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Art Works of Youth Aesthetic Psychology Education Based on the Integration of Environmental Perception and Sensing

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Abstract: - Youth aesthetic psychology is mainly a branch of psychology that studies the psychological mechanism of people in painting, sculpture, photography, architecture and other art activities, and the psychological activities and laws of people in the creation or appreciation of these art works. Psychologists in the Soviet Union believed that the most basic problem of Youth aesthetic psychology was to study the psychological mechanism of the reaction to beauty when feeling art works. Therefore, we can also regard the appreciation of art works as an aesthetic activity. We can appreciate art works by studying the application and role of Youth aesthetic psychology, so that art appreciators can master aesthetic methods and improve aesthetic standards to a certain extent, and also can deeply resonate with the creator in spirit. This paper carries out the research of Youth aesthetic psychology art works with the perspective of environmental perception and sensor fusion, and combined with experiments to illustrate the effectiveness and superiority of this method.

Keywords: appreciation of art works; Youth aesthetic psychology; Application and function research; Environmental awareness; Sensor fusion

1 INTRODUCTION

Under the background of advanced science and technology, more and more people like to use rational thinking and strict logic to create and invent something, lacking some perceptual knowledge and perception, leaving life in a dull and fun free state. The vast majority of people appreciate art works simply by taking a cursory view of them. They do not know the methods and skills of art works creation, nor do they understand the deep meaning behind art works, just to make others think they are a connotative person [1-2]. Therefore, people who are busy with formula reasoning should raise their heads to appreciate art works from the perspective of Youth aesthetic psychology and understand the beauty contained therein.

To appreciate a work of art, one must first understand the beauty of its form [3-4]. Formal beauty is an external expression of beauty. In the appreciation of art works, formal beauty is in the combination of regularity and purposefulness of color, line, shape, light and shade, space and other art languages [5-6]. For example, the Forbidden

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City in Beijing has obvious symmetry, and the effect of this symmetry is stability and modesty, which also meets the requirements of imperial architecture in feudal China. There is also content beauty in art works, which is expressed through form beauty, reflecting people's inner world, characteristics of the times, customs, etc. [7-8].

Appreciation of art works with Youth aesthetic psychology can establish the relationship between works and creators' emotions [9-10]. The creation of art works can not be separated from the emotional input of the author, and the emotion will be revealed through the works [11-12]. The painting Starry Night has two line styles: broken short lines and curved long lines. The whole painting is blue-green. The creator uses these continuous, moving and imaginative lines and colors to form a starry night picture, which also shows the author's restless, dull inner world and psychedelic image world. The application of Youth aesthetic psychology can establish the connection between the works and the feelings of the audience [13-14]. In addition, the application of Youth aesthetic psychology can also establish the relationship between the creator's emotion and the viewer's emotion, that is, the creator and the viewer have emotional resonance through art works [15-16]. For example, as far as the creator of Sunflower is concerned, he believes that the sunflower is the light of the sun, a symbol of light and heat. Through Sunflower, he conveys his enthusiastic praise and pursuit of passion and vitality. When the viewer is looking at the "Sunflowers", the sunflowers in different shapes give the viewer a strong visual impact and a sense of spiritual shock, making people feel that life is full of hope, the sky is so blue, and the sun is so bright.

Emotional disclosure means that feelings flow to the surface [21-22]. The emotional leakage here refers specifically to the art creators who express their own feelings through their own works. The picture of Wheat Field with Crows tries to show that the dark blue sky is pressing on the golden wheat field, and the wheat field seems to be out of breath.

Any art work has a certain modernity, which is created by artists according to their own life or the background of the times, rather than by imagination. Therefore, art works can, to a large extent, reflect the social life and social background in which art creators live. When appreciating the sculpture "The Thinker", the viewer can be connected with the social background of the creator's life at that time. At that time, France was under Napoleon's rule. Due to the rapid development of social productivity and science and technology, monopoly capital was also rising rapidly, which widened the contradiction between labor and capital was deepening. Therefore, revolutionary struggles arose one after another. The thinker, created by the creator, is therefore in the era of the French working class's divergence and resistance. By creating The Thinker, the painter expressed his sympathy for the poor of his age and his eulogy and praise for the proletariat.

2 PROPOSED METHODS

3.1 Multi sensory environment perception influence mechanism

Neurophysiology is a branch of physiology, focusing on the functional mechanism of the nervous system, which can explain the regulatory role of the nervous system on the body in the process of interaction between people and art appreciation from a micro level, and reveal the physiological mechanism of human multi sensory environment perception.

