practicing artists.

Method

Narrative inquiry aligned with the intent to capture and describe shared perceptions from a select group of individuals. Narrative inquiry was ideal to discover how participants constructed meaning from a specific context and set of experiences garnered from environments where participants live, work, and interact (Clandinin & Connelly, 2000; Gudmundsdottir, 2001). Story telling or narrative occurs when individuals choose and arrange details from experience into a coherent and meaningful account (Freeman, 1997). As researchers, we used narrative inquiry with the intent to develop a deep and rich understanding of participant life experiences not available in other qualitative designs.

Sample

The individuals recruited for this study had successfully completed one or more degrees in higher education. Each demonstrated substantial achievement in the arts as defined by recognition of their work at a regional or national level, whether in juried shows or other events of regional or national significance (awards or recognition in some other form). The population was defined as mid- or late-career professionals aged 48 or older who had completed at least 20 years in a career other than producing visual art and were willing to reflect on the long-term value their visual arts experiences in enhancing or shaping their careers and life experiences. Participants were still working, retired from a career, or self-assessed to be in the final decades of a career. Arts education was defined as a formal training experience through at least one course or other structured format experienced when the participant was in high school, college, or in early stages of adult life. The training could have been in any form of graphic, visual, or manipulative arts, including but not limited to painting, drawing, weaving, crafts work, sculpture, or ceramics. The sample was restricted to individuals loosely connected to a large community arts group in and around San Francisco, California.

Sampling allowed individuals to self-select by responding to notices posted on the organizational website and newsletter. Snowball sampling allowed us to recruit other individuals with similar qualifications. After an initial expression of interest, we contacted potential participants within the sample population to gather basic demographic information. We selected six participants to represent a diversity of criteria, including gender, race, career

choice, length of arts training, and type of art studied. The sample included three men and three women, all of whom were American citizens of various demographic backgrounds.

Table 1

Study population

Demographic characteristics		
Profession/Education	Ethnicity	Age at time of interviews
University Educator ***	White	60+
Psychologist/counselor ***	White	60+
Graphic Designer **	White/Bilingual	60+
Teacher/illustrator **	White/Bilingual	48-60
Teacher *	White	60+
Teacher **	White	48-60

Note. *** Doctoral degree; ** MA or MFA; * BA

Following selection, we contacted each participant to confirm his or her participation in the study, determine a pseudonym to protect identity, and arrange an in-depth face-to-face or telephone interview. One of us participated in each interview and acted as the primary transcriber. Participants received the interview questions at least three days in advance, and we returned a transcript to each participant for validation within two weeks of the interview data.

Data Analysis

Following the validation of the transcripts by the participants, both of us read all narratives and wrote analytic memos identifying key themes. We frequently consulted notes from the transcripts as we conducted the thematic analysis of each interview. Following this analysis, we created third person narratives from the stories shared by the participants. We sent transcripts of the interviews and narratives to study participants, who verified or made changes to ensure accuracy. Several participants added minor editing or notes to the transcripts or narratives. These edits were all accepted and integrated into the analysis. Each narrative was followed by a discussion of common themes, as well as unique applications of each participant's experiences in the arts and arts education. The analysis concluded with a summary of both the collective and unique insights describing the role of early arts training in shaping the participants' lives and careers.

Participants

Six artists participated in our study. While each considers himself or herself a mature and actively practicing artist, each arrived at that point through a unique route. In addition, each of these individuals completed advanced degrees in fields other than or connected tangentially to the fine arts. Their professional degrees included the fields of Education, Psychology, and Design, and each participant was employed in or retired from one of those professions. Concurrently, over a lifetime, participants were engaged in an arts community and actively produced artwork. All participants had completed an undergraduate degree and some had completed Masters degrees. Several participants had completed terminal level degrees (PhD, Ed.D. or MFA). Another was enrolled in a doctoral studies program.

Results of Analysis

We begin with a brief description of the background and professional path of each participant. We follow those overviews with a discussion of what we perceived to be dominant themes in their life pursuits and applications of their art.

Narratives

James grew up immersed in the arts and now teaches art in a Bay area school district. He says both grandfathers were "makers - one was a machinist for Caterpillar; the other was always in the garage. I knew there was a connection to family and tradition". Both his parents were teachers. His father was a high school art teacher, and he regularly worked with his father to create projects. He remembers, "I was always around tools, so I became confident with tools early". He enrolled in high school classes in which he learned to build craft projects, which were reinforced at home. James is oriented to three-dimensional art and majored in art in college, where he earned extra money by teaching pottery to children in daycare centers. He continued his practical applications of art after college by securing a job in a foundry. He then returned to college and earned an M.F.A. in Art.

