

ECOLOGICAL AESTHETICS AS A THEORETICAL BASIS FOR THE REFORM OF DANCE TEACHING

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Abstract: This paper discusses the significance of ecological aesthetics in the cultivation of students' aesthetic ability in dance teaching. It argues that the aesthetic concept of achieving a harmonious dynamic balance among human, nature and society in ecological aesthetics can provide a theoretical basis for the reform of the current dance teaching program. The paper also proposes a teaching plan for the cultivation of students' aesthetic ability in dance teaching, which is based on the principles of ecological aesthetics.

Keywords: Ecological aesthetics, Dance teaching, Aesthetic ability, Teaching plan, Harmonious dynamic balance

1. Introduction

The basic theoretical research of ecological aesthetics is relatively mature now, and the most important issue of current ecological aesthetics is its future development direction. The aesthetic concept of achieving a harmonious dynamic balance among human, nature and society in ecological aesthetics is of extraordinary significance for the reform of the current dance teaching program. It systematically expounds the aesthetic concepts in the modern ecological environment, and seeks common ground while reserving differences between people, nature and the current society to obtain a harmonious aesthetic concept. This is also the theoretical basis of the teaching plan for the cultivation of students' aesthetic ability that is missing in dance teaching.

The cultivation of students' aesthetic sense has always been an important part of the education of liberal arts and art students. Only when students have a set of their own aesthetics can they go further and further in the development of literature and art. Wang Y analyzed the significance of integrating aesthetic cultivation into Chinese language and literature education in the modern media environment. In addition, he constructed a systematic aesthetic education system for Chinese language and literature education under the modern media environment based on decision trees and related algorithms, and finally analyzed the aesthetic education program of language and literature under the background of modern media [1]. Zhang Y B discussed aesthetic thinking and found that aesthetic thinking is helpful for the development of aesthetic ability. If one want to become a professional fashion designer, it is a necessary requirement to have your own professional fashion design aesthetic thinking. Through a series of experiments, the researcher finally proposed three schemes for the cultivation of aesthetic ability [2]. Basirova KB conducts research on the means of aesthetic education in a certain place. The results show that the local people start to cultivate children's aesthetic ability from an early age, so the local

people generally have their own unique sense of beauty [3]. Jiao-Lu LI discussed the cultivation of aesthetic sense in dance teaching. The researcher believes that although the beauty in dance has the influence of innate inspiration, it still depends on the later edification. The cultivation of aesthetic sense in dance teaching can not only improve students' aesthetic ability, but also stimulate students' sensory enjoyment in the process of dance learning [4]. Wang C Y believed that cultivating students' sense of beauty is of great help to literature education, so he explores the cultivation of aesthetic ability in literature education. At the same time, he also analyzed how to effectively improve the aesthetic ability of students so as to give full play to the maximum effect of literature [5]. Meng X conducted research on how to cultivate well-rounded talents. He believed that aesthetic ability is the basis for improving students' humanistic quality, and proposed three contradictions in aesthetic education in the current education stage. Finally, a solution was proposed, which is to strengthen the cultivation of students' aesthetic ability and choose a scientific and effective teaching plan [6]. Xiong J conducted research on the cultivation of students' aesthetics in art education. The researcher believed that if the cultivation of students' aesthetic sense is added to the monotonous and boring art teaching, it can help students learn in a pleasant and colorful atmosphere, which is of great help to improve students' learning efficiency [7]. At present, although the cultivation of aesthetic sense has been paid more and more attention by more and more schools, there is still little research on this aspect, and there is still a lack of a scientific and effective teaching plan.