(1) The nervous system its main function is to receive incoming information from all parts of the body, transmit, store and process it, and regulate body behavior, as well as various psychological and thinking activities. The

environmental stimuli felt by the trunk and limbs are transmitted to the brain through the spinal cord to generate sensation. These specific centers account for 1/5 of the area of the large cerebral cortex, and the rest are joint cortex. For a long time, in the field of neurophysiology, it has been believed that different senses perceive environmental stimuli to process information in their corresponding sensory cortex respectively, and then conduct integrated processing of information in the combined cortex, resulting in complex feelings and consciousness. See Figure 2 for functional divisions of the cerebral cortex. Recent researches on multisensor integration in the field of neurophysiology show that the cerebral sensory cortex (mainly including auditory, visual and somatosensory cortex) not only processes but also responds to other environmental stimuli, and participates in the integration of multisensory information.

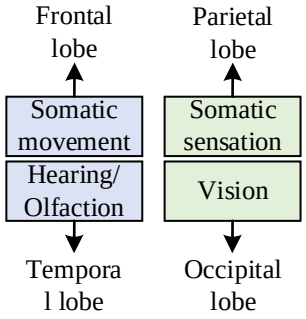


Figure 2 Functional division of cerebral cortex

According to the different distribution positions, the peripheral nervous system can be divided into the somatic nervous system and the internal nervous system. The somatic nervous system is divided into transmission and transmission nerves. Penetrating nerves can transmit information from sensory organs to the brain or spinal cord. The central nervous system processes the input information to form feelings and sends commands to the body to generate necessary movement. Invasive nerves of the visceral nervous system are distributed in the viscera, cardiovascular system and glandular like body, and transmit visceral sensation.

(2) Auditory environment perception figure 3 is the schematic diagram of auditory system pathway, including peripheral auditory system, auditory nerve system. Noise will affect cognitive and memory abilities, which is related to the function of the temporal lobe. The temporal lobe mainly deals with high-level neural activities such as memory and association. Noise will affect alertness, viewing environment perception and motor performance, which is related to the activities of the central nervous system, acts on the pituitary adrenal neuroendocrine system, and promotes the secretion of corticosteroids related to environmental stress; It acts on the sympathetic nervous system, constricts the blood vessels on the skin surface, enhances blood circulation, and improves the heat exchange ability with the environment; It acts on the sympathetic adrenal system and releases catecholamine, epinephrine and norepinephrine. Different activities of the central nervous system will lead to different physiological and psychological reactions, most of which are not controlled by individuals. There are great differences in sound sensitivity among individuals, which are mainly caused by genetic factors, life experiences and other environmental stimuli.