Figure 1. Mixed construction sculpture: *Small angry cloud spirit* by James.

During his career he became involved in metal casting because the practice connected him to the timelessness and ancient traditions of art. He also practiced glass blowing, which he equated to Zen because of the emphasis on focus and patience. Other projects include animated films and puppet making. He sees a current project as the culmination of his life work. He is developing a children's book that contains images of puppets he has created, using "all my skills as a sculptor, puppet maker, and some background in animation and visual effects".

Figure 2. Mixed construction sculpture: *Tribes* by James.

Naomi is the second of fourteen children. Because of the large number of siblings, she says, "Art helped me get noticed". Naomi continued that both parents valued art, and she realized as a child "that being an artist was something special …I was my own child the artist, the musician". She attended a Catholic school where the nuns allowed her to stay after school decorating the classroom and engaging in other artistic activities.

Figure 3. Acrylic and Ink painting: *Yearning for God* by Naomi.

Naomi earned undergraduate degrees in English and Art. After graduation she began to teach elementary school in New York City, and inspired by some three dimensional experiences with paper shapes and light in an art class, she began to use a variety of manipulative materials to teach math. The process of teaching a complex, abstract subject with visual manipulates so interested her that she returned to college to earn an M.A. degree in math and an MFA in painting. Ultimately, Naomi earned a PhD in Math Education and became director of math programs in a metropolitan school district. Naomi taught Math Education in a

university setting after retirement from K-12. In retirement now, Naomi continues to explore new possibilities as an artist and educator. Although she spent much of her professional life doing things other than art, she says, "Numbers, shapes and everything mathematical grew out of my fingers".

Figure 4. Acrylic painting (title) *20 X 13= 260* by Naomi.

Emma does not remember, "when I did not want to make art". Even as a child she made sure she was creating something, "whether with scotch tape and paper or something else". She credited a fifth-grade teacher with encouraging her. She says that although she did not have formal training, she "had a good eye". Emma adds art "was always there" through books; her parents did not encourage her to study art or become an artist. Instead, her mother encouraged her to seek a profession. She notes, "At that time, in the sixties, I could be a nurse, social worker, or a teacher". She became an elementary school teacher, although she regularly infused art and art-making into her classes.

Figure 5. Watercolor painting *Selfie* by Emma.

Emma took a break from teaching to raise her children, but she was never far from implementing artwork in classrooms. While at home, she designed "holiday decorations for doors, and holiday stockings, all kinds of things". Emma developed a successful home business where she sold her design products using the Internet during the 1990s. She also taught finger painting, watercolor, and other classes for young children at a community center. Later, Emma returned to the public school classroom, where she designed an art history class for young children and opened a personal creative outlet through painting. After retiring as a teacher, she returned to the district on a part time basis to teach art history and art classes for elementary school children.

Noah always knew that he was an artist, and that he would spend his life making art. He observed about the importance of art in his life, "You might just as well ask me how oxygen became important in my life. It's something that was just always there". After high school he attended a Connecticut art school that was associated with advertising work in New York. He knew he didn't want to be in the advertising industry and so he went to California to attend a fine arts college, where he continued to explore his love of painting, especially with watercolor. After a year on the West Coast and some deep reflection and discussions with family, Noah considered his options. Eventually, he decided to go back East and study graphic design, a profession related to his talent as a painter, yet one that would afford more viable career opportunities in the arts.

