

Childhood Adversity, Fantasy Proneness,
Openness to Experience, and the Use of Imagination in
the Work of Fine Artists

by

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In Partial Fulfillment of the Requirements for the Degree of

MASTER OF SCIENCE

in

The Department of Psychological Science

State University of New York

New Paltz, New York 12561

May 2022

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**Childhood Adversity, Fantasy Proneness, Openness to Experience, and the Use of
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Abstract

Why do some artists choose to create work from their imagination while others produce work based on things they see? Psychologists have long been aware of a link between mental health and the healing powers of creation, but have yet to examine if there is a specific distinction between why someone chooses fantasy or realism as the subject of their works of art. This study draws upon research done on childhood adversity, fantasy proneness, and openness to experience to determine correlations between artists who report using ideas from their imagination, and those who report using ideas from everyday life or other artists' work. Childhood adversity, fantasy proneness, and openness have each been linked to greater creativity, which may help to better understand stylistic differences between artists. Participants were assessed using the Adverse Childhood Experiences Questionnaire, Creative Experiences Questionnaire, and openness to experience subscale from the Big Five Inventory, as well as a brief self-report survey regarding the use of imagination as the inspiration behind their art-making. Results showed significant support for a relationship between adverse childhood experiences and both fantasy proneness, and openness. These three variables were also found to significantly predict use of imagination, with openness being the only variable to contribute unique variance to the prediction of imagination. These findings give insight into some of the developmental and phenomenological aspects of artistic creativity.

Childhood Adversity, Openness to Experience, Fantasy Proneness, and the Use of Imagination in the Work of Fine Artists

Many people describe themselves as artists. Artists may draw, paint, sculpt, or work with different forms of media to create works that encompass a variety of subjects, from landscapes to portraits, from still lives to surrealism. However, each work is unique and is driven from a sort of innate wish to create something. We may call someone talented based on technical skills alone, but what exactly makes an artist creative, and where do these inner processes stem from? Artists such as Frida Kahlo, Salvador Dali, and Pablo Picasso are household names, in part because they used their own thoughts, feelings, and ideas in order to create new and exciting images. In contrast, Georgia O'Keeffe, Chuck Close, and Ron Mueck's work inspired by everyday life have also catapulted them into fame, based on their striking hyperfixation on detail.

Current research on creativity mostly focuses on the cognitive and personality aspects of the creative process (Simonton, 2000), and although the field continues to develop, most studies do not use artists as active participants. Anyone may have the capability to be creative, but by studying people who choose to create on a regular basis we are able to explore more specific characteristics, experiences, and outcomes of the creative process. Specifically, we can investigate the distinct aesthetic differences between varying types of artists in an attempt to answer the question, "Where does their inspiration come from?"

This research aims to explore the phenomenological differences between people who choose to make art based on their imagination and those who choose to make art based on everyday life, or reproduce other work they see. Of course, there is also the possibility that artists may fall in between both categories. Inspiration comes from a wide range of lived experiences, feelings, or ideas. However, I suggest that a number of individual factors contribute to the

distinction in stylistic output. For instance, the amount of adversity a child experiences before they turn 18 may influence their need to employ coping strategies, such as daydreaming and imaginative play (Wilson & Barber, 1983). These tactics to avoid stress then may impact personality development, so much so that these experiences and traits could influence creative outcomes in adulthood (Thomson & Jaque, 2018; Thomson & Jaque, 2019). In the current study, I will explore the roles of adverse childhood experiences, fantasy proneness, and openness to experience as overlapping constructs, each of which individually contribute to the outcome of artistic style.

Creativity

The creative process traditionally was often depicted as a profound and mysterious experience where inspiration is supernaturally bestowed upon the creator. The ancient Greeks believed that creativity came from the muses who inspired new ideas in the arts, science, and literature (Simonton, 2000). However, modern research has tried to understand creativity in a more scientific sense. Creativity is broadly defined as the development of new ideas (Huang & Liu, 2015) but is not a trait that is only possessed by a certain percentage of the population. Instead, creativity is thought to exist on a sort of spectrum, similar to intelligence (Ward & Kennedy, 2017). In fact, researchers cannot seem to agree whether or not creativity is domain-specific or domain-general, and the same is true in intelligence research (Silvia et al., 2009). Domain-specific creativity is a theory that people produce creative ideas in distinct disciplines. For example, a talented poet would not necessarily be seen as creative in the field of architecture. However, many domain-general studies have shown that creativity does tend to show itself across different subjects depending on how it is measured (Silvia et al., 2009). Domain-specificity is more product focused, whereas domain-generality is more person, or trait,

focused. People may utilize creativity in different ways, depending on the task at hand, and there are numerous measures to quantify creativity across all different domains. Some of the ways researchers have come to develop various methods for testing overall creativity are by way of divergent thinking (Torrance, 1974), personality traits (Gough, 1979), and also multidimensional factors such as creative engagement, cognitive style, and fantasy proneness (Kelly, 2006). In the past 20 years, there has been a significant increase in the number of publications on the cognitive processes and personal characteristics behind the phenomenon of creativity (Ward & Kennedy, 2017).

Cognitive research into creativity has focused on how creative ideas are generated. Studies have shown that creativity may be influenced with visual imagery, and although there are countless variations of these studies, each follows a replicable format. Participants are typically given a creative task, such as designing a new toy, producing a drawing, or imagining a creature from space, and are shown examples by researchers (Landau & Leynes, 2004; Okada & Ishibashi, 2016; Smith et al., 1993; Ward et al., 2002). Results show that participants tend to copy parts of the examples in order to complete the task, even when told not to, which demonstrates that examples tend to constrain creativity. Those who were able to retrieve more abstract knowledge in order to complete the task were seen as being more original (Landau & Leynes, 2004; Okada & Ishibashi, 2016; Smith et al., 1993; Ward et al., 2002).