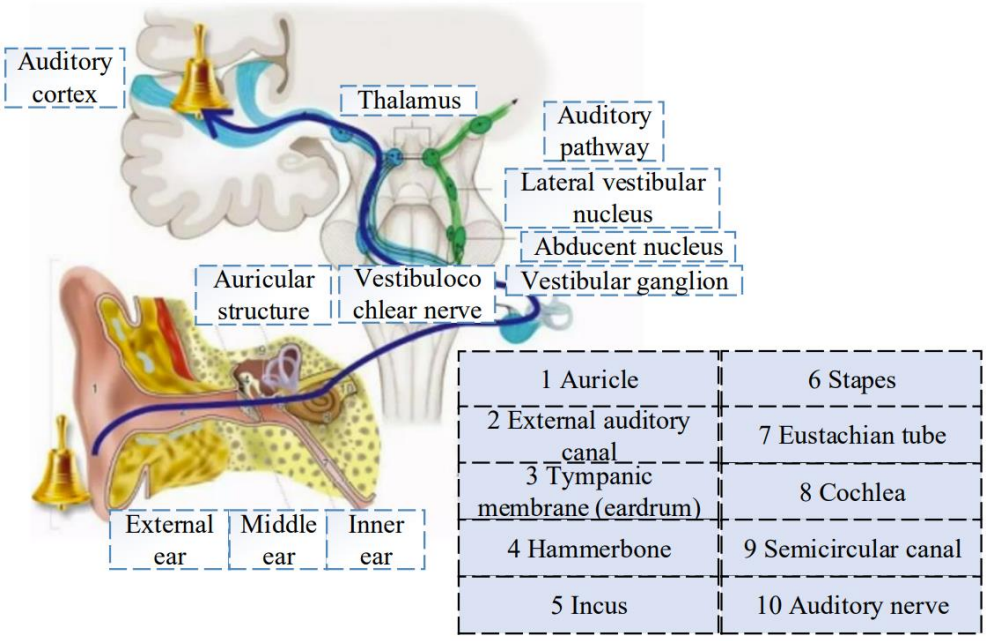


Figure 3 Schematic Diagram of Auditory System Pathway

(3) Tactile perception is a kind of body perception. Through tactile perception, you can obtain a lot of external environmental information, such as the height of the air temperature, the size of the sense of blowing, and other aesthetic sensory information, as well as physical tactile information, such as the size of the object, the smoothness of the surface, cold and hot, soft and hard. Different tactile perception will also lead to different tactile feelings, such as comfortable environmental temperature, gentle touch and pleasant contact. Therefore, touch is also an important channel to obtain emotional information. There are three kinds of nerve fibers (Aβ, Aδ, and C fibers) that transmit tactile information in the human body. The low threshold mechanical receptors (LTMRs) located on them are the basis of the afferent nervous system of tactile information. LTMRs distributed on C nerve fibers have emotion related functions. Research shows that C nerve fibers not only transmit information related to aesthetic perception, but also respond to continuous and gentle stimulation of skin, which is called "caress receptor". Different types of receptors sense specific types of tactile environmental stimuli, and the action potential is transmitted to the thalamus via a direct pathway and two indirect upward pathways via the nervous system, and then to the central nervous system via the thalamus. The somatosensory cortex of the brain performs primary processing on tactile information, and then different types of tactile information are further processed in different brain regions of the high-level combined cortex. In addition to different types of tactile stimuli, emotional touch and neutral touch involve activation of different brain regions. All kinds of sensory elements and individual difference factors (such as past experience, expectation, etc.) in the joint area of the cerebral cortex are integrated to achieve real tactile perception. This is the physiological mechanism by which tactile perception affects cognition and emotion.

2.2 Sensing information fusion technology

To analyze and evaluate the impact of environment on Youth aesthetic psychology art works, multiple environmental parameter information is often collected through different kinds of sensors for analysis and calculation. The function of the sensor is equivalent to the five senses of a person, while the sensor information fusion technology is equivalent to the brain of a person. Through the integration, processing and analysis of the information collected by multiple

sensors, the overall cognition of the environment is obtained, which avoids the limitations of a single sensory perception of the environment, and is conducive to the comprehensive evaluation and decision-making of the environment.

Sensor information integration algorithm is the core of sensor information integration, which means that the data collected by multiple sensors are processed in different degrees based on different mathematical processing methods. In the field of sensor information integration, neural algorithms are widely used, and are classified and adjusted according to their powerful characteristics. Artificial neural network (ANN) is an information processing system that simulates the structure and function of the brain and is connected with a large number of neurons. When solving practical problems, it has the ability of self-organization, adaptability and self-study, and is suitable for multi factor, non-linear and fuzzy information processing. The structure of neurons is shown in Figure 4. The relationship between neuron input and output is as follows:

$$y = f\left(\sum_{i=1}^{n} x_i w_i - \theta\right) \quad (1)$$

Where x_i is the input of neurons; Y is the output of neurons; w_i is the connection weight between neurons; θ is the threshold of neurons; $f(x)$ is the activation function, which is used to learn the complex and nonlinear relationship between input and output, and increase the nonlinear expression ability of the model.

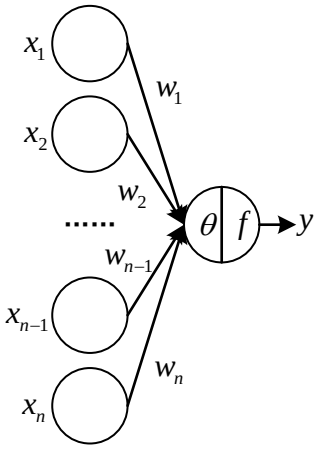


Figure 4 Neuron model

The neuron model is a multi input single output model, whose output is the result of the interaction of multiple input parameters, and can respond to the complex nonlinear relationship between inputs and outputs. The neural network model is formed by connecting the neurons according to a certain mode. The hidden layer can be one or more layers, and the output layer can be one parameter or multiple parameters. In actual modeling, it is not necessary to know the relationship between input and output variables, but only need to give the characteristics of neurons, the topological structure of neural network and the learning and training rules, use the known input and output data as the learning samples to train the model, and obtain the connection coefficients between neurons, that is, weights and thresholds, so that they can accurately reflect the relationship between input and output.

Using the depth mixed convolution neural network model, the process of multi-sensor information fusion is divided into preprocessing, parameter solving, model training and simplified fusion.

2.2.1 Multi sensor information pre-processing

The network model structure is set as required, and the wavelet noise reduction strategy is used to process the collected information of multi-sensor. The specific process is described as follows:

1) The continuous signal ϕ(t) of multi-sensor information is processed by discrete wavelet transform of the following formula to obtain a new continuous signal ϕ′(t) in equation (2):

$$\phi^{'}(t)=\sum_{a,b\in Z}^{n} C_{\psi}(a,b)\psi_{a,b}(t) \quad (2)$$

Where, a represents scale factor and b represents translation factor; $\psi_{a,b}(t)$ represents the wavelet basis function of two factors.

