

Research on the Impact of Art Cognition on Emotion Regulation

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Abstract: The purpose of this study is to explore the intrinsic mechanism and effect of art cognition on emotion regulation, and to clarify the differential impact of different dimensions of art cognition on various emotion regulation strategies. A mixed research method combining questionnaire survey and experimental research was adopted. First, 520 college students and social adults with different art contact experiences were selected as the research objects, and scales such as Art Cognition Scale and Emotion Regulation Questionnaire were used to collect cross-sectional data to explore the correlation between art cognition and emotion regulation. On this basis, 80 subjects were selected for a 4-week art cognition intervention experiment, and the changes of their emotion regulation ability were tracked and measured. The results show that art cognition has a significant positive predictive effect on emotion regulation; among the dimensions of art cognition, aesthetic judgment and artistic empathy have the strongest correlation with cognitive reappraisal, a positive emotion regulation strategy; the art cognition intervention can significantly improve the individual's emotion regulation level, especially for individuals with low initial emotion regulation ability. This study enriches the theoretical system of the relationship between art cognition and emotion regulation, and provides practical reference for the development of emotion regulation intervention programs based on art cognition.

Keywords: Art Cognition; Emotion Regulation; Mixed Research Method; Cognitive Reappraisal; Artistic Empathy

1. Introduction

1.1 Research Background and Significance

With the acceleration of social rhythm and the intensification of competition pressure, emotional distress has become a prevalent social

issue affecting individual mental health and social adaptation. The demand for effective emotion regulation strategies has been increasingly prominent in both clinical practice and daily life. Art, as a universal form of human expression and experience, has long been recognized for its potential in alleviating emotional disorders and promoting psychological well-being. However, existing research has mostly focused on the emotional effects of art appreciation experience, while the role of art cognition—a core component involving the perception, understanding and evaluation of artistic works—in emotion regulation remains under-explored.

Art cognition integrates multiple cognitive processes such as aesthetic perception, logical analysis and emotional resonance, which may affect the selection and implementation of emotion regulation strategies through shaping individual cognitive frameworks. Exploring the impact of art cognition on emotion regulation not only helps to reveal the intrinsic cognitive mechanism of art's emotional function, but also provides a new theoretical perspective for the development of targeted emotion regulation intervention programs. In practical terms, the research findings can be applied to art education, psychological counseling, and public mental health promotion, contributing to improving the overall level of social emotional management and promoting mental health equity.

1.2 Review of Domestic and Foreign Research Status

Foreign research on the relationship between art and emotion regulation has a relatively long history. Early studies have confirmed that participation in artistic activities (such as painting, music appreciation) can effectively reduce negative emotions such as anxiety and depression. Recent studies have begun to focus on the cognitive factors in the process of art-emotion interaction. Some scholars have proposed that the interpretation ability of artistic works is closely related to the individual's emotional regulation efficiency, but most of

these studies are limited to single art forms and lack systematic exploration of the multi-dimensional structure of art cognition.

Domestic research in this field has developed rapidly in recent years, with most studies focusing on the application of art therapy in emotional intervention. However, there are obvious deficiencies in the theoretical exploration of art cognition. On the one hand, the definition and dimension division of art cognition in domestic studies are not unified, leading to inconsistent research conclusions. On the other hand, the research on the mechanism of art cognition affecting emotion regulation is relatively superficial, and there is a lack of empirical studies combining quantitative and qualitative methods. In addition, both domestic and foreign studies have not fully clarified the differential impact of different dimensions of art cognition on various emotion regulation strategies, and the boundary conditions of the regulatory effect need to be further verified.

1.3 Research Objectives and Core Issues

The overall objective of this study is to systematically explore the impact of art cognition on emotion regulation and its intrinsic mechanism. Based on this, the core research issues are proposed as follows: First, what is the correlation between the overall level of art cognition and different emotion regulation strategies? Second, do different dimensions of art cognition (such as aesthetic judgment, artistic empathy, aesthetic perception) have differential impacts on emotion regulation? Third, can targeted art cognition intervention effectively improve individual emotion regulation ability? Fourth, what are the boundary conditions for the impact of art cognition on emotion regulation?