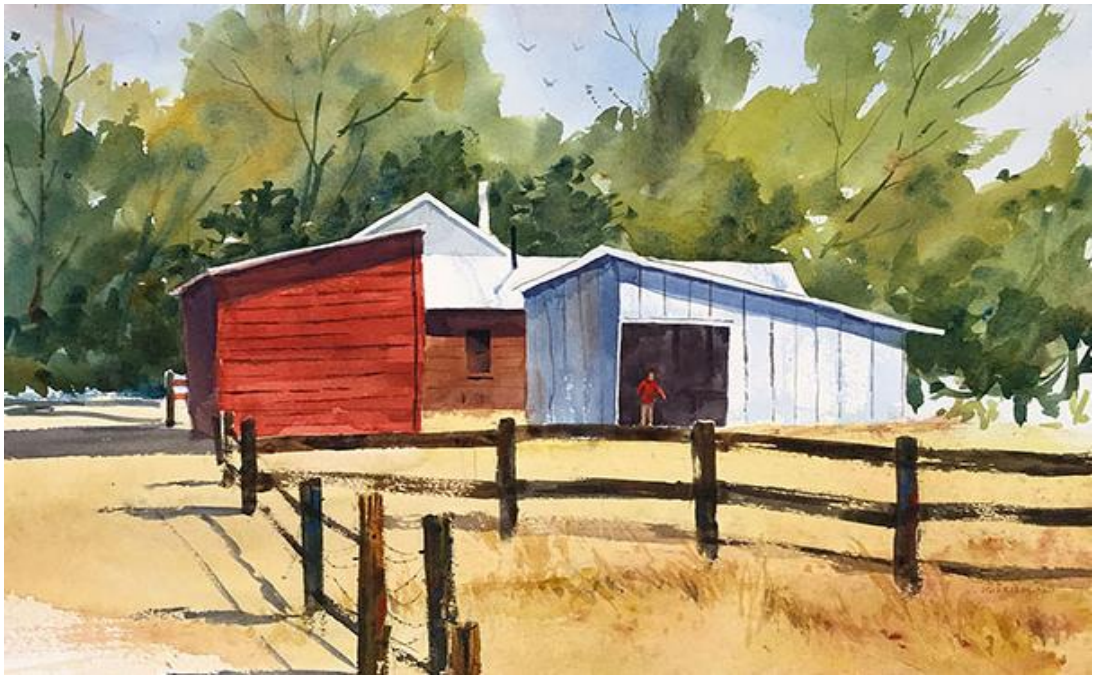

Figure 6: Watercolor painting. *California Sunshine* by Noah

After graduation he accepted a job as a graphic designer in Montreal, where he worked for eight years. During that time, he was asked to teach design at a local university where mastery of French was required, as it was a French language-only university. Noah, who spoke English exclusively before moving to Canada, loved teaching corporate identity and typography in Montreal where he developed curricula for classes that taught students to use type as an expressive tool in design work.

Eventually, Noah returned to the U.S. and settled on the West Coast to join a graphic design firm. As the shift in the design business gave way to being done digitally, he later used his knowledge of doing his design work by computer to establish an independent and successful solo practice that lasted for 27 of the 40 years he spent working as a designer. During that time, he taught typography at a university in Northern California for five years. Despite his very successful career in design, he never lost sight of his first love of watercolor and improved his work as a painter all those years. Now retired from design, Noah teaches painting with a focus on watercolor.

Figure 7: Watercolor painting *Spring Rain Pink Blossoms* by Noah

Sofia started her professional life as a special education teacher and later earned an advanced degree in Psychology. Sofia's mother was very creative, and Sofia's first art form was pottery. She had some formal and informal training in the arts, and now works as a professional psychologist who identifies as an artist.

Figure 8: Oil painting *Abstract* by Sofia

Sofia believes her clients are inspired by her willingness to take risks as an artist. Sofia paints when frustrated by work and works when frustrated by painting. Sofia considers the

meditative, problem-solving aspect of painting may transfer to her work as a psychologist. Her husband is a photographer and builder; he built a studio for her and they have shown their work together. Her sister is now beginning to paint. She and her husband find the arts are a focus for more quality time together.

Gabriel is a multi-lingual, plein air painter, an illustrator, teacher, and psychologist specializing in educational and counseling therapies for children. His paintings appear in national and regional shows. He started drawing and painting when he was very young. Born in the U.S. when his parents were in graduate school, Gabriel returned to his family country of origin at age 5. Gabriel's father came from an artistic family and Gabriel lived with his paternal grandmother, who supported his art.

During secondary school, Gabriel excelled in academics and art. He also worked in a handicrafts shop painting on leather, where he met an art teacher who had a significant influence on his work. High scores on the national post-secondary tests qualified him to enroll in a nationally known university, with a major in Fine Arts. However, Gabriel presented his BA thesis with a professor who was a famous graphic designer, rather than a specialist in fine arts painting. Gabriel selected the designer because he was not a direct competitor of a previous teacher who had been fired.

As an illustrator, Gabriel became curious about how children learn and think. "I decided I wanted to know how kids look at the illustrations. What has meaning for them?". Through inquiries, Gabriel learned that children looked at abstracted forms. These insights moved Gabriel from creating realistic to abstract paintings where meaning was simplified and abstracted from nature. Gabriel's interests in children also led him to study psychology and art therapy. Gabriel wanted to look at art in a more scholarly manner and organize his studies so that everything sticks together. He is now pursuing a doctoral degree in Philosophy of Visual Art.