2) According to the wavelet basis functions, the wavelet expansion coefficients $\left\{c^{0},d^{1},d^{2},...,d^{J-1}\right\}$ of different levels are derived, and the multi-resolution form of the new continuous signal (t) is defined by the following equation:

$$\phi_{J}^{'}(t)=\phi_{0}^{'}(t)+d_{0}(t)+\cdots+d_{J-1}(t) \quad (3)$$

3) Select the corresponding threshold and its criteria, implement thresholding processing on wavelet coefficient $\left\{c^{0},d^{0},d^{1},...,d^{J-1}\right\}$, obtain new wavelet coefficient $\left\{\overset{\sim 0}{c},\overset{\sim 0}{d},\overset{\sim 1}{d},...,\overset{\sim J-1}{d}\right\}$, select the wavelet coefficient greater than the preset threshold, conduct initialization processing, and reconstruct the data signal of multi-sensor with other coefficients.

4) Based on the new wavelet coefficient $\left\{\overset{\sim 0}{c},\overset{\sim 0}{d},\overset{\sim 1}{d},...,\overset{\sim J-1}{d}\right\}$, the inverse discrete wavelet transform signal is reconstructed using the wavelet reconstruction algorithm to complete the multi-sensor information preprocessing.

2.2.2 Parameter solution of depth mixed convolution neural network model

Since the input information value of any input layer is the continuous product of the neurons of the upper layer, it will increase the difficulty in deriving the learning law of membership function parameters. Therefore, taking the network learning law of two input units as an example, an algorithm is designed to facilitate the generalization of the learning law of membership function parameters of the multi-sensor input layer. The following equations are known to hold:

$$\begin{cases} \dfrac{\partial E}{\partial \sigma_{ki}} = \dfrac{\partial E}{\partial y} * \dfrac{\partial y}{\partial \sigma_{ki}^{(2)}(t)} * \dfrac{\partial \sigma_{ki}^{(2)}}{\partial \sigma_{ki}} \\ \dfrac{\partial E}{\partial c_{ki}} = \dfrac{\partial E}{\partial y} * \dfrac{\partial y}{\partial o_{ki}^{(2)}(t)} * \dfrac{\partial o_{ki}^{(2)}}{\partial c_{ki}} \end{cases} \quad (4)$$

Where, σ_{ki} represents the membership function, $\sigma_{ki}^{(2)}, o_{ki}^{(2)}$ represents the value limit of the membership function, and c_{ki} represents a random variable.

It satisfies the equation conditions in equation (5):

$$\frac{\partial y}{\partial o_{1i}^{(2)}} = \frac{\sum_{i}^{n} w_{ij} o_{2j}^{(2)} - y \sum_{j}^{n} o_{2j}^{(2)}}{\sum_{i}^{n} \sum_{j}^{n} o_{ij}^{(3)}} \quad (5)$$

In the above formula, $o_{1i}^{(2)}$ represents the standard training sample in the multi-sensor input layer, $o_{2j}^{(2)}$ represents the multi parameter collected by the multi-sensor, and $o_{ij}^{(3)}$ represents the output result of the multi-sensor information.

The following expression can be derived:

$$\frac{\partial y}{\partial o_{2i}^{(2)}} = \frac{\sum_{ij}^{n} \left(w_{ij} - y \right) o_{1j}^{(2)}}{\sum_{i}^{n} \sum_{j}^{n} o_{ij}^{(3)}} \quad (6)$$

If the membership function of the depth mixed convolution neural network is a Gaussian function, the following equations can be obtained according to the above:

$$\begin{cases} \dfrac{\partial o_{ki}^{(2)}}{\partial a_{ki}} = \dfrac{\partial \mu_{ki}}{\partial a_{ki}} = \dfrac{2}{\sigma_{ki}} * \left(\dfrac{x_k - c_{ki}}{\sigma_{ki}} \right)^2 * o_{ki}^{(2)^2} \\ \dfrac{\partial o_{ki}^{(2)}}{\partial c_{ki}} = \dfrac{2}{\sigma_{ki}} * \left(x_k - c_{ki} \right) * o_{ki}^{(2)^2} \end{cases} \quad (7)$$