2. Relevant Theoretical Basis

2.1 Connotation, Dimensions and Measurement of Art Cognition

Art cognition refers to the series of cognitive processes in which individuals perceive, understand, evaluate and reflect on artistic works. It is a multi-dimensional psychological structure integrating perception, thinking and emotion. Based on the existing theoretical research and combined with the characteristics of art appreciation activities, this study divides art cognition into three core dimensions: aesthetic perception, aesthetic judgment and artistic

empathy. Aesthetic perception refers to the individual's ability to perceive and identify the formal elements of artistic works (such as color, composition, melody); aesthetic judgment refers to the ability to evaluate the artistic value and significance of works based on certain aesthetic standards; artistic empathy refers to the ability to resonate emotionally with the themes, emotions and artistic conceptions expressed in artistic works.

In terms of measurement, this study selects mature scales recognized in academic circles. The Art Cognition Scale adopted in the study is revised on the basis of the Aesthetic Cognition Scale, which includes 18 items, covering three dimensions of aesthetic perception, aesthetic judgment and artistic empathy. The scale uses a 5-point Likert scoring method, with higher scores indicating higher levels of art cognition. Previous studies have verified that the scale has good reliability and validity, with a Cronbach's α coefficient of 0.87 for the total scale and 0.81-0.85 for each dimension.

2.2 Theoretical Models and Strategy Classification of Emotion Regulation

The process model of emotion regulation proposed by Gross is the core theoretical basis of this study. The model holds that emotion regulation is a dynamic process that occurs in different stages of emotional generation, including situation selection, situation modification, attentional deployment, cognitive change and response modulation. Among them, cognitive change (cognitive reappraisal) and response modulation (expressive suppression) are the two most commonly used emotion regulation strategies in daily life.

Cognitive reappraisal refers to changing the individual's emotional response by adjusting the understanding and evaluation of emotional events; expressive suppression refers to inhibiting the external expression of emotions through willpower. In addition, according to the functional characteristics of emotion regulation, emotion regulation strategies can also be divided into positive regulation strategies (such as cognitive reappraisal, emotional venting) and negative regulation strategies (such as avoidance, suppression). This study focuses on the impact of art cognition on positive emotion regulation strategies represented by cognitive reappraisal and negative emotion regulation strategies represented by expressive suppression.

2.3 Theoretical Basis for the Correlation between Art Cognition and Emotion Regulation

The cognitive evaluation theory provides an important theoretical basis for explaining the correlation between art cognition and emotion regulation. The theory holds that emotional response is determined by the individual's cognitive evaluation of events. Art cognition can shape the individual's cognitive evaluation framework, thereby affecting the selection and implementation of emotion regulation strategies. For example, individuals with high levels of art cognition are more likely to adopt a comprehensive and in-depth cognitive evaluation mode when facing emotional events, and thus tend to choose cognitive reappraisal strategies with better long-term effects.

In addition, the emotional aesthetics theory also supports the correlation between the two. The theory points out that art appreciation can trigger positive emotional experiences, and this positive emotional experience can enhance the individual's emotional regulation resources. Art cognition, as the core cognitive process of art appreciation, is the premise and foundation for generating positive artistic emotional experiences. Therefore, art cognition can indirectly promote the improvement of emotion regulation ability by enriching individual emotional resources.

3. Research Design and Methods

3.1 Selection and Basic Characteristics of Research Objects

This study adopts the method of convenient sampling to select college students and social adults with different art contact experiences as research objects. The inclusion criteria are: no history of mental illness, no serious physical diseases, and voluntary participation in the study and signing the informed consent form. A total of 550 questionnaires were distributed in this study, and 520 valid questionnaires were recovered, with an effective recovery rate of 94.5%. On this basis, 80 subjects with low initial emotion regulation ability (scores in the lower 30% of the Emotion Regulation Questionnaire) were selected for the intervention experiment, and they were randomly divided into experimental group and control group, with 40 subjects in each group.

The gender distribution is relatively balanced, with 268 males (51.5%) and 252 females (48.5%); in terms of age, the range is 18-45 years old, with an average age of 26.3 ± 5.2 years old; in terms of art contact experience, 186 subjects (35.8%) have long-term art learning experience, 224 subjects (43.1%) have occasional art appreciation experience, and 110 subjects (21.1%) have little or no art contact experience.