Gabriel always works on paintings and illustrations simultaneously. He explained:

> When I paint illustrations, I don't look at them as different, so I do not consider illustration as my primary mode of expression at any time! However, it is true that there were a few years where I earned good money illustrating children's books. Teaching art was another important source of income. I taught all age levels, such as kindergarten, middle school, and university level students, so teaching and illustration were my primary source of income but not the primary mode of expression but not the primary mode of expression.

Themes

As we recursively read and reflected on our artists' stories, we applied a process of induction (Saldana & Omasta, 2018; Alvesson & Skildberg, 2009) to clarify and understand the patterns we saw developing across these personal histories. We saw patterns emerging into three broad categories: **Input**, **Internal Process**, and **Output**. We saw each of these as a dynamic process through which the participants interacted with both internal and external stimuli to produce their art. These processes are not necessarily linear but may occur simultaneously as the artist sense of self and his or her art evolves.

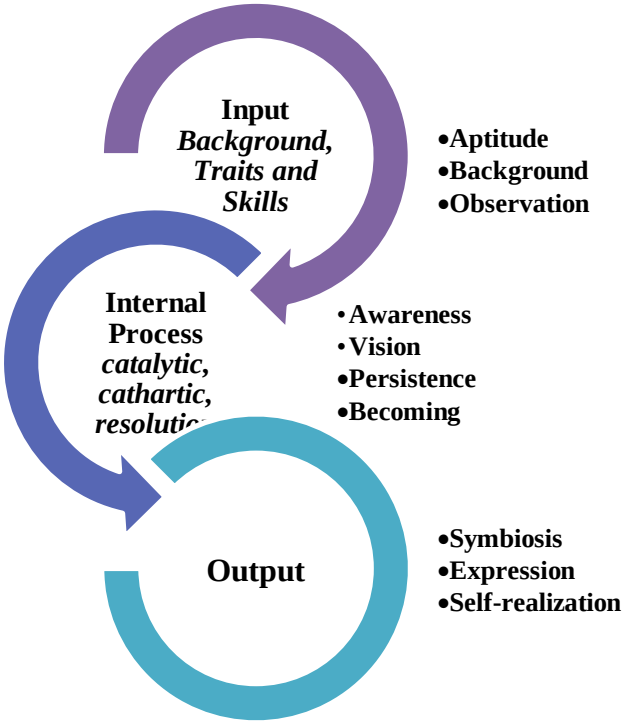

Figure 9. Input, Internal Process, and Output. Legend for text: Major categories are represented by **Bold text**. Major subcategories are **Bold Italicized** text. Contributing Subcategories are italicized. Minor subcategories are plain text.

Within each category, more specific subcategories emerged. **Input** included ***Background, Aptitude***, and ***Observation*** where Background was the most frequent theme to emerge. In order of frequency, the **Internal Process** included ***Awareness, Persistence***, ***Becoming, and Vision***. In order of frequency, **Output** included ***Symbiosis, Expression***, and ***Self-realization***. Subcategories were reflected unevenly in the individual accounts of our artists and were not noted at all in some accounts. All contributed, however, to the overarching patterns that emerged from our study. We discuss these results more specifically below.

Input

The first tier of creative process was input. We found that while background shaped the experiences of our participants, this shaping occurred differently across life stories. As we read these accounts, the binary subcategories of Skills and Talent emerged. We grouped those under the broader subcategory of ***Aptitude***. Each artist referenced this subcategory, although it did not reverberate strongly through any specific account. Discussing her childhood Naomi remembered, "I was a multi-dimensional person, very intuitive, very creative". Emma mentioned the importance of eye-hand coordination and the ability to follow multi-step directions. James summarized best, describing his art as a culmination "of all the skills and process that I have learned over my life".

Observation emerged less frequently as a subcategory. Remembering a specific experience outdoors, Gabriel noted the quality of light. Sofia recalled looking "at the dew on the grass". As a young adult, when her identity as an artist was forming, Emma would take free moments to watch one of her colleagues teach the process of watercolor. Noah remembered watching his mother paint. Although unstated, James learned about tools by working with (and undoubtedly) watching his father in the garage. *Observation* is clearly important for these artists, but we believe the attribute is subsumed within broader categories where the act of observation may be important but not explicit. The practice of observation is naturally embedded in art practice and is an important characteristic of seasoned artists but may be so deeply embedded they may not be aware of it.