Different versions of these studies have been reproduced to change the examples, or include visual imagery, in order to measure the stimulus of creative thought. However, cognitive researchers seem to agree that creative individuals do not produce new ideas from thin air, but instead expand their creativity with a wide range of knowledge and well-developed skills (Simonton, 2000). People who perceive themselves as being less creative are not necessarily

lacking an innate ability, they simply may not have systematically exercised, trained, and practiced these creativity-based skills (Howe et al., 1998).

Personality research, on the other hand, has aimed to understand what creative people are like. Studies on personality and creativity have come to agree that openness to experience is a shared trait among creative people (Ward & Kennedy, 2017). However, researchers have begun to distinguish between those who are artistically creative and those who are scientifically creative; the difference being lower-level personality characteristics within openness (Feist, 1998; Kaufman, 2013; Perrine & Broderson, 2005). Perrine and Broderson (2005) differentiated these lower-level traits as openness to aesthetics (artistic) and openness to ideas (scientific) among creative individuals. Other studies on personality also used the Big Five Inventory to assess creativity in occupational settings. Higher ratings of openness significantly predicted greater creativity across nursing professionals in Spain (Molero-Jurado, 2020), design majors in Taiwan (Chang, 2015), and acapella singers in Croatia (Pavlić, 2021). Although there has been notable progress made to understand creativity in recent years, both cognitive and personality research have neglected to explore how the creative process is experienced and just where these psychological processes begin, specifically when it comes to artists.

Creativity Among Artists

Research has generally grasped the quantifiable facets of creativity, but what are the phenomenological aspects of artistic creativity? Nelson and Rawlings (2009) surveyed artists across diverse disciplines and organized their lived creative experiences into themes. Participant experiences included anxiety prior to the creative process, absorption during the activity, a deeper engagement with self and world, and a sense of satisfaction and healing. Another study by Rawlings and Nelson (2007) emphasized the experience of an immersive, flow-like state, an

inward shift of consciousness, and the reproduction of a preconceived schema during the creative process, which the artist curiously explores until their work is complete. Rawlings and Nelson (2007, 2009) also reported that artists placed value in engaging with their creativity, in that it distinctly shifted their emotional state in a positive way, resulting in a commitment to the process itself. Value of the creative experience is a significant finding since creativity may help promote greater purpose, meaning, and optimism, as well as an increased capacity for resilience in participants with stressful childhoods (Bennett, 2009; Thomson & Jaque, 2019).

Thomson et al. (2009) set out to examine the inner workings of artists and their affective states to determine differences in creative output. Participants were divided into two domains depending on professional status: generators (e.g., writers, designers, choreographers, composers) and interpreters (e.g., directors, actors, opera singers, dancers). Generators were categorized by their ability to produce original work in their careers, where interpreters were seen as adapting or interpreting others' ideas. Interpreters scored higher on measures of dissociation and imagination, suggesting a fundamental difference in control and absorption between the two groups' creative processes.

The generator and interpreter groups were originally defined by Kogan (2002) and then expanded upon by Thomson to include more subcategories of performing artists, such as writers and directors. Thomson et al. (2009) did not clearly specify why certain categories of artists belong in either the generator or interpreter group. A writer, for example, could potentially be a playwright, a columnist, or an author of any sort of genre, and each of these writers could experience creativity in a different way. Perhaps Thomson's categorization was a bit too broad to encompass such a diverse group of participants. Nevertheless, the underlying construct of individual differences in creative output should be further explored to understand distinctions in

art styles.

Since the participants in the current study will be visual artists, rather than performing artists, repurposing the labels of generators and interpreters felt necessary. In terms of this study, generators can be thought of as those who use their imagination, while interpreters would be artists who use ideas from everyday life, or others' work. This distinction is also important because visual artists may be processing their creativity in a way that is different from the performing artists in the Thomson et al. (2009) study. Additionally, rather than placing artists into two distinct groups, it may be more advantageous to explore creativity in a continuous nature in order to account for the possibility that some visual artists may fall in between generators and interpreters. Future research could also incorporate a cross-disciplinary approach to explore categorical differences in creativity across artistic domains.

Adverse Childhood Experiences

Thomson et al. (2009) also evaluated participants based on their reported amount of lived traumatic events. Traumatic experiences included accidents, disasters, and loss of a loved one, with some questions pertaining to childhood and others to adulthood. Results were not significant between generators and interpreters. Although stressful events can be traumatic at any age, it seems that childhood trauma, specifically, may alter the development of creativity.

Research has just begun to look at how traumatic events in childhood may predict creative experiences in adulthood (Thomson & Jaque, 2018; Thomson & Jaque, 2019; Winner, 2018). Childhood adversity is a term used to encompass a range of negative situations, such as physical and emotional abuse, neglect, and household dysfunction, each of which can potentially change the trajectory of a child's adult life. The Centers for Disease Control (2021) predicts that about 61% of adults have lived through at least one adverse childhood experience (ACE) and one

in six people have experienced four or more. Adversity has always been difficult to quantify, but Felitti et al. (1998) introduced the Adverse Childhood Experiences Measure to assess the long-term relationship between negative childhood events and health outcomes in adults. The scale contains 10 items, each representing a different form of hardship experienced before the age of 18. Exposure to ACEs may lead to increased alcohol (Dube et al., 2002) and substance abuse (Dube et al., 2003), depression (Chapman et al., 2004), heart disease, diabetes, cancer, and overall poor health (Felitti et al., 1998). However, if a child experiences more than one instance of trauma, their likelihood of developing a long-term mental or physical health condition may increase up to 4 to 12 times more than that of their peers (Felitti et al., 1998).