To sum up, the network learning law equations of the input unit are as follows:

$$\begin{cases} \int \dfrac{\partial E}{\partial \sigma_{ki}} = \dfrac{\partial E}{\partial y} * \dfrac{\partial y}{\partial o_{ki}^{(2)}} * \dfrac{\partial o_{ki}^{(2)^2}}{\partial \sigma_{ki}} \\ = -\left(y^{'} - y\right)\lambda_{ki} * \dfrac{2}{\sigma_{ki}}\left(\dfrac{x_k - c_{ki}}{\sigma_{ki}}\right)^2 * o_{ki}^{(2)^2} \\ \dfrac{\partial E}{\partial c_{ki}} = \dfrac{\partial E}{\partial y} * \dfrac{\partial y}{\partial o_{ki}^{(2)}} * \dfrac{\partial o_{ki}^{(2)}}{\partial c_{ki}} \\ = -\left(y^{'} - y\right)\lambda_{ki} * \dfrac{2}{\sigma_{ki}}\left(x_k - c_{ki}\right) * o_{ki}^{(2)^2} \end{cases} \quad (8)$$

3 ART ABILITY BASED ON YOUTH AESTHETIC PSYCHOLOGY

It is more universal to measure the ability of fine arts from the perspective of Youth aesthetic psychology. Because although for painters, Youth aesthetic psychology and artistic creation skills are essential, but relatively speaking, Youth aesthetic psychology is a more basic ability. At present, there are two kinds of tests to measure art ability from the perspective of Youth aesthetic psychology: one is to let the testee judge and rank the preference of the presented works or simple figures, or let them choose the most beautiful ones according to the degree of beauty; The second type of test requires individuals to select the best from the art works or simple figures provided, and further select the reasons for judgment or evaluation.

The study of art ability that likes judging forms requires the subjects to choose which of the test materials provided will make them feel more beautiful and pleasant. Among them, the more famous ones are art appreciation test, art judgment test, art judgment test, figure appreciation test, visual aesthetic sensitivity test, etc. The first three tests selected art works as test materials (see Figure 5), and the last two tests selected simple figures as test materials (see Figure 6 and Figure 7). The art appreciation test is the earliest known test to measure individual art ability in a selective form. This test requires college students and adult groups to choose which is better from 78 pairs of A and B works (one is a well-known painter's work, and the other is an ordinary painting). The art judgment test requires the subjects to choose the one that they prefer and has more aesthetic feeling from 125 groups of art works and their modified copies. This test is applicable to the groups of junior middle school and above. In this test, 25 items at the bottom of the ranking were deleted from 125 groups of art works, and 100 groups of art works were retained to form a new test; At the same time, the scores of the top 25 items in the discrimination ranking were adjusted from 1 to 2 to improve the validity of the test, which is applicable to the group of junior middle school and above.

Figure 5 Example of Art Judgment Test

Figure 6 Example of figure appreciation test

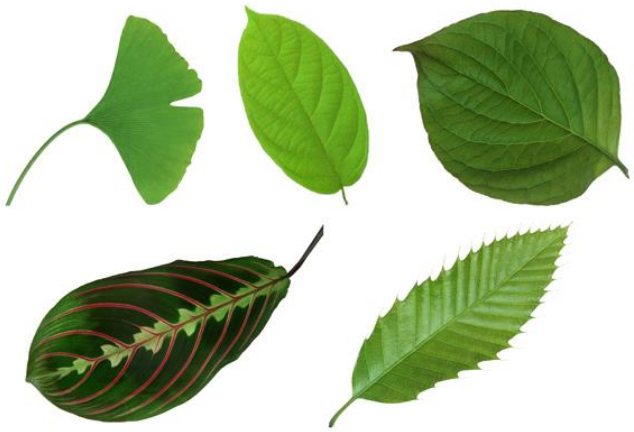


Figure 7 Example of Visual Aesthetic Sensitivity Test

The figure appreciation test requires the subjects to choose which is better from 90 groups of simple figures. This test is applicable to high school and above groups. The visual aesthetic sensitivity test requires selecting which is more aesthetic from 50 pairs of simple figures with similar design. This test is applicable to the group over 10 years old. Similar forms of art tendency ability tests include aesthetic preference test, art preference test, revised visual aesthetic sensitivity test, etc. This kind of test measures the individual's Youth aesthetic psychology by the deviation degree between the subject and the expert.

The art ability research in the form of sorting requires the subjects to sort the art work materials or simple graphics provided by each question according to their preference or beauty. Among them, the more famous are the aesthetic test, the art test, the aesthetic perception test, and the art judgment test. The first two tests use simple figures as test materials (see Figure 8), and the last two tests use works of art as test materials (see Figure 9). The aesthetic test is the first publicly published test to measure Youth aesthetic psychology in the form of sorting. It has four questions in total, requiring college students and adult groups to sort 4-5 similar figures (such as rectangles and crossing lines) in each question according to their own preferences. The art test and aesthetic perception test all require the testee to rank the test materials according to the degree of preference or beauty, then compare the test ranking of the testee with the ranking standard of experts, and use the degree of deviation from the standard to express the Youth aesthetic psychology level of the testee. The art test uses bowls, spoons and other daily necessities as the test materials. The subjects at junior high school and above are required to rank 72 materials containing 4 similar pictures each. The aesthetic perception test uses classic works of art as the test material, and requires the subjects to rank 50 works and

3 copies with different modifications.