Background emerged as an important element in shaping the life experiences of these artists. Several had parents or family members who were artists and/or encouraged them to pursue their art. Naomi's parents were members of the local artists' association and valued art and artists. The second-oldest of 14 children, Naomi says, "Art helped me to get noticed". Gabriel's father came from an artistic family and he remembers oil paints in his home. James parents were both teachers. His father was an art teacher, and his mother was an elementary teacher who regularly infused art projects into her classes. He remembered, "I always had lots of arts projects. I built birdhouses, and other stuff, the nice thing was as I would get involved in these projects and the tools were always there".
Some but not all participants grew up within an artistic milieu. Although Sofia had no artistic influences as a child, she notes, "My mother was very creative". She says she began using a potter's wheel in her early 20's. Later, she says, "Art became my mid-life challenge or solace. It created a whole new community that is part of my life now". Sofia described her husband as creative, and her whole family, including her daughter and sister, "is now revolving around painting and art".

Emma said, "I do not remember ever when I did not want to make art," and added that as a

child she had no art instruction and was encouraged to seek a practical profession. She remembers:

> I was never encouraged to take art. My mother did not have that (an employment option). She wanted me to get a profession I could fall back on. At that time, in the sixties, I could be a nurse, social worker, or a teacher.

Emma's fifth-grade teacher encouraged her and helped her to see some possibilities. After she became a teacher herself, she began taking art classes.

Internal Processes

We saw the processes of **Input** – ***Aptitude, Skills***, and ***Background*** – differ somewhat across participants; in contrast, the internal subcategories of ***Awareness, Vision***, ***Persistence***, and ***Becoming*** emerged as strong and consistent within each artist. ***Awareness*** was clear through their expression of *thought* and *self-knowledge*. Throughout the interviews the word *knew* was used 19 times, and the words *think* or *thinking* were used 32 times. These were followed in frequency by *wanted* (7), *realized* (3), and *surprised*, *sense*, *listened*, *understand*, and *decided*, each mentioned once. These terms indicated awareness and were distributed across participants, suggesting a strong trend. The subcategory of ***Awareness*** surfaced in their metacognition. Naomi noted, "I understood early in life that being an artist was something special". Reflecting on her inner processing, she observed, "When I am painting, I am in a completely different state, because when you paint you are in such a meditative state. When, I paint, I am very engaged with my inner self". Emma noted, "I do not remember when I did not want to do art. I think it (art) is who I was (and still am)". Noah observed, "I have known ever since conscious that I wanted to do this (art). It's just something that was always there".

Another trait that we associated with ***Awareness*** was strong positive emotion. The most frequently used word was *love* (15), followed by *wonderful* (7), *fun* and *incredible* (3 each), *happy*, *passion*, *confident* (2 each), and *captivated*, *enjoyed*, and *rewarding* (1 each). In addition to word frequency, the powers of the emotions emerged even stronger in context. Naomi remembered, "I loved having that talent, I thought that I was special". Sofia observed, "I fell in love with the whole (art making) process. I found painting to be meditative and challenging". Emma summarized, "I think art should be fun".

Although we found ***Vision*** defined here as the capacity to envision alternatives to be a subtheme articulated less often than other subthemes, we suspect vision is the basis for other themes. A sense of capacity was strong in Naomi, who observed, "I have vision, I have clarity, I work them out unconsciously, in that imaginal realm that you come to when you are painting".

A more prominent subtheme was ***Persistence***. Unique in application to each experience, the subtheme was nonetheless strong. In discussing her work with Syrian refugees in Greece, Naomi noted, "I could not let it go". James remembered, "I would stay with a project until I got it where I wanted it". Noah perhaps summarized his sense of best: "I have a sense of what I want to do and then to push it and push it and learn all these years".

Another subtheme that we saw predominant within each artist was the sense of ***Becoming.*** This subtheme seemed to build upon and evolve naturally from the three previous internal interactions of ***Awareness, Vision,*** and ***Persistence***. Naomi spoke of the therapeutic value of art, observing, "It (making art) helped me to value myself". Remembering her internal evolution as an artist, she noted, "I felt that as an artist, I thrived on chaos. You must carry a chaos inside you to give birth to a dancing star". Regarding her coming to art, Sofia remembered, "Art became my mid-life challenge or solace. I was looking at my own mortality and doing something I had always wanted to do". She concluded, "Art is just kind a part of who I am wherever I go". James related to his creative process spiritually, observing that creating art makes him "happy and content … (and) really becoming aware of how things are made and how I make things, creating something definitely fills that for me".

Output

We identified the final tier of the creative processes through which our artists moved as **Output**, which defines the work and credibility of the artist. Under these we grouped the subcategories of ***Symbiosis***, ***Expression*** and ***Self Realization***. Most participants exhibited these qualities through teaching, whether as their primary or secondary activity. All expressed the need to apply their creativity to improving their culture and sharing their skills, knowledge, and talents with others.