Eco-aesthetics is not only a combination of aesthetic education, environmental education and ecological education, but also an ecological paradigm of aesthetic education, which can be well integrated into teaching. Xiao W put forward some suggestions on how to integrate the concept of ecological aesthetics into efficient ideological and political education, such as integrating ecological aesthetics into the curriculum and campus environment of colleges and universities, so as to expand the education of ecological aesthetics [8]. Jing S explored the relationship between education and learning from the perspective of ecological aesthetics, and believed that in terms of the nature of teaching and learning, education and learning are a special ecological relationship. Ecological aesthetics should be a basic starting point for the development of teaching and learning, and also a new idea for reforming the existing education system [9]. Xie H conducted research on the significance of ecological aesthetics to art education, and found that the education of ecological aesthetics should be a new educational program that pays more attention to experience and aesthetic education. Eco-aesthetics education focuses on equal dialogue between teachers and students, and is conducive to promoting teachers' educational concepts, teaching content and programs, and teaching effects [10]. Luo M explored the plan of ecological aesthetics education and the cultivation of college students' ecological quality. The research results show that ecological aesthetics education is a convenient teaching plan for cultivating college students' ecological literacy and helping them establish a systematic ecological outlook [11]. Wang Y conducted research on the teaching of public art education classrooms in colleges and universities based on ecological aesthetics. The research results showed that there are some deficiencies in the public art education classrooms in colleges and universities, such as differentiated teaching methods, and only one-way transmission of educational information. His research constructed a modular teaching system to promote the development of public art education [12]. Xia X investigated the overall situation of ecological aesthetics education in many agricultural and forestry colleges. It

found some problems in the construction of teachers and students in ecological aesthetics education in colleges and universities, and gave corresponding suggestions [13]. Ecological aesthetics can be of great help to the education of college students, but there is currently a lack of scientific and effective theoretical guidance in this area, so ecological aesthetics education in colleges and universities is still less or just started.

The article analyzed the specific courses and teaching methods in various dance teaching schemes at present, and studied the teaching time and effect of each scheme. In addition, this paper also verified the feasibility of dance teaching reform based on the perspective of ecological aesthetics in cultivating students' aesthetic sense, and provided a new idea and theoretical basis for promoting the development of dance teaching.

2. Evaluation of Ecological Aesthetics

The basic theoretical system of modern ecological aesthetics is formed from the two most basic supporting points of Western ecological ontology and the ancient thought of the unity of man and nature [14]. This eco-aesthetics system embodies a spirit of harmony, harmony, and endless vitality, and constructs a development model in which humans and the environment are integrated to bring vitality to each other. It advocates the unification of man, society and nature. It does not regard single beauty as beauty, but appreciates a mode of harmonious development of people, society and nature, which can effectively improve people's sense of beauty and quality of life. The composition of ecological aesthetics is shown in Figure 1.

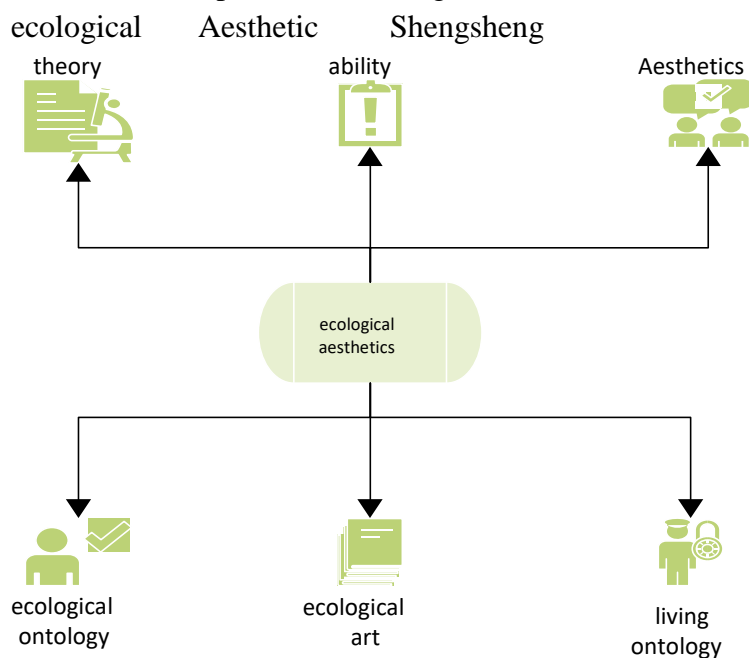


Figure 1: Schematic diagram of the composition of ecological aesthetics

However, in the past few years, the continuous development of various science and technology and the maximum and uncontrolled exploitation of the earth's natural ecological resources have led to the continuous deterioration of the global environmental situation. More and more natural resources are nearly exhausted, and people finally realize that economic development in exchange for natural resources can only be short-lived. At this time, it is