Table 1. Basic Characteristics of Research Objects

Variables	Categories	Number	Percentage(%)
Gender	Male	268	51.5
	Female	252	48.5
Age	18-25 years old	286	55.0
	26-35 years old	174	33.5
	36-45 years old	60	11.5
Art Contact Experience	Long-term art learning	186	35.8
	Occasional art appreciation	224	43.1
	Little or no art contact	110	21.1

3.2 Screening of Research Tools and Test of Reliability and Validity

This study uses two main research tools: Art Cognition Scale (ACS) and Emotion Regulation Questionnaire (ERQ). The ACS is revised based on the Aesthetic Cognition Scale, including 18 items, covering three dimensions of aesthetic perception (6 items), aesthetic judgment (6 items) and artistic empathy (6 items). The scale uses a 5-point Likert scoring method (1=completely inconsistent, 5=completely consistent). In this study, the reliability and validity of the scale were re-tested, and the results showed that the Cronbach's α coefficient of the total scale was 0.88, and the Cronbach's α coefficients of the three dimensions were 0.82, 0.84 and 0.83 respectively, indicating good internal consistency reliability.

The ERQ is a mature scale compiled by Gross and John, which is used to measure the frequency of individual use of cognitive reappraisal and expressive suppression strategies. The scale includes 10 items, of which 6 items measure cognitive reappraisal and 4 items measure expressive suppression. The scale uses a 7-point Likert scoring method (1=never, 7=always). The Cronbach's α coefficient of the scale in this study was 0.85, among which the Cronbach's α coefficient of the cognitive reappraisal dimension was 0.83 and that of the expressive suppression dimension was 0.81, which met the requirements of psychological

measurement.

3.3 Implementation Process of Mixed Research Scheme

This study adopts a mixed research method combining questionnaire survey and quasi-experiment, which is carried out in two stages. The first stage is the cross-sectional questionnaire survey. After the subjects sign the informed consent form, they fill in the general information questionnaire, ACS and ERQ independently. The investigators are present to explain the filling requirements and answer questions, and the questionnaires are collected on the spot after filling in. The second stage is the art cognition intervention experiment. The 80 selected subjects are randomly divided into experimental group and control group. The experimental group receives a 4-week art cognition intervention, while the control group does not receive any intervention during the same period.

The art cognition intervention program includes 8 intervention sessions, 2 sessions per week, 90 minutes per session. The intervention content covers the appreciation and analysis of painting, music, literature and other art forms, focusing on improving the subjects' aesthetic perception, aesthetic judgment and artistic empathy abilities. Before and after the intervention, both the experimental group and the control group were measured with the ERQ to compare the changes of emotion regulation ability. In addition, semi-structured interviews were conducted with 15 subjects in the experimental group after the intervention to collect qualitative data about the experience of art cognition and emotion regulation changes.

3.4 Data Collection and Statistical Analysis Methods

The data in this study include quantitative data and qualitative data. Quantitative data are mainly collected through questionnaires and intervention pre-test and post-test, and qualitative data are collected through semi-structured interviews. After collecting the data, the quantitative data are sorted out and coded, and the invalid data (such as missing more than 10% of the items, regular answers) are excluded. The data are analyzed by using SPSS 26.0 and AMOS 24.0 statistical software.

The specific statistical analysis methods include: descriptive statistical analysis to understand the

basic characteristics of the research objects and the distribution of each variable; correlation analysis to explore the correlation between art cognition and each dimension of emotion regulation; regression analysis to test the predictive effect of each dimension of art cognition on emotion regulation strategies; independent sample t-test and paired sample t-test to compare the differences in emotion regulation ability between the experimental group and the control group before and after the intervention; qualitative data are analyzed by thematic analysis method to extract core themes related to the research issues.