Emerging from ***Symbiosis*** were the subcategories of *Synergy, Connections, Service*, and *Application*. We saw these as the various ways that the artists merged the abstract and concrete. Some, like Naomi, Sofia, and Emma, fused their art into their primary occupations of Education and Psychology. For Gabriel, Noah, and James, who were educators at some time during their lives, a form of applied art such as illustration and design became their primary means of support and expression. When Naomi, who earned one masters degree in Fine Arts and a second in Math, began her professional career as an elementary teacher, she observed, "They had a lot of materials to use fractions, unifix cubes, pattern blocks, tangrams, geoboards, all of these beautiful, visual, building materials that were part of the math program". The visual tools that could be used to teach abstract mathematical concepts fascinated her. Ultimately, Naomi earned a doctoral degree in mathematics education, which she applied in both K-12 and higher education settings. After retirement, Naomi used her skills as an artist and educator to teach mathematics to non-English speaking children, who

were at great risk. Emma loved stories of artists and achievements. She shaped and shared her passion for art with both students and colleagues. Her passion led her to return to the classroom after retirement to teach art classes to pre-school children. Gabriel later taught art at the university level and found an ideal application of his insights and creativity through the study of psychology and art therapy, to build on his curiosity about the ways that children perceived his illustrations. Regarding her own work as a psychologist, Sofia observed, "Professional life and painting reinforce each other. If something upsets me about painting, I can go to work".

James earned money in college by teaching pottery to pre-school children in day care centers. He remembered, "I drove around in a truck, unloaded pottery wheels and let kids have fun with clay". He also believes artists make a significant contribution: "I think the crafts people in art make a significant contribution to culture". He perhaps captures our theme of ***Symbiosis*** best:

> I think creating art is part of everyday life. Even making a sandwich means making something by hand. Making something is creative and yet very technical. Making (things) trained both parts of my brain, (and) being very confident is part of the process.

James compared his work as an artist to the processes followed by scientists, reflecting, "I am sure the same curiosity and wonder is in the brains of doctors and physicists".

A final subtheme we observed was ***Expression***. As with *Observation* and *Vision*, we suspect that expression is such a fundamental aspect of being an artist that the action undergirds all other processes and themes. Noah described teaching "typography as an expressive tool". Even when she took a leave from teaching to raise her children, Emma could not abandon the creative process and remembered, "I designed holiday decorations for doors, and holiday stockings, all kinds of things". She observed, "Creating art can be a point of sharing, a point of laughing, a lot of camaraderie". Describing a particular activity, Emma recalled of her work with black glue, "Your heart is going to go crazy because you just cannot control it".

Naomi captured the creative expression of each of our artists in the act of *Expression:* "In every creative endeavor, there is always chaos". She continued to explain that, without expression, the essential idea "will be stilted and not able to grow or bloom and grow and reach full potential. You are called to be an artist". In this comment, Naomi framed the idea that each artist is unique and empowered to capture a unique idea.

Discussion

We asked the single research question: how 21st century middle aged or senior career professionals make sense of and apply the skills developed in visual arts training and through an active art practice over a lifetime of work and learning? In response, the career professionals in our study acknowledged and valued the skills and values acquired in early and life-long arts experiences. A number of themes emerged that were categorized broadly as input, internal processes, and output. These themes will be discussed and placed in the context of existing literature in the next sections.

The first tier: Input included Aptitude, Background, and Observation

The most frequent themes for **Input** were ***Background*** and ***Aptitude***, which emerged from skill and talent. We found that value and interest in art existed in each participant's background and that drawing and making images were encouraged or recognized as valuable. Often support came from a parent or family member, but teachers were also important sources of support. Every participant remembered drawing or making images from an early age and enjoying the process.

Most, if not all, children in Western culture draw during early childhood and many do so into the early teen years (Lowenfeld & Brittain, 1975). Art educators and psychologists recognize early efforts at image making as an important step in intellectual development. Encouragement and support may allow young artists to regard their drawings as valuable and worth pursuing. An early and positive value placed on making art may be a precursor to valuing art and underlie attitudes about personal aptitudes for art.

