

The Impact of the Preferences of High School Students on Art on Their Personality Traits

Shiyu Shen^{1,a,*,†}, Yanran Song^{2,b,†}, Lingfan Ye^{3,c,†}

¹*Rochester High School, Rochester Hills, Detroit, 48307, USA*

²*Dulwich international high school, Suzhou, 215021, China*

³*International Department, the affiliate high school of South China Normal University, Guangzhou, 510630, China*

a. sshen0295@rcs-k12.us, b. yrsong21@outlook.com, c. yelp.daisy2021@gdhfi.com

**corresponding author*

†These authors contributed equally to this work and should be considered co-first authors.

Abstract: Art has long been regarded as a reflection of the human experience, with its diverse forms and styles offering glimpses into the depths of human emotions, thoughts, and beliefs. Thus, it is widely acknowledged that art appreciation is subjective. Starting from our subjective initiative, from a certain perspective, art preferences are related to the inherent personality characteristics of individuals, and even a group of people with similar personality characteristics have the same art preferences, which leads to one intriguing area of investigation revolves around the potential connection between art preference and personality traits. Art preference refers to an individual's subjective liking for specific artistic styles, genres, or themes. It is a personal aspect of aesthetic experience that has long fascinated scholars and art enthusiasts. Meanwhile, personality captures enduring patterns of thoughts, feelings and behavior that shape our interaction with the world.

Keywords: Personality traits and art preference, art appreciation, psychological factors influencing art preference, art consumption and personality, art perception

1. Introduction

Art is a consciously made visual product or experience that demonstrates talent or creativity [1]. It is a necessary part of our daily lives, and many people come into contact with and experience art in different ways. Personality refers to the distinctive way that a person feels, thinks, and behaves [2]. The commonality between the two has sparked many people's interests in the connection between them.

Through term search, there are up to 2,790,000 results of studies containing both art preference and personality in Google Scholar, which shows that from ancient times to the present, many scientists have gradually explored some connection between our art preference and personality. The earliest studies of art preferences date from the 1930s, and many of them explored how much people liked one or more paintings. Research shows that a person's preference for art may be more closely related to their respective personality traits than age, gender or even social class. A 1970 study pointed out that people with different personalities prefer paintings of different levels of complexity: open

and extroverted people prefer complex paintings, while conservative and introverted people choose more traditional and direct paintings.

In many studies, there are still many doubts. Many scientists believe that many studies on art are conducted in developed countries and may not be applicable to developing countries, because their quality of life will greatly affect their daily exposure to art. This also prompted to have a great impulse to explore this research in China, a developing country where our sample is located. Moreover, there is another factor to continue this research: society is changing with each passing day, and the times are constantly progressing. As individuals enter the 2020s, they may have new ideas about art, and artistic preferences will change accordingly. In an era of continuous development in China, people's artistic preferences will collide with their personalities. What kind of spark?

Perhaps, it can tell people why many of them are keen on pursuing Picasso's abstract art, some are crazy about Van Gogh's Impressionism, and some people like Leonardo da Vinci's realist style. Specifically, since the field of art is too broad, the goal of this research will be to switch to art forms expressed through paintings and used seven major painting styles to distinguish different types of paintings for better summary and induction. The following content will focus on the following painting styles: Post-Impressionism, Neoplasticism, Impressionism, Ukiyo-e, Expressionism, Cubism, and Geometric Abstraction. Meanwhile, as high school students, considering the convenience of reaching this population and the similar correlation among us, the sample will be limited the range of the target population and focus on high school students.

This article uses self-report measures, a survey, to reveal potential correlations. There are brief descriptions of these seven art styles.

1.1. Specific Explanations of Each Art Style

Post-Impressionism emerged in the late 19th century as a movement that sought to expand upon Impressionism by exploring new forms of expression and emphasizing subjective interpretations of reality and emotions. This is featured through vibrant and expressive brushwork, heightened use of color, and a departure from realistic representation. The goal was to move beyond pure impression and capture the essence of the subject in a more meaningful way [3].

Neoplasticism, or De Stijl, originated in the early 20th century with the aim of establishing a universal visual language via geometric shapes and primary colors, resulting in a sense of balance, simplicity, and abstraction [4].

Impressionism, a revolutionary movement of the late 19th century, strived to encapsulate fleeting impressions of light, color, and atmosphere. Impressionist works of art are distinguished by their loose brushstrokes and emphasis on capturing the effects of light and visual perception, which sets them apart from post-impressionism [5].

Another art form, Ukiyo-e, thrived during the Edo Period in Japan, often showcasing bold lines, vibrant colors, and intricate details that depict the beauty of nature, elegance of courtesans, and drama of historical events [6].