Negative implications of ACEs have been extensively researched, but a small number of recent studies have shown a possible correlation between childhood trauma and creativity in adulthood. A study of Greek artists showed that those with higher psychiatric disorders also had more reported childhood trauma and expressed “needing” to engage in the creative process (Kandaraki, 2021). Thomson and Jaque (2019) surveyed athletes and performing artists, then categorized them into groups based on how many ACEs they disclosed. The results showed that the group with four or more ACEs reported having heightened creative engagement while participating in their preferred activity, and valued creativity more when compared to the lower ACE groups.

Some children may use their inherent creativity as a means of escapism to cope with the stress associated with ACEs (Winner, 2018). This employment of the imagination may then serve as a way for children to survive, which they then access repeatedly in stressful situations through development. The imagination becomes functional at this point, and because it is needed, it

remains present even past childhood. Although early trauma may be resolved in adulthood, this theory could explain why some artists still utilize their imagination during the creative process.

Fantasy Proneness

Fantasy proneness is a construct used to define those who engage in extensive, frequent fantasies or daydreams. Fantasies may include thinking about what could have been, planning responses in advance, or constructing alternative realities in order to avoid thinking about the present (Sánchez-Bernardos et al., 2015). Fantasy proneness was first coined by Wilson and Barber (1983), who noticed common characteristics between their psychotherapy patients, such as reported vivid childhood memories, fantasies, and out-of-body experiences. In an attempt to further investigate commonalities among fantasy prone individuals, they conducted a series of interviews with a sample of 27 women. From this sample, Wilson and Barber concluded that someone high in fantasy proneness would possess certain attributes, namely they would frequently engage in active daydreams, experience realistic, almost hallucinatory fantasies, have vivid memories, and would describe having psychic or paranormal experiences. The culmination of each of these phenomena is what Wilson and Barber believe contributes to fantasy proneness as a trait, although more current research has found less statistical support of hallucinatory abilities in relation to prevalence of daydreaming (Giambra, 2000; Larøi et al., 2005).

Wilson and Barber (1983) suggest that fantasy proneness may develop if a child is positively encouraged to participate in fantasy activities, such as reading fairy-tales, or engaging in pretend play. An adult may also pretend that a child's dolls and stuffed animals are alive, reinforcing the idea of fantasy within the child. Involvement in art, acting, or dance between the ages of two and four could also contribute to the development of fantasy proneness in an individual as well (Wilson & Barber, 1983). However, Wilson and Barber's (1983) sample of 27

women also revealed patterns of fantasizing due to loneliness or isolation, or to escape or avoid a negative situation in childhood. According to Wilson and Barber's research, fantasy proneness seems to be associated with a varying degree of mental instability when carried into adulthood. However, the main difference between adaptive and maladaptive fantasy proneness may be the additional presence of dissociation within an individual, which is commonly described as a defense mechanism employed during traumatic experiences (Duarte et al., 2021). Current research on fantasy proneness has mostly focused its relationship with dissociation. Although some researchers assert that the relationship is not always positive, Dalenberg et al. (2012) explain that fantasy proneness and dissociation share conceptual associations, item overlap within constructs, and shared reports of trauma. Fantasy proneness in adulthood has been linked to childhood adversity in other studies as well, both with and without the addition of dissociation (Bryant, 1995; Geraerts et al., 2005; Pekala et al., 1999). Although many fantasy prone adults are well-adjusted, fantasy proneness may be a risk factor for psychopathological disorders, including depression and substance abuse (Rauschenberger & Lynn, 2003), similar to those with a history of ACEs.

Singer and Schonbar (1961) noticed a general correlation between women who were frequent daydreamers, reported greater anxiety, and heightened creativity in regards to storytelling. More recently, Thomson and Jacque (2018) found that participants with more ACEs reported higher levels of fantasy proneness, but also had more positive creative experiences and distinct creative processing compared to those with no ACEs. Positive creative experiences and distinct creative processes were defined by the Experience of Creativity Questionnaire, which includes questions such as "I put myself in the mood I wanted my creative work to take on," and "I have found there is a compulsive, addictive quality to the experience of being engaged in the

creative process.” Similarly, fantasy proneness has been found to enhance the creative process due to its imaginative element (Lack, 2003). These results suggest that there may be a correlation between ACEs, fantasy proneness, and the creative process. However, as previously discussed, another important trait in regards to creativity is openness to experience.

Openness to Experience

Openness to experience is considered to be a positive attribute because aside from being associated with overall creativity it has also been linked to curiosity, adaptability, and open-mindedness (Allen and Lauterbach, 2007; Li et al., 2015; Perrine & Brodersen, 2005). Aside from general creativity, openness to experience has also been associated with a greater interest in art and aesthetics, as individuals with increased openness to experience reported higher levels of artistic preference, interest, and judgment (Chamorro-Premuzic et al., 2007; Fayn et al., 2015). A 2009 study found that participants who scored high in openness preferred less traditional art-styles, such as pop and modern, and those who scored higher in conservatism (low openness) preferred representational art, rather than cubism or abstract art (Chamorro-Premuzic et al., 2009). Similarly, personality was a stronger predictor of interest in art when compared to age, gender, and previous education, leading researchers to deem openness as central to the “artistic personality.” The artistic personality is described as having a preference for more modern, non-traditional art with intrinsic subject matter, and possessing higher levels of imagination and creativity (Chamorro-Premuzic et al., 2010). Based on these results, one may conclude that artists who have increased openness may also choose to create art which incorporates more imaginative, non-traditional subject matter.

