

The Influence of Ballet on Girls' Physique and Physical Development

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Abstract: With the improvement of people's aesthetic level and aesthetic requirements, people have paid more and more attention to ballet. More and more people are actively involved in the study of ballet, which also puts forward higher requirements for ballet teaching. The main purpose of this article is to study the effect of ballet on the physical development of girls. This article first uses factor analysis to deeply study this issue, breaking through the one-sidedness of the theory, and then by analyzing and researching the above issues, it can further deepen the understanding of ballet and the theoretical study of girls' body shape. Digitally organize the above parameters as the research subject of the impact; on this basis, in conjunction with cluster analysis technology, the ballet's influence on the girl's body shape and physical development is transformed into data and charts, so it is easier to see Does ballet have an impact on girls' body shape and physical development? According to the experimental results, ballet can make girls tall, dignified, and improve their temperament, etc., and then meet the needs of society for the training of comprehensive talents.

1. Introduction

With the long-term development of ballet art, a systematic and scientific system has been formed, and each dance movement has its own characteristics [1]. The analysis is based on the aesthetic characteristics of ballet and the core of training. It is mainly based on the key points such as stretching and erecting. In psychology, temperament is one of the important languages, which can fully reflect the human nerve type [2]. Temperament is the full manifestation of personality charm, and also has a great relationship with the body as a subject. Driven by ballet training, it greatly helps to shape the shape of the practitioner, and can also improve the temperament of the practitioner. Come up [3]. In general, the court is the origin of ballet. As an important form of dance, it realizes the efficient integration of social and performance, so it is fully reflected in the nobility gathering. At present, in the classical ballet, many court etiquette gestures are common, such as walking, bowing, and holding hands [4-5].

For ballet, as an important performing art, it occupies a pivotal position in the field of performing arts. Its training system is highly systematic and standardized, and it is an important driving force for improving human form and cultivation. It can be seen in the literature that in the history of human culture, the art of dance is an important form of expression, not only sublime, but also popular. In the continuous development and evolution of ballet dance, a unique style of training system and aesthetic characteristics have been formed, and ballet has greatly helped shape the human body and improve the dancer's mental temperament, thereby achieving the goal of comprehensive development of talents. In order to promote the healthy development and progress of ballet [6-7]. For ballet basic skills training, the important characteristics are systemic and scientific. In terms of bar, ground, and jumping exercises, it can help to tighten the muscles of the legs, hips, and back, which greatly extends the lines of the lower limbs and improves the straightness of the upper body. At the same time, the legs of the lower body should be brought close together, the toes of both feet should be stretched and extended. Another example: For standing exercises, as a basic posture exercise, this also occupies a certain position in ballet. It is mainly aimed at tightening the muscles of various parts of the practitioner and doing their best to ensure that the posture is upright. As a basic posture exercise, ballet also occupies a specific position, mainly tightening the muscles of each part to ensure the posture of the body. In long-term training, it is of great help to correct the bad posture of the practitioners, such as humpback, chest buckle and

end-shoulders, etc., continuously improve the graceful effect of the shape, ensure good shaping effect, and express the charm of the dance action. Then ensure the steady improvement of artistic expression ability. Secondly, from the perspective of kinematics, ballet is incomparable to other fitness programs. Ballet emphasizes openness, tension, and straightness. This training method can more effectively shrink fibers. Long-term training can make a person's figure more slender and straight. The standard of what you want to do actually requires coordinated completion of the muscles and joints throughout the body, which also consumes excess fat very effectively and creates physical beauty [8]. Of course, after a period of ballet body training, you can achieve a perfect posture with excellent posture and outstanding temperament. In the end, it is also positive for weight-loss ballet body training. The various weight loss methods we know, including drugs, physiotherapy, weight loss exercises, etc. have a certain degree of effect, but the cost is relatively large, and there may be some risks. Ballet body training has no side effects, and the cost is relatively small. At the same time when the body is trained, it can make the human body beautiful and improve temperament, which is really an excellent exercise method [9-11].