Rectangles: Seeies II

Figure 8 Example of aesthetic test

Figure 9 Example of aesthetic perception test

4 EXPERIMENT

4.1 Analysis of the physiological and psychological impact of multi sensory environmental perception on people

4.1.1 Physiological effects

(1) Skin temperature table 1 is the correlation analysis result of skin temperature and aesthetic feeling voting. Hand skin temperature and average skin temperature based on forehead, cheek and back of hand have significant correlation with TSV and TAV, while forehead and cheek skin temperature have little correlation with TSV and TAV.

Table 1 Correlation Analysis of Subjective Voting of Skin Temperature and Aesthetic environment

Viewing condition	Forehead	Cheek	Hand	Average skin temperature
TSV	-0.008	0.086	0.436**	0.356**
TAV	-0.111	-0.075	-0.271**	-0.253**

(2) Heart rate

Figure 10 shows the impact of environmental factors on heart rate, and Table 2 shows the results of analysis of variance of corresponding repeated measurements. Under the combination of sound type and sound intensity, the

main effect of sound frequency (p=0.057) was significant, while the main effect of sound pressure level (p=0.466) and their interaction (p=0.212) had no significant effect on heart rate. Compared with the low-frequency and light music environment, the high-frequency conversation noise environment accelerated the heart rate of the subjects by an average of 2.3 bpm. Under the combined Viewing condition of sound type and tactile type, the main effect of sound frequency on heart rate (p=0.001) was significant, while the main effect of whether to sit and watch art works (p=0.974) and their interaction effect (p=0.503) were not significant. Compared with the low-frequency and light music sound environment, the high-frequency conversation noise environment accelerated the heart rate of the subjects by 3.95 bpm on average. The sympathetic nerve of the human body is responsible for the stress response to external stimuli, which is manifested by the sympathetic nerve excitation, controlling the temperature regulation system, cardiovascular system and other regulatory actions, resulting in a faster heart rate. Under the environment of high frequency noise, the heart rate increases, indicating that the conversation sound is an environmental stimulus that is easy to cause human stress response.