Research suggests that greater levels of openness to experience may be a byproduct of childhood adversity, similar to fantasy proneness. Allen and Lauterbach (2007) observed that

adults with childhood trauma tested higher in the openness trait on the Big Five, regardless of the type or duration of the trauma. This finding is supported by psychiatry research as well, indicating that the serotonin transporter promoter poly-morphism (5-HTTLPR) and childhood adversity may simultaneously influence the development of openness (Rahman et al., 2017). Hengartner et al. (2015) reported that the type of trauma most correlated with openness was emotional abuse, and although openness was not significant in cases of physical and sexual abuse, it did not decrease. In other studies, openness to experience was found to mediate the effects of childhood trauma and other negative life events (Pos et al., 2016) and act as a buffer to protect against stress in adulthood (Williams et al., 2009). Childhood adversity may lead someone to be more open in their adult life, but it is important to note that openness is not always directly associated with trauma. Many behavioral scientists focus on the potential for gene mutability, meaning that our environment plays a role in genetic expression. For example, the openness component of a child's personality may be slightly altered if they grow up in a home that values liberalism, rather than conservatism, if they feel safe at school, or how many friends they report having (De Neve, 2015).

Research also supports a link between openness and fantasy proneness (Bröhl et al., 2021; Reyes et al., 2017; Sánchez-Bernardos & Avia, 2004; Sánchez-Bernardos et al., 2015). Sánchez-Bernardos and Avia (2004) surveyed Spanish adolescents using the Creative Experiences Questionnaire and The Big Five, which showed a relationship between openness and using fantasy as a need to escape. Sánchez-Bernardos et al. (2015) replicated these results in an adult sample and found significant levels of openness in fantasizers who were encouraged to participate in fantasy activities as children, and those who did so in order to escape stressful situations. The correlation between openness and fantasy proneness is not surprising, considering

the fundamental relationship to creativity within each characteristic. According to the research, fantasy proneness and openness may exist without ACEs, but those with a history of childhood adversity seem much more likely to develop these traits.

The Current Study

Personal experiences may foster the creative process, and the above research has shown potential correlations among childhood adversity, fantasy proneness, and openness to experience. Most children tend to be naturally creative and imaginative, but many seem to lose this quality as they mature into adulthood. Those who retain their imagination past adolescence may do so because of a developmental need to escape. Although there seems to be an association between ACEs and creativity in adulthood (Forgeard, 2013), research has yet to explore specific aesthetic, art-making preferences amongst visual artists with and without a history of childhood trauma.

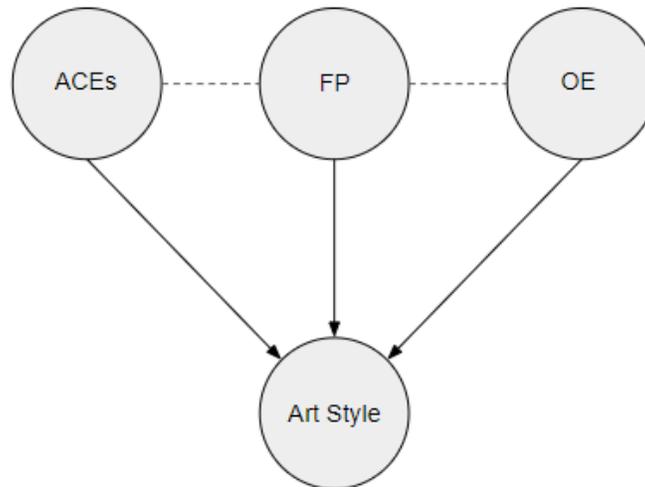
Hypothesis 1A and 1B: An artist's number of reported ACEs will be positively correlated with both (a) fantasy proneness and (b) openness to experience.

Hypothesis 2: Participants with a higher number of reported ACEs, fantasy proneness, and openness will also report using more ideas from their imagination in their artwork.

Figure 1 illustrates the predictive nature of each independent variable in this study; ACEs, fantasy proneness (FP), openness (OE), and art style. The dotted line signifies a possible relationship between ACEs, fantasy proneness, and openness, each of which contribute to art style, marked by the arrows. However, for the purposes of this study I do not claim any causal qualities between fantasy proneness and openness. That is, each of these two traits have yet to be determined as a developmental marker for the other. Despite the correlations between ACEs, fantasy proneness, and openness in the literature, each predictive variable will be analyzed

individually to account for possible variance as it contributes to the outcome variable of artistic style.