This paper uses factor analysis and cluster analysis. In the research, some instruments and testing methods are used. For example, the body shape and body ontology tester is used to evaluate and analyze ballet. The results show that ballet produces human body shape and temperament. It has a great influence, and its role is also incomparable [12].

2. Method

2.1 Responsive Web Design Technology and Hybrid Mobile Application Development Technology

Basic statistics calculation includes mean calculation and standard deviation calculation. The mean value is the average value, and the calculation method is to divide the sum of all measurement data of each measurement item by the number of data of the item. Assuming that the total number of measured human data is n , and the average index of a certain measurement item is a text, the calculation formula of the average index is shown in (1) below:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i \quad (1)$$

The average value can reflect the average level of a certain part of the subject, but it cannot fully reflect the status of the measurement result of the subject. At this time, the calculation of the standard deviation is necessary because the standard deviation can reflect the degree of deviation of the data. It can indicate the size of the differences between individuals: a large standard deviation indicates that the measurement data is scattered and the differences between individuals are large. On the contrary, it means that the data is concentrated and the differences between each other are small. The standard deviation calculation formula is shown in (2):

$$S = \sqrt{\frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})^2} = \sqrt{\frac{1}{n} \left[\frac{1}{n} \sum_{i=1}^n x_i^2 - n\bar{x}^2 \right]} \quad (2)$$

2.2 Principles of Factor Analysis

Factor analysis is a method that can find the dominant factor model from a large number of analysis indicators. It is a reasonable method of reducing dimensions. It can reduce the analysis indicators while minimizing the information contained in the original indicators. Comprehensive analysis of the information collected. In SPSS, principal component analysis is often used for factor analysis of measurement indicators. However, not all measurements are suitable for factor analysis. Before performing factor analysis, perform KMO and spherical leverage tests. Among them, KMO is to test whether the partial correlation between variables is small, and the purpose of Bartlett's spherical test is to show whether the factor model is out of date. Use these two tests to verify all measurement data in this article.

2.3 Principles of Cluster Analysis

Set analysis is a search analysis that can be automatically classified from sample data. There are two main methods for cluster analysis: fast sample cluster analysis and hierarchical cluster analysis. If the number of observations is large, or the file is very large (usually more than 200 observations), it is recommended to use fast sampling integration. In the class analysis method, due to the large number of observations, the two discriminative charts of the hierarchical aggregation analysis are too scattered, which is difficult to explain. The paper used for the classification of this paper has many dimensions (here there are 3 maintenances) and quantity (447), so this paper uses a rapid sample clustering method to classify the body size of girls before school. The calculation process of high-speed cluster analysis is as follows. (1) The user must first specify the number of clusters (k, etc.) to be aggregated. (2) SPSS determines the initial class center point of class k. This can also be decided by the user. (3) Calculate the Euclidean distance from all sample data points to the center points of the k categories and complete the repeated process.

3. Experiment

3.1 Experimental Object

Probability sampling is used in this sampling. In order to improve the feasibility of operation, improve efficiency and ensure accuracy, the specific operation method is to use random sampling, and to distribute the measured samples in different regions as much as possible, with the same regional structure. Additional explanations can be made as needed. The subjects of this study were girls aged 9-11 in Jiangxi, with sample sizes distributed in cities such as Nanchang, Yichun, Jiujiang, Jingdezhen, Ji'an, Ganzhou and other cities. The sample size is evenly distributed. According to the theory of mathematical statistics, when the sample size of simple random sampling is large, the random variables should approximately follow the normal distribution. Generally, it can be considered that the sample size N should not be less than 48. According to the formula commonly used in the statistical survey of sports in China $N = [(1.96 * S) / 8] \times 2$ The sample size was calculated as 312 persons, and considering the cause of the error, 342 persons were actually measured.

3.2 Experimental Methods

In anthropometric measurement, standard measurement tools such as length gauges and software rulers are mainly used for contact measurement. The test was performed indoors with a room temperature of 22 ° C. Subjects wore underwear. Subjects performed uniform training. In order to minimize errors, a single measurement was performed. Anthropometric items are determined according to the purpose of the measurement. When measuring body parts related to clothing, usually, the circumference, height, width, and thickness of the body are measured. This time, because the women's body shape characteristics were discussed as the center, referring to the basic part of the national standard GB1335-1997, the upper body 24 items were selected for measurement.