necessary to rethink the relationship between human beings and the natural environment. It was at this time that ecological aesthetics was proposed and gradually developed. At the same time, the theory of ecological aesthetics has also changed people's natural aesthetic concept. People no longer force the natural environment to present the required beauty, but begin to appreciate the original beauty of the natural environment. At this time, ecological aesthetics has not yet reached the highest point of theoretical development. The sign of theoretical maturity is that people begin to appreciate the idea of harmoniously integrating human ideas into the natural environment. This concept emphasizes the integration of man and nature. It not only appreciates the single beauty of man or nature, but also appreciates the beauty of the combination of human things and the natural environment.

3. Evaluation of Cognitive Methods of Dance Teaching Reform in Cultivating Students' Aesthetic Sense

(1) Dance teaching reform

In the process of dance teaching, students not only have to master the essentials of various movements of a dance, but also have an understanding of the creative background of the dance they are learning and the aesthetic concept of the public. Students not only know what is, but also know why. In the current dance teaching program, there are generally two types of courses: dance theory and dance practice. Dance theory includes courses such as history of dance, discussion of dance art, and introduction to art. The current dance theory courses only teach students relevant theoretical knowledge, while ignoring the cultivation of students' aesthetic sense. At the same time, the method of classroom teaching is generally adopted in the theoretical courses. Although this teaching method is very helpful for students to better understand dance culture knowledge, under this educational model, students become the passive recipient of knowledge. It is difficult for students to think about what they have learned, and thus it is difficult to make progress. In the dance practice course, teachers first teach some basic dance skills and technical skills, and then teach by words and deeds in dance styles such as modern dance, classical dance and folk dance. The training of basic skills and dance style basically takes up most of the time of the dance practice class. Dance not only requires the specification of various movements, but also requires the full integration of dancers' emotions and dance movements during the dance process, so as to express the emotions behind dance creations delicately. The dance teaching structure is shown in Figure 2.

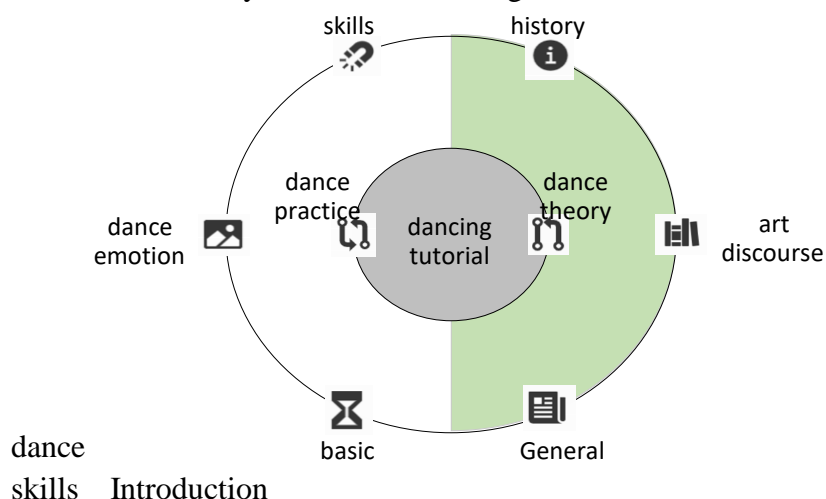


Figure 2: Schematic diagram of the basic structure of dance teaching

When reforming dance teaching from the perspective of ecological aesthetics, first of all, it is necessary to clarify the education of cultural connotation in dance teaching, and set up new dance teaching courses to cultivate students' emotion and beauty. From the perspective of ecological aesthetics, the dance teaching model should consider more non-instructive education models, so that relevant knowledge is no longer a one-way transmission. Teachers also need to receive feedback from students after learning, so as to better improve teaching efficiency.

(2) Cognitive methods of aesthetic cultivation

In general, aesthetic feeling is people's aesthetic feeling about a certain thing, and it is also a psychological feeling of examining and appreciating its beautiful characteristics in the process of viewing this thing. The various feelings, interest in the aesthetic process and the concept of beauty among different people together constitute the sense of beauty. Therefore, the beauty of dance is the process of analyzing and appreciating the dance by the audience using the senses such as vision and hearing. The beauty in dance should fully and delicately express the beauty and emotion of the dancer. In the process of dancing, it gives the audience a more enjoyable atmosphere and fully demonstrates the charm of the dance.