Figure 1
Relationship Between Independent Variables



Method

Participants

Data from 364 individuals was collected as part of this study. Participants were recruited through the SUNY New Paltz subject pool, social media accounts, and local community art organizations, such as The DRAW Kingston. All participants accessed the survey through an anonymous Qualtrics link, and student participants who completed this study through the SUNY New Paltz SONA system received one psychology subject pool credit as compensation. After removing those who did not complete the study, completed the study in less than three and a half minutes, disclosed that they only practiced a medium that was not visual, or had duplicate responses, the final sample included 250 participants. Of that sample, 64 participants were

SUNY New Paltz students (25.6%). Participants were primarily female ($n = 184$, 73.6%), followed by male ($n = 45$, 18%), non-binary or third gender ($n = 15$, 6%), as well as three who self-described, and three who did not disclose gender. The majority of participants reported being 18 to 24 years of age ($n = 104$, 41.6%) and identified as Caucasian ($n = 185$, 74%). Other races included Hispanic or Latino ($n = 21$, 8.4%), two or more ethnicities ($n = 18$, 7.2%), African-American ($n = 6$, 2.4%), Asian ($n = 6$, 2.4%), and Native American ($n = 1$, 0.4%). Most participants reported their education as having some college ($n = 71$, 28.4%), a bachelor's degree ($n = 58$, 23.2%), or a master's degree ($n = 45$, 18%). Nearly all were from the United States ($n = 239$, 95.6%), but others were from Mexico ($n = 2$, 0.8%), Ireland ($n = 1$, 0.4%), the Netherlands ($n = 1$, 0.4%), the United Kingdom ($n = 1$, 0.4%), and Uruguay ($n = 1$, 0.4%).

In terms of the participants as artists, most said their art incorporates identifiable and recognizable figures ($n = 121$, 48.4%), followed by altered versions of reality ($n = 77$, 30.8%), and mostly lines, shapes, and colors ($n = 49$, 19.6%). The most common age that participants began making art was preschool, or 3-6 years old ($n = 124$, 49.6%). Participants were able to select more than one medium that they prefer to work in. Drawing was the most popular medium ($n = 162$, 64.8%), followed by painting ($n = 141$, 56.4%), photography ($n = 112$, 44.8%), graphic design ($n = 58$, 23.2%), ceramics ($n = 41$, 16.4%), and sculpture ($n = 38$, 15.2%). Some participants ($n = 70$, 28%) selected to add their chosen medium if it was not on the list, and these included artforms such as tattooing, printmaking, textile work, and collage.

Measures

Adverse Childhood Experiences

Participants' experiences with childhood adversity were measured using a modified version of the Adverse Childhood Experiences Questionnaire (ACE). Categories of the

traditional ACE Questionnaire (Felitti & Anda, 2010) include ten questions relating to physical and mental abuse, neglect, and household dysfunction. However, the ACE fails to account for instances of adversity relating to racism, poverty, long-term illness, bullying, and sexual orientation (Anda et al., 2020; LePera, 2021). The modified version of the ACE created for use in this study included five additional self-report prompts to consider these areas, for a total of 15 questions. An example question from the ACE Questionnaire is, “Before your 18th birthday, did you often or very often feel that no one in your family loved you or thought you were important or special? Yes/No.” Each yes response results in one point for a total of 15 possible points for this study. The test–retest reliability calculation for the traditional ACE was found to be stable ($r = 0.78$). Hypotheses were tested using the expanded version of the scale, but because these newly added items had not been tested previously, results were verified on the original scale and any differences were reported.

Fantasy Proneness

The Creative Experience Questionnaire (CEQ) is a 25-item self-report measure of fantasy proneness (Merckelbach, 2001). Questions were answered in a yes/no format to obtain a total possible score of 25, where 25 would indicate the highest possible score of fantasy proneness. Items include developmental prompts from childhood memories, as well as current engagement in daydreaming and fantasizing. Two sample questions from the CEQ include: “As a child, I often felt lonely,” and “When I perceive violence on television, I get so into it that I get upset.” Test-retest reliability of the CEQ was high ($r = 0.95$).

Openness to Experience Scale

The Big Five Inventory (BFI) is traditionally administered as a 44-item inventory (John & Srivastava, 1999), but since openness to experience is the only factor included in the study

hypotheses, this study focused on the ten questions relating to that trait. The openness questions were taken from the John et al. (1991) version of the Big Five. Each of the ten questions were presented on the same five-point Likert scale as the Big Five Inventory, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Participants were prompted with the sentence, “I see myself as someone who...” and then answered questions such as, “Is curious about many different things,” and “Is original, comes up with new ideas.” Two questions were reverse coded for openness. The BFI scales have strong internal consistency and test-retest reliability ($r = 0.92$ for openness).

Use of Imagination in Artwork Questionnaire

The creativity of participants was assessed using four questions in a 5-item Likert scale format to identify if they, as artists, utilize their imagination in their artwork. Options ranged from 5 (*strongly agree*) to 1 (*strongly disagree*). Items 2 and 3 were reverse-coded to indicate a lower imagination score. Participants were given a prompt to think about the art they prefer to create, outside of professional or educational obligations. Participant use of imagination questions include:

1. Most of the inspiration for my artwork comes from my own imagination.
2. Other people's art serves as a significant source of inspiration for my own artwork.
3. My artwork is strongly inspired by the world around me.
4. The greatest source of inspiration for the art I create comes from my own mind.

The four questions had poor inter-item reliability ($\alpha = .42$), due to low correlations between the two imagination items (items 1 and 4) and the two realism items (items 2 and 3). However, the two imagination items most relevant to Hypothesis 2 were highly correlated and thus were used as a two-item measure of imagination use ($\alpha = .80$).