Expressionism emerged in the early 20th century with a focus on conveying emotional and psychological states through distorted reality and often includes exaggerated forms, vivid colors, and intense brushwork to evoke strong emotions and introspection [7].

Cubism revolutionized art in the early 20th century with its presentation of multiple viewpoints simultaneously and deconstruction of objects into geometric forms. Cubist artworks typically exhibit fragmented and abstracted forms, planes overlapping, and a complex arrangement of shapes [8].

Geometric abstract art, with a focus on non-representational geometric shapes and forms, emerged in the early 20th century. Precise lines, shapes, and a reduction of visual elements to their fundamental forms typically feature in geometric abstract artwork, aiming to evoke a sense of order [9].

Surrealism, an artistic movement in the early 20th century, demonstrates the emphasis on the power of the unconscious mind. Surrealist works of art have a common feature of the abnormal expression of symbols, juxtaposition of strange and unexpected elements that aimed to challenge conventional thinking [10].

Holland School, also known as the Dutch Golden Age, with an emphasis on realistic and detailed depictions of everyday life, portraits, and still life. Artists focused on capturing light, texture, and atmosphere with common techniques such as chiaroscuro; their work served as a reflection of societal values and commercial prosperity [10].

2. Relationship between personality and art preferences

There is a well-established correlation between art preferences and personality. Studies reveal a stronger correlation between a person's interest in art and specific personality qualities than there is between socioeconomic class, age, or gender [11]. Art could evoke emotions and connect with individuals on an emotional level. According to Patricia Goldblatt, “art can induce emotional response, sensitivity and reaction” [12]. Additionally, art frequently involves symbolism and invites interpretation. The way individuals understand and connect with art will differ based on their personality and inner experience. This is especially true given that art symbols can have multiple meanings, interpretations, and metaphorical representations.

The discussion around the relationship between personality and art preferences is justified by the observation that no singular art form can satisfy everyone's needs, as individuals possess unique art preferences that partially correspond to their personality. For instance, those who enjoy engaging in intellectual and abstract thinking may appreciate art that encourages multiple interpretations. Individuals with higher levels of openness to experience typically exhibit a wider range of artistic preferences, as they are more inclined to explore and appreciate diverse artistic styles. Conversely, those with high levels of agreeableness are more likely to gravitate toward art that features general and widely accepted symbols or expressions that align with the prevailing public preferences [13].

3. Measurement Method

By including these diverse art styles in the survey and examining participants' preferences, the aim of the project is to explore the potential connections between art preference and the Big Five personality traits. The survey will present a series of carefully selected images representative of each art style, prompting participants to indicate their preferences and complete a measure assessing their personality traits.

3.1. The Big Five Test

The Big Five Personality traits refers to five dimensions of personality: conscientiousness (impulsive, disorganized vs. disciplined, careful), agreeableness (suspicious, uncooperative, vs. trusting, helpful), neuroticism (calm, confidence vs. Anxious, pessimistic), openness (prefers routine, practical vs. Imaginative, spontaneous), and extraversion (reserved, thoughtful vs. Sociable, fun-loving). These traits remain stable throughout most of a person's lifetime. And the Big Five Personality Test is a series of questions which can reflect a person's Big Five personality after finishing them [14]. As a scientific personality classification method used by many scientists, the scores of each trait for each participant can be used to find the correlation between personalities and art preferences by data analysis.

3.2. The Questionnaire

This essay chooses to use questionnaire, which uses questions or items to collect qualitative and quantitative information about attitudes, experiences or opinions from a lot of respondents, to investigate the relationship [15]. It is designed to divide into two parts. The first part is a picture which indicates one image in different painting styles. The respondents need to choose the image which is the most attractive to them. The second part is a short Big Five Personality Test which respondents need to finish to show their scale of each Big Five personality. The connection between art preference and personality can be shown after collecting enough data.

3.2.1. The Overall Situation and the Design of the Questionnaire

The total number of effective participants filling this questionnaire is 86. The average time to finish this questionnaire is about 10 minutes.

There are seven questions in the questionnaire, which are in the form of four word single choice, one picture single choice, one word multiple choice, and several quoted questions of the Chinese version of the Big Five personality test (people need to copy and paste this link to the browser to do it, and then fill the last five scores into the five blanks respectively). Five of the questions are to understand the artistic background of the participants and the degree of exposure to art. Two other questions were the main objects of analysis: the correlation between the image of an apple in the Muzawa デザイン Research Institute [16] and the score of the Big Five personality test.