While other **Input** themes emerged as more frequent, ***Observation*** was one of the first themes to emerge. Skilled observation is critical for an artist (Hetland et al., 2013). Observers do more than just look; observers engage and notice easily recognizable or hidden visual clues. Observation is necessary for analysis where details, contrasts, and similarities are discerned. **Input** gathered during ***observation*** was sometimes an unstated but consistent theme running through participants' internal processes and output

The second tier: Internal processes included Awareness, Vision, Persistence, and Becoming

Awareness of self and self-process was one of the most consistent themes in the study. Each artist referred to active thinking in developing ***Awareness***. Reflection and assessment of artwork are identified as an aspect of the hidden curriculum or Studio Art Framework (STF) in studio art classes (Hetland et al., 2013). Art students are continuously pushed to assess their work through careful observation and to reflect on and assess on what is working well and what is not. In a sense artists are continuously working through a problem when creating

artwork. The continuous actions of reflecting on and assessing artwork supported both internal and external ***Awareness***. The artists in this study showed the capacity to apply ***Awareness, Vision***, and ***Persistence*** to many life contexts. Some skills in this section are similar to those identified in the STF (observe, engage, envision, assess and reflect) but we are capturing self-generated descriptions of cognitive and creative skills after a lifetime of art practice and applied across a wide range of life activities and challenges. Maturity allowed the artists in this study to gain self-confidence and a sense of identity. The results in the present study support the STF discussion that artists are developing complex cognitive and creative skills within a visual rather than text based environment. Applications of cognitive and creative skills associated with an arts education showed deep learning when applied across a wide range of life activities and challenges.

A second aspect of **Awareness** was the deeply engaging aspect of creating art. Artists in this study describe working in the moment with strongly focused attention when creating artwork. The comments and descriptions of heightened awareness, deep engagement, and pleasure are similar to the state of *flow* described by Csikszentmihalyi (2009). Flow might be experienced in any act that required creative synthesis including discovery and invention.

Vision or a plan for how things might be different was often unstated but evident in the life stories we gathered. We saw that our participants had implemented innovative solutions to problems. Emma developed a very successful but unlikely home business selling products of her designs; Naomi rose to meet a social need by developing a non-verbal teaching center for immigrant children who do not speak English. Noah synthesized his awareness of limited opportunities for full time painters to plan an alternate career in design. Noah reflected on his experiences at a fine arts school in California and asked ‘what if’ questions over the summer break.

Noticing or *observing* requires engaging in the scenes around oneself by seeing what is or is not there and then envisioning something different (Greene, 2007). The capacity to observe and envision change can support change in many contexts including social action (Moon et al., 2013) as we saw with Naomi’s work with Syrian children. Thinking about alternatives is also part of reflecting and assessing artwork to determine what is working and what needs change and is a strategy consistently taught in art practice classes (Hetland et al. 2013).

Seeing an alternative is often characterized as abductive reasoning, which is forward oriented, improvisational thinking where imagined successive solutions are applied to find out what might work (Kolko, 2010; Cross, 2006; Thagard & Shelley, 1997). Kolko explained abductive reasoning as a chance to develop speculative hypotheses based on observation and inference in response to a design problem. The solution is the one that fits the needs of the situation

best. The artists in this study applied abductive reasoning to address or resolve problems or situations encountered in their lives. Abductive logic is applied in many professional fields, including design (Kolko, 2010; Cross, 2006), engineering design (Thagard & Shelley, 1997), software and computer interface development (Simon, 1981), management (Green, Welsh & Dehler, 2017; Martin, 2009), and research (Charmaz, 2008).

Abductive reasoning is associated with visualization of possibilities and alternatives and is strongly associated with design or invention (Kolko, 2010). James, Gabriel, Naomi, and Noah consciously developed career plans that allowed them to exercise their talents in fields related to fine arts such as design, geometry, or illustration. Naomi found a way to incorporate art into geometry. Emma and Sofia incorporated art practice into teaching and counseling careers. Gabriel and James earned money through teaching and illustrations. These activities never replaced their primary identity as artists but were considered supportive activities.

Persistence is closely related to engagement (Hetland et al. 2013) and was a consistent theme in participant comments. **Persistence** is a quality required in many human endeavors and was required to master the skills needed as artists. Learning the habit of **persistence** may be one very valuable outcome of art education and practice.

Participants in this study described a process of **Becoming** or *awareness* and knowing that led them to a deep sense of self as artists. Naomi reflected:

> What happens to us when we draw and paint? I meditate for an hour every morning, but when I am painting, I am in a completely different state, because when you paint you are in such a meditative state. When I paint, I am very engaged with my inner self. I spend a lot of time in there, so I have vision. I have clarity. I work them out unconsciously, that imaginal realm that you come to when you are painting. I need a lot of alone time for that reason, and painting gives that to me.

The third tier: Output included Symbiosis, Expression, and Self-realization

The third tier theme that emerged was **Output**, which included *Symbiosis, Expression*, and *Self-realization*. In **Symbiosis** we saw subcategories of *Synergy, Connections, Service*, and *Application*. In music, symbiosis is a sense of oneness with and within the experience of making and hearing music. In this study, we saw that **Symbiosis** allowed participants to synergize input and then connect and apply new insights to making art or in other contexts where they were frequently in service to others. The arts are acknowledged as a way to make sense of experience or chaos (Eisner, 2017).