In dance teaching, aesthetic education utilizes students' aesthetic ability and awareness of beauty, and enjoys various emotions brought by dance in the process of learning and practice, thereby changing the boring teaching mode in the past and improving students' interest in learning. First of all, it is necessary to establish the correct aesthetic concept of students, which has higher requirements for teachers' aesthetic ability and concept, so as to cultivate students' own aesthetic viewpoints, not just to pass their own aesthetic sense to students. The second is to cultivate students' physical and temperament aesthetics. By enabling students to master the essentials of standardized movements and carry out repeated exercises, they can cultivate a beautiful and harmonious body and temperament. The cultivation of aesthetic feeling and the process specification are shown in Figure 3.

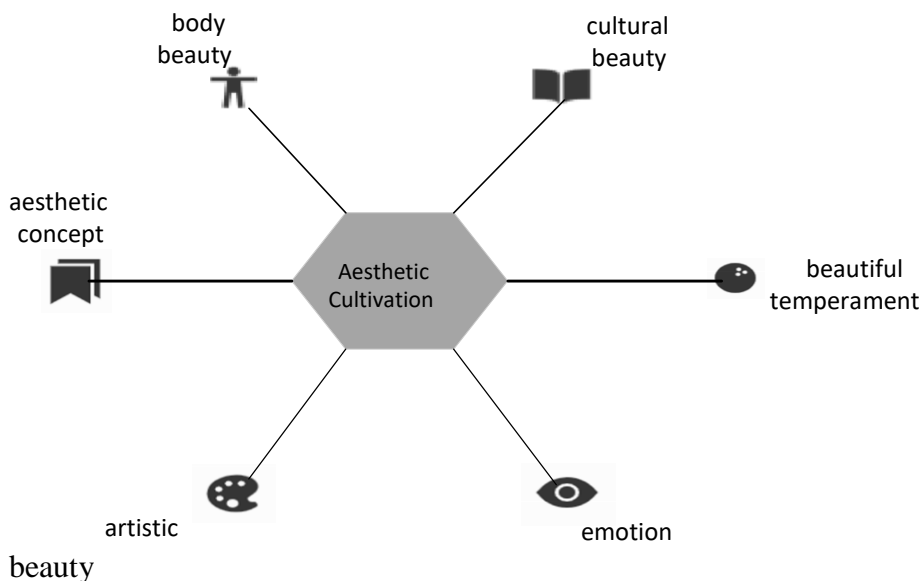


Figure 3: Schematic diagram of the aesthetic cultivation process

4. Algorithmic Evaluation of the Cognitive Method of Dance Teaching Reform in Cultivating Students' Aesthetic Sense from the Perspective of Ecological Aesthetics

This chapter discusses the plan of dance teaching reform from the perspective of ecological aesthetics, and analyzes the cognitive method of this plan in cultivating students' sense of beauty. Firstly, various defects in the current dance teaching scheme are discussed, and the current dance teaching scheme is theoretically reformed based on ecological aesthetics, which makes dance teaching more efficient and students' enthusiasm for learning more high. At the same time, in the practical use of the reformed dance teaching plan, the technical feasibility of the teaching plan is complemented by the combination of linear regression algorithm and multimedia technology [15].

The linear regression algorithm is used to collect the aesthetic things in ecological aesthetics and constrain these things on a "straight line" as much as possible. Multimedia technology uses virtual reality technology to record the process of students' dance practice, and playback and analysis after the dance is over. Virtual reality technology can model dance movements, so that dance movements can be standardized while taking into account the aesthetics.