The significance of selecting apple images in various artistic styles for display in the Kuwasawa 2019 Heisei 30 Alumni Exhibition lies in the use of only the independent variable of art style. The point that only pictures of apples instead of the real painting is that the overall changes of the styles of apples are limited, which show people directly about each uniqueness of art styles, thus increasing the validity. By avoiding the introduction of extraneous variables such as specific colors or symbols, the study's validity is strengthened.

3.2.2. Methods of integrating questionnaire information

The questionnaire was designed and published through the website "Easy to express". A categorical report is used to integrate and analyze the data. The main forms are bar chart, pie chart, percentage, response number, WPS table for statistics.

3.3. Math and Equations

Standard deviation, variation, mean, and sum of squares for a sample set of the raw data we received from the questionnaire.

Standard deviation is a statistical measure of the variability in a data set. A low standard deviation indicates that the individual data points are generally close to the mean. A high standard deviation indicates that individual data points have greater variability, or greater dispersion from the mean.

Sum of Squares for a sample: $SS = \sum_{i=1}^n (x_i - \bar{x})^2$

Mean for a sample: $\bar{x} = \frac{\sum_{i=1}^n x_i}{n}$

Variance: s^2

Standard Deviation for s sample: $s = \sqrt{\frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n-1}}$

4. Conclusion of The Research

4.1. The Relationship Between Art Preference and Personality

Based on the censoring and adjustments, four valid data sets corresponding to the apple options: A, C, D, and I. The corresponding sample groups are: 8, 16, 10, and 25, and the genres are: Surrealism, Expressionism and Cubism, Cubism, and Impressionism. Since some of the remaining options have only one or two data sets, their sample representativeness is not significant and thus the conclusions cannot be generalized to the population, so there is no any calculation for these sets of options.

The apples of images E, H, and F were not selected by any of them, and they correspond to the genres of expressionism, post-impressionism, and the styles created by the students themselves at the Muzawa デザイン [16] Research Institute, respectively. The explanation that was able to reach is that the image of the apple in image E presented in expressionism is more difficult to accept (the shape is similar to a curved pumpkin with stripes). In Expressionism, the artist usually presents the work in a more distorted pictorial style, which is often difficult to understand. Many subjects found it different from a real apple and could not empathize with it.

Since the questionnaire was related to art, the result reveals that almost everyone who participated and carefully filled out the questionnaire as more or less interested in art, as well as those who were exposed to art on a monthly basis, so there was no aversion or lack of empathy. Thus, the average score for openness in the Big Five personality was high for all, ranging from a low of 79.88 (A, surrealism) to a high of 89.1 (D, cubism). None of the values for the standard deviation of the openness data varied particularly dramatically, and they were all within 10.5. Thus, it appears that the sample of people who actively participated in the questionnaire have an openness, creativity, a very high level of insight, and an imaginative way of thinking about the world.

Neuroticism has the highest mean (77.1) among those who chose Apple D (Cubism), with a standard deviation of 13.42, which is a moderately large value. High scores for Neuroticism represent highly volatile moods. This group of people is prone to anger and depression. Pictures of apples in the form of cubism are angular, with different parts of the apple shown in one view, as if to illuminate the sensitive and suspicious inner world of this group of people who are cautious and try to control all aspects of information.

A quarter of the sample data chose Apple I (surrealism). This group of people has the highest OPENNESS score (84.04), which means that this group of people is willing to try new things and accept different views and phenomena. The apple I itself as a representative of surrealism, the melted apple is different from the form of the apple that people perceive in daily life, and this setting itself has the quality of challenging conventional thinking, which coincides with the high acceptance of unconventional information that people with high openness possess. And the degree of volatility of all five personal characteristics is high (standard deviation over 10 for all of them). This just shows that this style is widely recognized and known by the public, liked and appreciated by many different personalities.

The data for Group C is also interesting. Those who chose Apple C (expressionism and cubism) had the highest mean score (82.875) in agreeableness compared to the other apple types, which represents the fact that this group usually shows more pro-social behavior and trusts others more than others. Apple C, which references Cézanne's style (expressionism and cubism), exhibits a more uniformly warm tone and is more saturated throughout compared to Monet's style (expressionism) (Apple I), and the spatial geometry of Apple C's construction relies on color variations in higher dimensions, which somewhat insinuates that people with high agreeableness in their smoothness and understanding.

4.2. BIAS

Because of the limitations of interpersonal communications, nearly all 86 samples in this research are from high schools and related since they are easy to reach. Thus, the result might not be representative of all the population of high school students.

Acknowledgement

Shiyu Shen, Yanran Song, Lingfan Ye contributed equally to this work and should be considered co-first authors.