4. Discussion

4.1 Analysis of Experimental Results

In this article, two separate types of characteristic factor scores are compared with the establishment probability P of no difference between classes. These two benchmarks are less than 5% to determine whether the factor is meaningful. According to this condition, the classifications 2, 3, 4 and so on are clustered. As shown in Table 1, the average mean squared value and error of the cluster Compare the mean squared values. In the average mean square of the clusters, the scores of body shape factor 1 and body factor 2 are similar, and the mean square error is smaller, which indicates that the classification is more reasonable and ideal.

Table 1. Variance analysis table

Cluster mean square error	Clustering degrees of freedom	Mean square error	Degree of freedom
2.79	2	0.375	8.14
2.46	2	0.1354	7.56

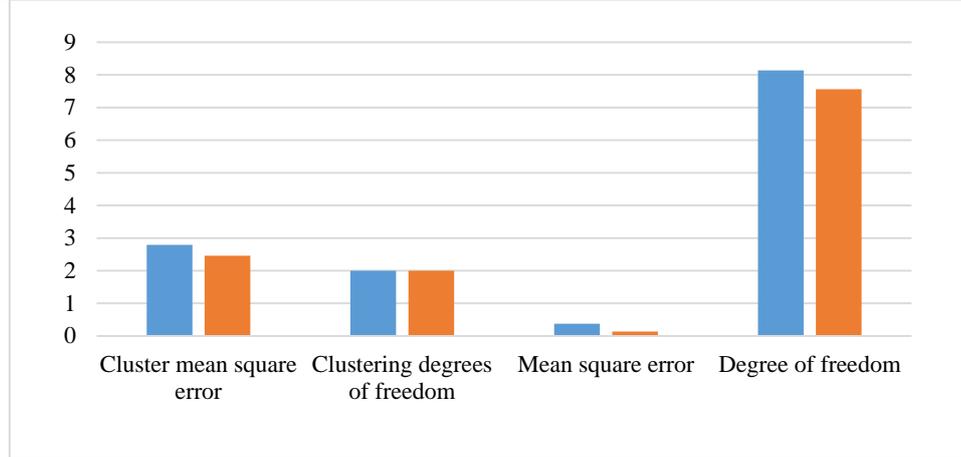


Figure 1. Analysis of variance chart

4.2 Aesthetic Psychological Analysis of Ballet

The origin of ballet has a certain social background. Due to the social situation at the time, ballet appeared to break the old tradition and liberate human nature, which has an educational significance. Just like today's westerners, this kind of thought still exists in the minds of modern westerners. The toes of ballet are perpendicular to the ground. The unity of face and point, the unity of beauty and distance are the starting points of ballet aesthetic psychology. (1) Unification of surface and point. The so-called point and face is the combination of the ballet's toes and the dance shoe surface. The foot strength can make the dancer support on the stage and show a beautiful dance posture. Ballet's toes need to be very flexible and powerful in order for dancers to make a high-speed rotating posture on the stage. This combination of point and surface is the basis of ballet and also the emphasis of ballet. (2) The unity of distance and beauty. The sense of distance in ballet is reflected in the role of ballet shoes. On the ballet, the shoes of ballet can make the figure of the dancer more slender, reflecting a kind of soft beauty, and its light dance movements can better reflect the beauty of ballet. The slender figure and light movement are the unity of distance and beauty in ballet.

5. Conclusion

This paper builds a girl measurement database with detailed measurement information. Cluster analysis is used to classify girls into three types: obese, slim, and tall. On this basis, the factor type was used to judge the girl's body shape, and the girl's body discriminant classification was realized. The discrimination accuracy rate reached 93.8%. In addition, the size of the main control part is used as the basic index of the query. The minimum difference algorithm is used to search for similar objects in the measurement sample database. The radar graph is drawn and the size of the two is fitted. The obtained human body types and simulated samples can be researched to describe and replace the measurement samples, and provide data support for related application areas that require detailed human body measurement information.

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