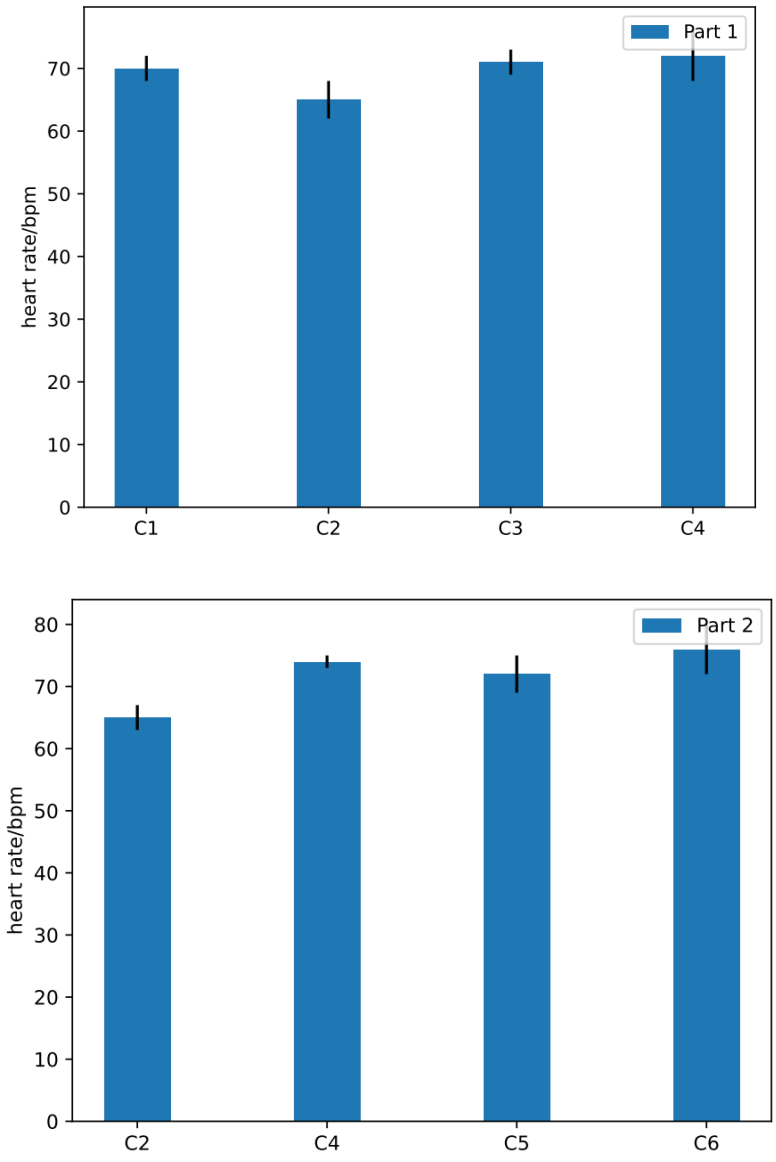


Figure 10 Effect of environmental prisoners on heart rate

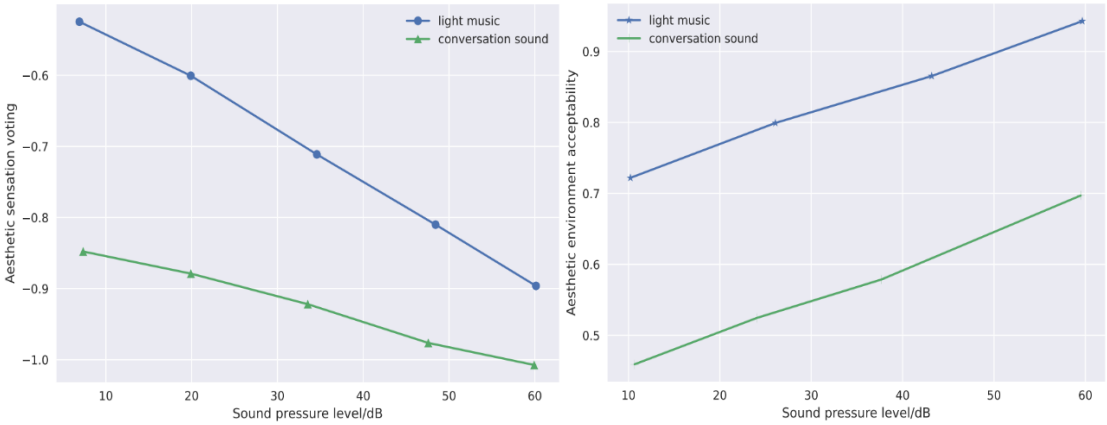
Table 2 Results of Environmental Factors on Heart Rate

Viewing condition	1	2	3	4	5	6	Frequency and sound pressure level			Sound type, tactile		
							F	I	F*I	F	I	F*I
Viewing condition	71.7	69.6	73.1	73.6	71.9	76	0.057	0.466	0.212	0.001	0.974	0.503

4.1.2 Psychological impact

(1) Figure 11 shows the mean distribution of subjects' subjective TSV and TAV under each Viewing condition of each experiment. The experimental results of Viewing conditions 1, 2, 3 and 4 are used to analyze the influence of sound frequency, sound pressure level and their interaction. The experimental results of Viewing conditions 2, 4, 5 and 6 are used to analyze the influence of sound frequency, tactile soft and hard perception and their interaction. Table 3 shows the results of two factor repeated measurements of corresponding mean difference. As for TSV, the results of repeated measurement are in Table 3. The results show that whether sitting viewing art works has a significant main effect (p=0.08), the main effect of sound frequency (p=0.31) has not reached a significant effect, and the interaction effect (p=0.06) has a significant effect, Explain whether the effect of sitting to watch art works on TSV is affected by the auditory environment: in light music environment, sitting to watch art works increases TSV by 0.3; In the noisy environment of conversation, sitting and watching art works increased TSV by 0.8.

Under different sound types and sound intensity combination conditions, TAV values are slightly different. Compared with the auditory environment of light music, the auditory environment of conversation noise makes it more difficult for subjects to accept the current viewing environment. Under different sound types and tactile type combination conditions, TAV is different, and subjects are more likely to accept the current viewing environment when sitting to watch the tactile environment. Explain whether the effect of sitting to watch art works on TSV is affected by sound frequency. In the tactile environment of sitting to watch art works, the auditory environment of light music or conversation noise has no effect on TSV. In the tactile environment of sitting to watch, compared with light music, the auditory environment of conversation noise makes it more difficult for subjects to accept the current viewing environment. At the same time, it can be found from the experimental results that the environmental conditions have a deviation in the impact of TSV and TAV. The sound type has no significant impact on TSV, but has a significant impact on TAV.