Other Measures and Procedure

Participants were also given the opportunity to answer one qualitative question based on their experiences as an artist, which stated: “How does the art that you make reflect your life experiences?” This open-ended question served as a means for participants to reflect on the motivation behind their work, regardless of the constructs within this study. Responses were sorted and coded into respective categories based on emerging themes. The first 5-10 responses were free-coded, then analyzed for emerging themes. Themes were highlighted in bold in the coding section and written by hand. Next, the following 10-15 interviews were open coded with current themes in mind, and were analyzed again for any additional themes. If additional themes were present, the first group of interviews were re-examined to include them, and tallied by hand. From there, axial codes were created to represent the most common responses to the open-ended question. The remaining interviews were analyzed, coded, and organized into the axial themes. Data was then framed into a larger, theoretical model to draw interpretations of the group’s responses as a whole. Participants also provided demographic information (i.e., age, race, gender), along with chosen subject matter, preferred medium, and at what age they began making art.

All participants were asked if they were at least 18 years old, as well as active visual artists who work in either ceramics, drawing, graphic design, painting, photography, or sculpture before they began the study. They were also notified that the survey may contain potentially sensitive and traumatic topics relating to childhood and were given the opportunity to skip the ACE measure without reading the questions. Participants were also given contact information to the national suicide prevention website and the SUNY New Paltz Psychological Counseling Center.

Results

Results from the Use of Imagination in Artwork Questionnaire indicated that participants generally reported a high amount of their inspiration comes from their imagination ($M = 3.71$, $SD = 1.03$). There was only a slight difference between use of imagination scores in participants with zero ACEs ($M = 3.39$, $SD = 1.21$) and participants with five or more ACEs ($M = 3.83$, $SD = 1.01$) when looking at the modified measure.

When comparing the traditional and modified versions of the ACE Questionnaire, there were only minor changes to ACEs on the group level. For the traditional measure, many participants reported having experienced five or more ACEs ($n = 71$, 31%), followed by one to two ($n = 61$, 26.6%), three to four ($n = 56$, 24.5%), and zero ($n = 41$, 17.9%). When adding the additional five questions, five or more ACEs was more common ($n = 114$, 48.9%), followed by one to two ($n = 53$, 22.7%), three to four ($n = 47$, 20.2%), and finally zero ($n = 19$, 8.2%).

A correlational analysis was first conducted to compare the relationship among the three predictor variables (see Table 1). Hypothesis 1 looked at reported ACEs in regards to (a) fantasy proneness and (b) openness to experience. Fantasy proneness was moderately correlated with ACEs $r(248) = .38$, $p < .001$, while openness was found to be correlated with ACEs $r(248) = .17$, $p = .009$. Therefore, Hypothesis 1 was supported. Results were also significant and very similar with the original version of the Adverse Childhood Experiences Questionnaire.

A simultaneous multiple regression analysis was then used to assess whether a higher number of reported ACEs, fantasy proneness, and openness would indicate greater use of imagination in artwork (Hypothesis 2). Overall, these three variables were found to significantly predict use of imagination, $F(3, 218) = 7.97$, $p < .001$, $R^2 = .098$, suggesting that together, the predictors accounted for roughly 10% of the variance in use of imagination. Openness to

experience significantly and positively predicted use of imagination above and beyond the other two predictors, ($b = 0.45, p < .001$). Fantasy proneness ($b = 0.03, p = 0.066$) and ACEs ($b = 0.03, p = 0.265$) were both positive predictors of imagination use but neither significantly contributed unique variance. Standardized regression coefficients (betas) for the three predictors were .23, .13, and .08 for openness to experience, fantasy proneness and ACEs, respectively, indicating the greater relative power of openness to experience to uniquely predict participants' use of imagination.

Table 1
Correlations Among Variables

	Use of Imagination	Fantasy Proneness	Openness To Experience	Traditional ACEs
Use of Imagination	-			
Fantasy Proneness	0.21**	-		
Openness to Experience	0.29***	0.21***	-	
Traditional ACEs	0.15*	0.36***	0.16**	-
Total ACEs (with modified)	0.14*	0.38***	0.17*	0.95***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Ns ranged from 234 to 239 for the correlations above.

Thematic Analysis

A total of 193 participants chose to answer the qualitative question, “How does the art that you make reflect your life experiences?” An independent samples t-test was conducted to compare differences in ACE scores between participants who chose to answer this question and those who declined to respond. Results were not significant between participants who answered

($M = 3.13$, $SD = 2.46$) and those who declined ($M = 2.93$, $SD = 2.27$), $t(232) = -0.56$, $p = .578$.

When asked how their art reflects their life experiences, key emergent themes included (a) art as a mental health practice, (b) a reflection of their environment, (c) transforming or avoiding the past, and (d) disagreement with the premise that their art reflects their experiences. Some answers contained multiple themes and were included in each respective category.

Art as a mental health practice was, by far, the most common theme mentioned by 57 participants (29.5%). Part of this may be due to the nature of the questions asked in the study, which could have prompted them to think about adversity. Other participants seemed well aware of the connection between their art and lived experiences, such as this participant who stated, “I have always controlled my art, since I often feel like I have no control over anything else in my life. My art forces me to practice mindfulness instead of focusing on the intrusive memories and anxiety. My work looks polished and put together in every way that my mind and myself are not.” Some participants also described using art as a way to express their conscious and subconscious thoughts, convey emotions, and release stress or frustration.

There were 29 participants (15%) who reported that their art was a reflection of their environment. In this category, an environment could be something that existed in life, other than a person. Some participants’ environments consisted of movies, comics, or shows that influenced them and their creative process. Other participants stated that their connection to nature guided how they made art, such as Participant #8, who wrote, “I would say it’s often a fusion of nature with something eerie or unknown/uncanny. I grew up running around outside, not getting in trouble, getting dirty and playing in the woods here in the Hudson Valley, and it grew my love for all the elements, fairies, and mystical things.”