First of all, it is assumed that there are many aesthetic things in ecological aesthetics, all of which are represented by x , then x represents the independent variable. The sense of beauty that needs to be sought is dependent variable $f(x)$, and it is assumed that the relationship between the independent variable and the dependent variable is as shown in Formula (1):

$$f(x) = ax + b \quad (1)$$

The next step is to calculate the difference $J(a, b)$ between $f(x)$ and y , and the calculation expression is shown in Formula (2):

$$J(a, b) = \sum_{i=1}^n (ax^{(i)} + b - y^{(i)})^2 \quad (2)$$

Generally, $J(a, b)$ can be called the loss function. The next step is to determine the value of a and b . The least squares method is used first, as shown in formulas (3) and (4):

$$\frac{\partial J(a,b)}{\partial a} = 2 \sum_{i=1}^n x^{(i)} (ax^{(i)} + b - y^{(i)}) \quad (3)$$

$$\frac{\partial J(a,b)}{\partial b} = 2 \sum_{i=1}^n (ax^{(i)} + b - y^{(i)}) \quad (4)$$

In this case, the solutions of formulas (3) and (4) are both zero, and the values of a and b can be obtained as shown in formulas (5) and (6), respectively.

$$a = \frac{\sum_{i=1}^n y^{(i)} x^{(i)} - \frac{1}{n} (\sum_{i=1}^n x^{(i)}) (\sum_{i=1}^n y^{(i)})}{\sum_{i=1}^n (x^{(i)})^2 - \frac{1}{n} (\sum_{i=1}^n x^{(i)})^2} \quad (5)$$

$$b = \frac{1}{n} \sum_{i=1}^n (y^{(i)} - ax^{(i)}) \quad (6)$$

At this time, substituting the sample data into the above formulas can obtain the correlation of aesthetic feeling. Linear regression often only operates on two-dimensional things. If it is needed to analyze the beauty of multiple dimensions, the gradient descent algorithm must be used. By combining the Formula (1), the difference between the independent variable and the dependent variable in the gradient descent algorithm is represented by $J(a)$, and the calculation formula is shown in Formula (7):

$$J(aa) = \sum_{ii=1}^{nm} (aaxx^{(ii)} - yy^{(ii)})^2 \quad (7)$$

At this point, it is required to give a an initial value, and then use Formula (8) to modify the data of a little by little until $JJ(aa)$ takes the minimum value:

$$a := a - \alpha \frac{\partial J(a)}{\partial a} \quad (8)$$

Formula (9) represents the relationship between the dependent variable and the independent variable in multiple sets of data:

$$f(x^{(i)}) = \theta_0 + \theta_1 x_1^{(i)} + \dots + \theta_n x_n^{(i)} \quad (9)$$

The last step is the calculation of the loss function in the gradient descent algorithm, as shown in Formula (10):

$$J(\theta\theta) = \sum_{ii=1}^{nm} (f(x^{(ii)}) - yy^{(ii)})^2 \quad (10)$$

The above operation process is to use the linear regression algorithm to analyze the relevance of aesthetic objects, so as to systematically cultivate students' aesthetic sense and improve their dance skills.

5. Experimental Evaluation of the Cognitive Method of Dance Teaching Reform in Cultivating Students' Aesthetic Sense from the Perspective of Ecological Aesthetics

This chapter studied some experimental data of dance reform on cultivating students' aesthetic sense from the perspective of ecological aesthetics. The traditional dance teaching mode and the teaching mode after teaching reform were studied respectively on the students' learning effect, the effect of aesthetics in dance teaching on students' cultivation, and the efficiency of dance teaching reform in cultivating students' aesthetics from the perspective of ecology. Ultimately, valid conclusions were drawn. These conclusions and the above-mentioned relevant contents were verified one by one, thereby proving the feasibility of dance teaching reform in the cognitive method of cultivating students'

aesthetic sense from the perspective of ecological aesthetics.