(a) Aesthetic sensation voting (b) Aesthetic environment acceptability

Figure 11 Impact of auditory and tactile perception environment on subjective assessment of aesthetic environment

Table 3 Results of repeated measurement subjective evaluation of aesthetic environment by auditory and tactile environmental perception

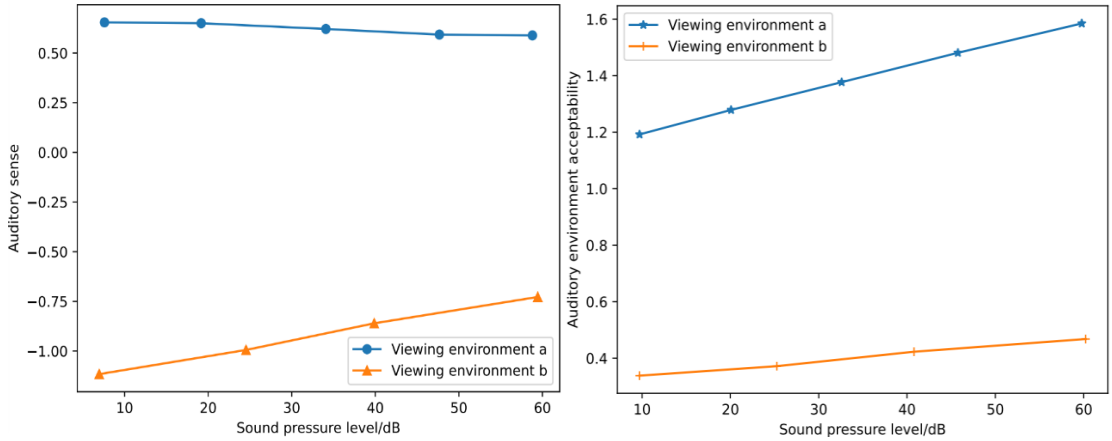
Viewing condition	1	2	3	4	5	6	Frequency and sound pressure level interaction			Auditory and tactile interaction		
							F	I	F*I	F	I	F*I
TSV	-0.6	-0.8	-0.8	-0.9	-0.5	-0.3	0.31	0.27	0.44	0.35	0.08	0.06
TAV	0.6	0.8	0.6	0.8	0.4	0.6	0.07	0.22	1.2	0.43	0.09	0.12

The influence of standing and sitting seats on aesthetic perception and viewing environment acceptability is mainly reflected in three aspects. First, sitting and watching is equivalent to increasing the contact aesthetic resistance of the subject. According to the calculation formula of PMV, the increase of additional aesthetic resistance increases the calculated value of PMV. Under experimental conditions, it is shown that TSV increases. Second, it can be explained from the perspective of neurophysiology. The C nerve fibers that transmit tactile information can not only transmit temperature sensory information, but also respond to gentle stimuli, that is, temperature and soft tactile perception have the same physiological mechanism.

(2) Auditory Sensory Voting and Acceptance of Auditory Environment Figure 12 shows the subjective voting results of the subjects' auditory perception and acceptability of the auditory environment under various experimental conditions. The effects of sound frequency, sound pressure level and their interaction are analyzed based on the experimental results under Viewing conditions 1, 2, 3 and 4, and the effects of sound frequency, tactile soft and hard perception and their interaction are analyzed based on the experimental results under Viewing conditions 2, 4, 5 and 6. Table 4 shows the results of repeated measurement corresponding mean difference.

The results of repeated measurement show that: sound frequency (p=0) and sound intensity (p=0.03) have a significant impact on AAV, but their interaction effect (p=0.31) has no significant impact. At the same sound pressure

level, the subjects can accept the sound environment of low-frequency light music, and more difficult to accept the sound environment of high-frequency conversation noise; For the same sound type, the higher the sound pressure level is, the more difficult the subject is to accept the current sound environment. The results of repeated measurement under different sound type and tactile type combinations showed that the main effect of sound frequency (p=0.0) and tactile type (p=0.06) on AAV was significant, and the interaction effect between them (p=1) was not significant. Under the same sound environment, subjects sitting to watch art works are more able to accept the current auditory environment; Under the same tactile environment, the subjects felt that talking noise was more difficult to accept than soft music. At the same time, it can be found from the experimental results that the environmental conditions have a deviation in the impact of ASV and AAV. The sound type has no significant impact on ASV, but has a significant impact on AAV.



(a) Auditory sense (b) Auditory environment acceptability

Figure 12 Impact of auditory and tactile environmental perception on subjective voting of auditory environment

5 CONCLUSION

Art appreciation is a complex activity involving psychology, aesthetics, art creation, art history, age, life experience, cultural background and many other aspects that affect the subject of art appreciation. Art appreciation is a part of art education. When appreciating works of art, it is not just for the appreciator to understand the works, but to learn how to use Youth aesthetic psychology in the process of appreciation, and understand what role it will play in appreciating works of art, so as to improve the art appreciation level of the appreciator.

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