The next theme mentioned some sort of transformation, escapism, or creation of idealism to help avoid painful experiences, which was expressed by 24 participants (12.4%). One participant explained, “I think my art has always been a form of escapism, where I am in control of the outcome. I am able to hyperfocus on the task and not think out other things that may be upsetting. It's been my anti-drug, and a way to channel my feelings in a positive way.” Another participant described how they focus on idealism, saying, “A lot of the time my art is what I wish my experience was... My art tries to get away from any concept of gender, or even society. I draw a lot of animals and fantasy worlds.”

The last major theme that emerged for 23 participants (11.9%) was the fact that they didn't feel their art reflected life experiences. Some offered an explanation, such as Participant #222, who stated, “I don't think I use art for expression or reflection (perhaps subconsciously) but instead as a semi-therapeutic or meditative way, in which you can watch yourself practice and develop a difficult skill in pursuit of an elusive sense of mastery.” Because this participant's response contained multiple themes, they were also included in the mental health and mastery of technical skills themes.

More minor themes included a duality between lightness and darkness, which was stated by 11 participants and a desire to master technical skills was brought about by 10 participants. Other themes which had less than ten participants included a reflection of childhood (9), connection to others or relationships (6), and possessing a sense of wonder, or mysticism, about the world (6).

Discussion

The goal of this study was to investigate the association between childhood adversity, fantasy proneness, and openness to experience as they relate to artistic style. Results were

significant regarding the relationship between ACEs, fantasy proneness, and openness to experience, indicating that these three dimensions are directly related to one another. However, only openness to experience contributed uniquely to imagination use in the artists' work, likely due to overlap between the three predictor variables. These findings indicate that individuals who have more stressful experiences in childhood turn out to be more fantasy prone and open to experiences as adults (see Table 1). These developmental traits may then translate into how someone creates art, where they draw inspiration from, and how they value the art-making process. Results from this study are similar to previous research, which state that artists tend to be more imaginative and creative (Chamorro-Premuzic et al., 2010) but also have a strong need for originality (Martinsen, 2011).

Two of the four questions on the Use of Imagination in Artwork Questionnaire were strongly correlated, therefore these two were used as a face valid measure of imagination use. Because artists value originality (Martinsen, 2011), and those high in openness prefer less traditional art-styles (Chamorro-Premuzic et al., 2009), it is expected that most participants would rate themselves as higher in their use of imagination. However, the correlations between the predictor variables suggest that ACEs may indirectly contribute to use of imagination through the development of fantasy proneness and openness. The mean score for ACEs was 3.09 ($SD = 2.41$) on the traditional measure and 4.70 ($SD = 3.31$) when including the modified version, meaning that the average participant experienced between three and five instances of trauma before they turned 18.

Results from the thematic analysis show a strong relationship between art-making and valuing the creative process. Many participants wrote how art helps them cope with everyday stress and also events from their past, whether it be through escapism or as a means of

communicating emotions. Although themes were not analyzed based on the number of ACEs, responses from the open-ended question indicate just how beneficial participants found the creative process to be. These open-ended results are reminiscent of the work by Nelson and Rawlings (2009), which found that artists described a deeper engagement with self and world, and a sense of satisfaction and healing while creating. Even those who stated that they enjoy the technical aspects of art-making found virtue in being in an immersive, flow-like state, and inward shift of consciousness, as previously discussed by Rawlings and Nelson (2007). These various benefits of engaging in the creative process may illustrate why someone with significant childhood adversity may gravitate towards, and become a lifelong participant in, art-making.

The thematic analysis also showed support for the measures included in the quantitative analysis. As discussed, some participants expressed first using art to avoid hardships in childhood and adolescence, which is in line with the link between ACEs and imagination use. Fantasy proneness was also evident in those who said their creativity helped them devise idealized worlds, or found solace in nature, movies, and comics, which then informed their art. Although openness to experience did not appear directly in the open-ended responses, the themes indicate that many participants are open to discussing emotions, difficult experiences, and inner processes as they relate to inspiration. Overall, participants seem to find comfort in creating, as it provides a healthy and experimental form of expression. That said, those who wrote that their art does not reflect their experiences may enjoy making art purely for technical adeptness.

Limitations and Future Directions

The main limitation of this study is the minimal amount of previous research which exists looking at influences of artistic style. Although difficult to quantify, the field of psychology has already taken a lens to creativity as a whole (Martinsen, 2011), thus enabling other research to

take a more in-depth look at specific types of creativity. Understanding the psychology of artistic influence and style may give insight into inventive coping mechanisms, especially of those with a history of childhood adversity. Although this study did not find support in measuring the phenomenology behind more realistic art styles, future research could focus on the psychology behind these more technical-based approaches.

A more in-depth approach to Hypothesis 2 would have been to run a mediation analysis in order to better understand the relationship between ACEs, fantasy proneness, and openness to experience as predictors of artistic style. For example, because ACEs are life events, it may be assumed that when they occur, they directly influence an individual's personality development. The question of whether or not openness can exist without fantasy proneness, and vice versa, remains to be determined. Perhaps an open person could accept the general characteristics of fantasy proneness as valid without necessarily possessing them themselves, such as constructing alternative realities to avoid the present.

Another limitation includes the generalizability of these findings. Given that participants were predominantly female, young adults, Caucasian, and from New York, results from this study may not replicate across other demographics. Similarly, future research could explore artistic creativity in a cross-cultural context. Although trauma is universal, the relationship between ACEs, fantasy proneness, and openness may not translate into a non-Western perspective.