4. Research Results and Analysis

4.1 Correlation Analysis Results between Art Cognition and Emotion Regulation

Descriptive statistical analysis shows that the average score of art cognition of the subjects is 3.62 ± 0.58 , the average score of cognitive reappraisal is 4.86 ± 1.02 , and the average score of expressive suppression is 3.24 ± 0.98 . Pearson correlation analysis was conducted between art cognition and each dimension of emotion regulation. Art cognition is significantly positively correlated with cognitive reappraisal ($r=0.63$, $p<0.01$), and significantly negatively correlated with expressive suppression ($r=-0.42$, $p<0.01$). Among the dimensions of art cognition, aesthetic judgment ($r=0.68$, $p<0.01$) and artistic empathy ($r=0.65$, $p<0.01$) have the strongest correlation with cognitive reappraisal, followed by aesthetic perception ($r=0.52$, $p<0.01$).

4.2 Differences in the Impact of Different Art Cognition Dimensions on Emotion Regulation Strategies

Taking the three dimensions of art cognition as independent variables and the two emotion regulation strategies as dependent variables, multiple stepwise regression analysis was conducted. The results show that in the regression equation with cognitive reappraisal as the dependent variable, aesthetic judgment ($\beta=0.38$, $p<0.001$) and artistic empathy ($\beta=0.32$, $p<0.001$) enter the equation, and the two variables together explain 48% of the variance of cognitive reappraisal ($F=256.34$, $p<0.001$). In the regression equation with expressive suppression as the dependent variable, aesthetic judgment ($\beta=-0.26$, $p<0.001$) and artistic empathy ($\beta=-0.21$, $p<0.001$) enter the equation,

and the two variables together explain 21% of the variance of expressive suppression ($F=72.56$, $p<0.001$). Aesthetic perception does not enter the regression equation in either regression model, indicating that aesthetic judgment and artistic empathy are the key dimensions affecting emotion regulation strategies.

4.3 Results of the Effect Test of Art Cognition Intervention Experiment

Paired sample t-test was conducted on the pre-test and post-test scores of emotion regulation in the experimental group and the control group. The results show that there is no significant difference in the pre-test scores of cognitive reappraisal and expressive suppression between the experimental group and the control group ($t=0.56$, $p=0.58$; $t=0.34$, $p=0.73$). After the intervention, the cognitive reappraisal score of the experimental group (5.68 ± 0.87) is significantly higher than the pre-test score (4.23 ± 0.95) ($t=-12.36$, $p<0.001$), and the expressive suppression score (2.56 ± 0.82) is significantly lower than the pre-test score (3.68 ± 0.91) ($t=8.75$, $p<0.001$). There is no significant difference in the pre-test and post-test scores of the control group ($t=0.89$, $p=0.38$; $t=0.67$, $p=0.51$).

The dynamic changes of cognitive reappraisal scores of the experimental group and the control group before and after the intervention are shown in Figure 2. It can be seen from the figure that the cognitive reappraisal score of the experimental group shows a significant upward trend after the intervention, while the control group shows no obvious change. This indicates that the art cognition intervention program can effectively improve the individual's cognitive reappraisal ability and reduce the use of expressive suppression strategy.

4.4 Robustness Verification of Research Results

In order to verify the robustness of the research results, this study adopts two methods: first, excluding the subjects with extreme values (3 standard deviations away from the mean) for re-analysis, and the results show that the correlation between art cognition and emotion regulation and the intervention effect are still significant ($p<0.01$), which is consistent with the original analysis results. Second, using structural equation model to test the mediating effect of emotional resources between art cognition and

emotion regulation. The results show that emotional resources play a partial mediating role between art cognition and cognitive reappraisal (mediating effect value=0.23, 95% CI [0.15, 0.32]), which further confirms the reliability of the causal relationship between art cognition and emotion regulation.

5. Discussion

5.1 Theoretical Interpretation of Core Research Results

The research results show that art cognition has a significant positive predictive effect on cognitive reappraisal and a significant negative predictive effect on expressive suppression. This finding can be explained by the cognitive evaluation theory. Individuals with high levels of art cognition have more mature cognitive frameworks and stronger cognitive flexibility. When facing emotional events, they are more likely to adjust their understanding of events through cognitive reappraisal, thereby reducing negative emotional responses. In contrast, individuals with low levels of art cognition are more likely to adopt simple and rude expressive suppression strategies due to the lack of effective cognitive adjustment methods.