References

- [1] "Art." Edited by Jennifer Abella et al., *Encyclopædia Britannica*, Encyclopædia Britannica, inc., 17 Nov. 2023, www.britannica.com/art/visual-arts.
- [2] Myers, David G., and C. Nathan DeWall. *Myers' Psychology for the AP Course*. Bedford, Freeman & Worth High School Publishers, 2018.
- [3] "Post-Impressionism Movement Overview and Analysis". [Internet]. 2023. TheArtStory.org Content compiled and written by The Art Story Contributors Edited and published by The Art Story Contributors Available from: <https://www.theartstory.org/movement/post-impressionism/> First published on 01 Jul 2013. Updated and modified regularly [Accessed 23 Nov 2023]
- [4] "De Stijl Movement Overview and Analysis". [Internet]. 2023. TheArtStory.org Content compiled and written by Justin Wolf Edited and published by The Art Story Contributors Available from: <https://www.theartstory.org/movement/de-stijl/> First published on 22 Nov 2011. Updated and modified regularly [Accessed 23 Nov 2023]
- [5] "Impressionism Movement Overview and Analysis". [Internet]. 2023. TheArtStory.org Content compiled and written by Justin Wolf Edited and revised, with Summary and Accomplishments added by Greg Thomas Plus Page written by Greg Thomas Available from: <https://www.theartstory.org/movement/impressionism/> First published on 01 Feb 2012. Updated and modified regularly [Accessed 23 Nov 2023]
- [6] "Ukiyo-e Japanese Prints Movement Overview and Analysis". [Internet]. 2023. TheArtStory.org Content compiled and written by Rebecca Seiferle Edited and revised, with Summary and Accomplishments added by Kimberly Nichols Available from: <https://www.theartstory.org/movement/ukiyo-e-japanese-woodblock-prints/> First published on 22 Feb 2018. Updated and modified regularly [Accessed 23 Nov 2023]
- [7] "Expressionism Movement Overview and Analysis". [Internet]. 2023. TheArtStory.org Content compiled and written by Justin Wolf Edited and published by The Art Story Contributors Available from: <https://www.theartstory.org/movement/expressionism/> First published on 01 Oct 2012. Updated and modified regularly [Accessed 23 Nov 2023]
- [8] "Cubism Movement Overview and Analysis". [Internet]. 2023. TheArtStory.org Content compiled and written by The Art Story Contributors Edited and published by The Art Story Contributors Available from: <https://www.theartstory.org/movement/cubism/> First published on 21 Jan 2012. Updated and modified regularly [Accessed 23 Nov 2023]
- [9] Livneva, Alina. "Geometric Abstract Art - Virtosuart.Com." *Geometric Abstract Art*, Alina Livneva, 3 Feb. 2020, www.virtosuart.com/blog/geometric-abstract-art.
- [10] "Surrealism Movement Overview and Analysis". [Internet]. 2023. TheArtStory.org Content compiled and written by The Art Story Contributors Edited and published by The Art Story Contributors Available from: <https://www.theartstory.org/movement/surrealism/> First published on 21 Dec 2011. Updated and modified regularly [Accessed 23 Nov 2023]
- [11] Randall, Brianna. "The Art You like Reveals Your Personality Traits." *Discover Magazine*, Discover Magazine, 10 Apr. 2021, www.discovermagazine.com/mind/the-art-you-like-reveals-your-personality-traits.
- [12] Goldblatt, Patricia F. "How John Dewey's theories underpin art and art education." *Education and Culture*, vol. 22, no. 1, 2006, pp. 17–34, <https://doi.org/10.1353/eac.2006.0001>.
- [13] Mueller, Shirley M. "How Collector Personalities Relate to Their Art Preferences." *Psychology Today*, Sussex Publishers, 26 Feb. 2023, www.psychologytoday.com/us/blog/the-mind-of-a-collector/202302/how-collector-personalities-relate-to-their-art-preferences.
- [14] Lim, Annabelle G.Y. "Big Five Personality Traits: The 5-Factor Model of Personality." *Simply Psychology*, 18 Oct. 2023, www.simplypsychology.org/big-five-personality.html. Reviewed by Saul Mcleod, PhD.
- [15] Bhandari, Pritha. "Designing a Questionnaire." *Scribbr*, Pritha Bhandari, 15 July 2021, www.scribbr.com/methodology/questionnaire/. Accessed 22 June 2023.

- [16] *“The craftsman's apple.” graduation exhibition, KUWASAWA DESIGN, sotsuten.japandesign.ne.jp/sotsuten-report/kds-2019-1/. Accessed 4 Nov. 2023.*