The individuals who participated in this study met the criteria of practicing a profession while

maintaining identity as an artist as verified by recognition through juried exhibits, shows, or other honors. We did not specify high levels of personal and professional accomplishment, but we did find a highly accomplished group of people who continued an internal process of ***Becoming*** into late middle-or late-life as evidenced by a deep sense of developing adult identity as artists and community members. In addition to making art, participant ***Expression*** included community service as teachers, counselors or designers and illustrators. In our conversations as researchers, we described this metacognitive skill as ***Self-Becoming*** and envisioned the quality as emerging from the internal aspect of ***Becoming***, which was congruent with ***Awareness, Vision,*** and ***Persistence***, and the output characterized as ***Self-Realization*.** We conceptualized that lifelong habits and processes led to high levels of ***Self-realization*** or ***Self-Becoming***, which is certainly gratifying for individuals at mid-or late-life. In addition, the individuals in this study, some of whom are in their seventies, have continued meaningful community contributions into late-life.

Conclusions

Participants in this study relied on art and their arts-based or visual skills to make meaning in their lives. We learned that each participant valued the experiences of making art and committed time, resources, and effort to continuous growth as an artist. We know from personal experience and reflection that thinking can occur in images as well as in words. Our memories, dreams and imaginations are frequently visual. In a text based environment, we learn and teach verbal skills to identify, explain, analyze, and evaluate our ideas. Even though some important forms of reasoning depend on visualization (Thagard & Shelley, 1997), much less is known about how visual thinking occurs.

We suggest that making art engages and develops important cognitive skills and habits of mind, which depend on accessing and using visual information. We suggest the artists in this study are describing complex skills and abilities that exist within a visual rather than a text-based environment. We further suggest the study of art practice be considered as an opportunity for learning cognitive and creative skills that can be valuable over a lifetime. We concluded that participants in the study demonstrated an ability to adapt agilely through synergy and symbiosis to personal or environmental change. For these artists, conditions included an easy transition to technology empowering a visual culture in the early 21st century.

Each artist in this study adapted to technology in various ways. All maintain a website where they feature artwork, blogs, announcements about teaching opportunities or gallery shows. James easily transitioned from sculpture to stop motion animation films. During the 1990s, Noah saw the technology-enhanced potential in graphic design; Emma developed home-based businesses where she sold her design products via the Internet. Naomi responded with an

innovative educational plan after seeing Syrian refugee children on TV. Gabriel adapted his interest in how children see art to working with an art therapy approach. Sofia shared the therapeutic and energizing qualities of art practice with her clients and family.

Recommendations

We recommend the study of art practice be considered as an opportunity for learning cognitive and creative skills that can be valuable over a lifetime. Opportunities for learning some of the skills we observed in the artists in this study are present in a new technology-powered environment where information will be communicated visually and virtually (Steele et al., 2018). Educators should be mindful of the values identified by this study as they design curriculums and curricular supports that will incorporate new technology-enhanced visual opportunities for learning.

The arts can be used to engage learners and promote reflection (Eisner, 2002). Educators may decide to use engaging arts-based materials and practices where reflection might be accessed for specific purposes including professional and personal development. Educational leaders may wish to develop policies and practices that use arts-based approaches that align with the 21st century visual culture. Most people will not have a career as an artist, but learning to think like an artist might empower important creative and divergent thinking skills while developing self-assessment and reflective practices. Learning to think visually could enable easier navigation of the increasingly visual 21st century culture.

We further recommend that educators take advantage of new visual resources. *Pinterest* could be used as a classroom bulletin board that features finds and ideas. *Alchemy VR* provides beautiful applications that allow users to navigate the great Australian barrier reef or go to the moon. Other applications allow learners to engage in complex tasks--for example, constructing an engine in VR (*Engine Explorer*). Technology supported VR applications allow users to gain valuable skills in dangerous (*ER VR*—VR Medical Training Simulation) or difficult to access environments (*InCell* VR). Educators could take advantage of these technology-supported transitions today.

A greater awareness of the skills learned in a visual environment may assist educators and their students transition from exclusive text to include some image-based learning. We end our study with a question for further research: how might educators apply the new possibilities for learning in a platform that offers easy access to elements of the visual culture? That question might allow further exploration and help clarify the brave new world of visual literacy.

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watercolor painting by Elizabeth Johnston

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