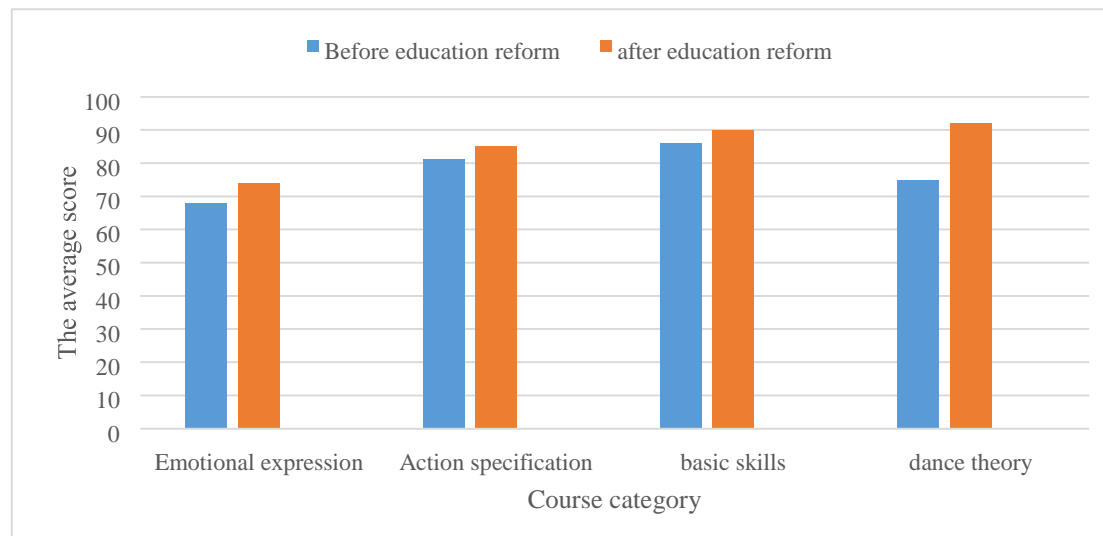


Figure 4: Students' learning effect of traditional dance teaching mode after teaching reform

The learning effect of students under the traditional dance teaching mode and the teaching mode

after the teaching reform is shown in Figure 4.

It can be seen from Figure 4 that after a series of dance education reforms, such as the bidirectional transmission of teaching information and the emphasis on the cultivation of students' aesthetic sense in the teaching process, the students' learning effect in emotional expression, movement norms, basic skills and dance theory has been significantly improved. Generally speaking, education increases with the growth of time, so there is still a lot of room for improvement in dance education after the teaching reform to help students' learning efficiency.

The effect of aesthetics in dance teaching on students' dance learning is shown in Figure 5.

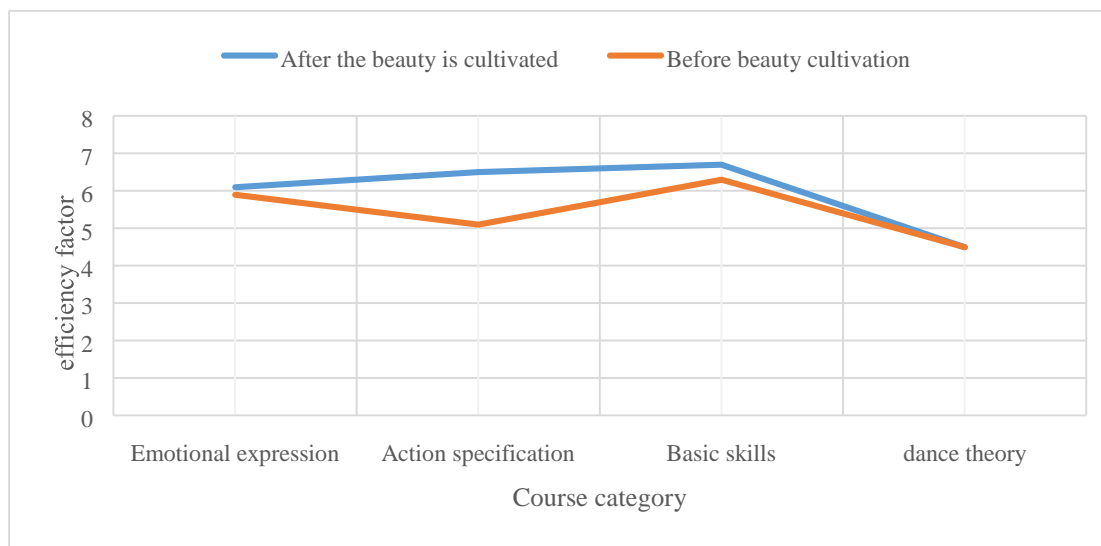


Figure 5: The effect of students' learning after the dance teaching reform

The data in Figure 5 showed that the cultivation of aesthetic sense is helpful for students in various dance courses, and aesthetic sense improves both personal emotional expression and dance theory. The personal factors of students in these two courses accounted for a large proportion of the learning effect, so the improvement was not very obvious. However, after cultivating students' sense of beauty, the students' learning effect on the two courses of basic skills and movement norms has been greatly improved, which showed the importance of the cultivation of aesthetic sense to dance students. In the future, teachers would be able to teach students more efficiently after long-term aesthetic training in education [16].