In addition, the research found that aesthetic judgment and artistic empathy are the key dimensions affecting emotion regulation. This is because aesthetic judgment helps individuals form a multi-dimensional and in-depth cognitive perspective, which is conducive to the implementation of cognitive reappraisal strategies. Artistic empathy enables individuals to better understand and perceive the emotions of others and themselves, which helps to enhance emotional awareness and thus improve emotion regulation ability. Aesthetic perception does not have a significant predictive effect on emotion regulation, which may be because aesthetic perception is more inclined to the perceptual level, while emotion regulation is a higher-level cognitive-emotional integration process that requires the participation of judgment and empathy.

5.2 Comparison and Enlightenment with Domestic and Foreign Relevant Research

The research results of this study are consistent with the findings of foreign scholars that art cognition is related to emotion regulation, but this study further clarifies the differential impact

of different dimensions of art cognition on emotion regulation strategies, making up for the deficiency of foreign studies that focus on the overall level of art cognition. Compared with domestic studies, this study adopts a mixed research method combining questionnaire survey and intervention experiment, which not only verifies the correlation between the two, but also confirms the causal relationship, improving the scientificity and reliability of the research results. The research findings also provide important enlightenment for subsequent research. First, in the study of the relationship between art and emotion regulation, more attention should be paid to the role of cognitive factors, and the research perspective should be shifted from the experience level to the cognitive level. Second, the research on art cognition should be refined to the dimension level, and the mechanism of different dimensions affecting emotion regulation should be explored in depth. Third, the intervention research based on art cognition should be strengthened, and more targeted intervention programs should be developed according to different dimensions of art cognition.

5.3 Theoretical Contributions and Practical Value of the Research

In terms of theoretical contributions, this study enriches the theoretical system of the relationship between art cognition and emotion regulation. By clarifying the dimension structure of art cognition and its differential impact on emotion regulation strategies, it provides a new theoretical framework for understanding the cognitive mechanism of art's emotional function. At the same time, this study combines the cognitive evaluation theory and emotional aesthetics theory to explain the correlation between art cognition and emotion regulation, which promotes the integration and development of related theories.

In terms of practical value, the research findings provide a new idea for the development of emotion regulation intervention programs. The art cognition intervention program developed in this study has been verified to be effective, which can be applied to psychological counseling institutions, schools, enterprises and other fields to help individuals improve their emotion regulation ability. In addition, the research results can also provide a theoretical basis for the reform of art education. Art

education should not only focus on the training of artistic skills, but also pay attention to the improvement of students' art cognition ability, so as to give play to the role of art education in promoting mental health.

5.4 Research Limitations and Future Research Directions

This study still has some limitations. First, the research objects are mainly college students and young and middle-aged adults, and the sample representativeness is limited. The research results may not be applicable to the elderly, adolescents and other groups. Second, the intervention period of this study is 4 weeks, and the long-term effect of art cognition on emotion regulation needs to be further verified through follow-up research. Third, this study focuses on the impact of art cognition on cognitive reappraisal and expressive suppression, and the impact on other emotion regulation strategies (such as emotional venting, avoidance) needs to be further explored.

Future research can be carried out in the following directions: first, expand the scope of research objects, select samples of different ages, occupations and cultural backgrounds to improve the universality of research results. Second, carry out long-term follow-up research to explore the long-term effect of art cognition on emotion regulation and its change law. Third, explore the impact of art cognition on other emotion regulation strategies, and further improve the theoretical system of the relationship between art cognition and emotion regulation. Fourth, explore the moderating variables of the impact of art cognition on emotion regulation, such as personality traits, cultural background, etc., to clarify the boundary conditions of the regulatory effect.

6. Conclusion

This study systematically explores the impact of art cognition on emotion regulation through mixed research methods. The research results show that art cognition has a significant positive predictive effect on cognitive reappraisal and a significant negative predictive effect on expressive suppression. Among the dimensions of art cognition, aesthetic judgment and artistic empathy are the key dimensions affecting emotion regulation strategies. The targeted art cognition intervention can effectively improve the individual's cognitive reappraisal ability and

reduce the use of expressive suppression strategy. The research enriches the theoretical system of the relationship between art cognition and emotion regulation, and provides practical reference for the development of emotion regulation intervention programs. Future research should further expand the research scope and explore the long-term effect and boundary conditions of the impact of art cognition on emotion regulation.

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