Conclusion

Use of imagination is an under-researched topic within the literature of creativity, but especially so in terms of art. Imagination is an integral part of creativity, which may help us

process our emotions, conjure new ideas, and construct alternate realities. To understand imagination is to understand the way we think and create.

This study supported the possibility that use of imagination in art-making is related to childhood traumatic experiences, as well as the development of fantasy proneness and openness to experience. However, because openness was uniquely correlated with use of imagination, those high in openness may be most likely to seek novelty in their creative process and produce more inventive work. This finding is consistent with previous research which suggests that artists higher in openness are more imaginative and creative (Chamorro-Premuzic et al., 2010). Imagination is central to creative processing and originality, but also offers children a practical and playful means of coping with stress. This coping mechanism may then promote resilience through adolescence and into adulthood, where it can continue to be exercised through different creative outlets.

Although anyone may exercise their creativity, artists are a salient group to study because of the visual nature their inner processes may take on, and because of this, may be more conscious of their use of imagination. Artists who find inspiration in more realistic forms of life may be accessing similar psychological benefits of art-making, such as immersion and flow, but may not use their emotive experiences to inform their work. Understanding artists' differences in the creative process gives us greater insight into the sources of inspiration.

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Appendix A
ACE Questionnaire

1. Before your 18th birthday, did a parent or other adult in the household often or very often...
Swear at you, insult you, put you down, or humiliate you?
Or act in a way that made you afraid that you might be physically hurt?
2. Before your 18th birthday, did a parent or other adult in the household often or very often...
Push, grab, slap, or throw something at you?
Or ever hit you so hard that you had marks or were injured?
3. Before your 18th birthday, did an adult or person at least 5 years older than you ever...
Touch or fondle you or have you touch their body in a sexual way?
Or attempt or actually have oral or anal intercourse with you?
4. Before your 18th birthday, did you often or very often feel that...
No one in your family loved you or thought you were important or special?
Or your family didn't look out for each other, feel close to each other, or support each other?
5. Before your 18th birthday, did you often or very often feel that...
You didn't have enough to eat, had to wear dirty clothes, and had no one to protect you?
Or your parents were too drunk or high to take care of you or take you to the doctor if you needed?
6. Before your 18th birthday, was a biological parent ever lost to you through divorce, abandonment, or other reason?
7. Before your 18th birthday, was your mother or stepmother:

Often or very often pushed, grabbed, slapped, or had something thrown at her?

Or sometimes, often, or very often kicked, bitten, hit with a fist, or hit with something hard?

Or ever repeatedly hit over at least a few minutes or threatened with a gun or knife?

8. Before your 18th birthday, did you live with anyone who was a problem drinker or alcoholic or who used street drugs?

9. Before your 18th birthday, was a household member depressed or mentally ill?

Or did a household member attempt suicide?

10. Before your 18th birthday, did a household member go to prison?

11. Before your 18th birthday, did you often or very often feel that you were treated differently based on your race or ethnicity?

12. Before your 18th birthday, did you often or very often feel that...

Your family struggled to pay bills?

Or your family faced eviction or homelessness?

13. Before your 18th birthday, did you or a household member suffer from a long-term illness, or chronic health condition, such as cancer, or cardiovascular disease, which impacted daily life?

14. Before your 18th birthday, were you a target of bullying?

15. Before your 18th birthday, did you often or very often feel that you were treated differently based on your sexual orientation?

Appendix B

CEQ

1. As a child, I thought that the dolls, teddy bears, and stuffed animals that I played with were living creatures.
2. As a child, I strongly believed in the existence of dwarfs, elves, and other fairy tale figures.
3. As a child, I had my own make believe friend or animal.
4. As a child, I could very easily identify with the main character of a story and/or movie.
5. As a child, I sometimes had the feeling that I was someone else (e.g., a princess, an orphan, etc.).
6. As a child, I was encouraged by adults (parents, grandparents, brothers, sisters) to fully indulge myself in my fantasies and daydreams.
7. As a child, I often felt lonely.
8. As a child, I devoted my time to playing a musical instrument, dancing, acting, and/or drawing.
9. I spend more than half the day (daytime) fantasizing or daydreaming.
10. Many of my friends and/or relatives do not know that I have such detailed fantasies.
11. Many of my fantasies have a realistic intensity.
12. Many of my fantasies are often just as lively as a good movie.
13. I often confuse fantasies with real memories.
14. I am never bored because I start fantasizing when things get boring.
15. Sometimes I act as if I am somebody else and I completely identify myself with that role.
16. When I recall my childhood, I have very vivid and lively memories.

17. I can recall many occurrences before the age of three.
18. When I perceive violence on television, I get so into it that I get really upset.
19. When I think of something cold, I actually get cold.
20. When I imagine I have eaten rotten food, I really get nauseous.
21. I often have the feeling that I can predict things that are bound to happen in the future.
22. I often have the experience of thinking of someone and soon afterwards that particular person calls or shows up.
23. I sometimes feel that I have had an out of body experience.
24. When I sing or write something, I sometimes have the feeling that someone or something outside myself directs me.
25. During my life, I have had intense religious experiences which influenced me in a very strong manner.

Appendix C

Openness to Experience Scale

I see myself as someone who...

1. Is original, comes up with new ideas
2. Is curious about many different things
3. Has few artistic interests (reverse coded)
4. Has an active imagination
5. Is inventive
6. Values artistic, aesthetic experiences
7. Prefers work that is routine (reverse coded)
8. Likes to reflect, play with ideas
9. Is sophisticated in art, music, or literature
10. Is ingenious, a deep thinker