From the perspective of ecological aesthetics, the effect of dance education reform in cultivating

students' aesthetic sense is shown in Figure 6.

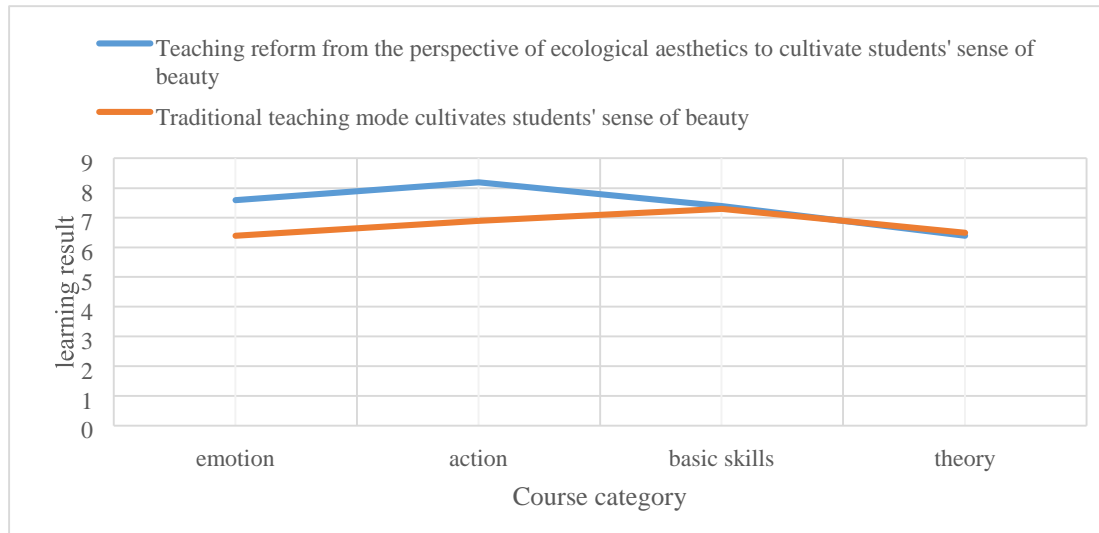


Figure 6: Efficiency analysis of education reform on cultivating students' aesthetic sense from the perspective of ecological aesthetics

Figure 6 shows the efficiency comparison between the cognitive method of teaching reform to cultivate students' aesthetic sense from the perspective of ecological aesthetics and the method of traditional teaching mode to cultivate students' aesthetic sense. It can be seen from Figure 6 that ecological aesthetics had little effect on improving students' basic skills and theoretical courses, but it is believed that with long-term edification, ecological aesthetics would improve students' basic skills and theoretical courses. In addition, ecological aesthetics can improve students' emotional expression and actions in a short period of time. The overall improvement effect was about 9.7%, which showed that the future development prospects of dance teaching reform from the perspective of ecological aesthetics are very impressive.

6. Conclusions

Beauty is an essential feature that all art forms should possess, and it is the essence of dance. Dance shows the beauty of human body, art and culture with various beautiful and harmonious body movements. The dance process not only pays attention to the beauty of the body, but also has high requirements for the lines and temperament. Dance can bring the audience a kind of enjoyment of beauty through a silent movement and purify the audience's thoughts and emotions. At the same time, the audience can feel the emotions that the dancers want to express and resonate with them. In the current dance teaching, the training of aesthetics is often neglected, and there are few research contents in this area, so the effect of dance teaching courses still has a lot of room for improvement. This paper reformed dance teaching from the perspective of ecological aesthetics. The reformed dance teaching has abandoned the one-way information transmission mode in the previous dance theory and dance training courses, so that teachers and students can have a more pleasant teaching atmosphere.

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