

# **An Experimental Study on the Application of Radar Structural Map in the Evaluation of Learning Effect of Competitive Aerobics in College of Physical Education of Jiangxi Normal University**

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**ABSTRACT.** *In order to speed up the athletic level of College Aerobics athletes, this paper makes an investigation and Analysis on the difficulty and completion of the aerobics team members of Jiangxi Normal University and the aerobics students of the sports performance class. The survey found that most students rarely know their own shortcomings clearly in the score requirements in competitive aerobics, so in order to let the athletes improve their own quickly under the new rules, use the radar mechanism chart to find out their own shortcomings intuitively, so that the sports effect can be greatly improved.*

**KEYWORDS:** *Sports aerobics, Radar organization chart, Impact assessment*

## **1. Introduction**

Combining the radar structure chart with the evaluation rules of competitive aerobics, the visual analysis can make the learning effect more intuitive and concise from the aspects of strength, control, completion and performance. This paper mainly makes a comparative study on the visual analysis and quantitative evaluation of difficult movements.

## **2. The Current Competitive Aerobics Competition Scoring Standard Method**

Competitive aerobics competition is from clothing, music, complete sets of Aerobics movements and many other aspects of the comprehensive score. In the whole set of actions, we should evaluate from the aspects of operational content, theme content, space use, artistic expression and so on. These evaluations need a certain number of judges and staff to complete at the same time. Therefore, in the

daily teaching process, it is of great practical significance to seek a more concise and intuitive evaluation method.

## ***2.1 The Combination Of Radar Structure Chart And Competitive Aerobics Score***

### ***2.1.1 Applicability Of Radar Structure Chart***

Competitive aerobics is divided into four groups in terms of difficulty actions. Each group of actions is subdivided into many sub actions. The difficulty of each action is different, and the quality of a single action can also be scored from the degree of completion. In terms of Item Division and sub item completion, the difficulty score of competitive aerobics is very consistent with the radar structure chart which can show the characteristics of various financial ratios and specific ratios of a single item. Therefore, the radar structure chart can not only look at the overall situation, but also understand the characteristics of each specific situation, which can be used to evaluate the learning effect of difficult movements of competitive aerobics. In evaluating the learning effect of difficult movements in competitive aerobics, we can set up radar chart according to the difference of movement groups, divide the regions according to the difficult movements in the group, and then divide the quality grades according to the completion of the difficult movements.

### ***2.1.2 The Advantages Of Radar Structure Chart Visualization***

The radar structure chart has the advantages of simple and clear visualization, and each specific situation and overall situation can be reflected on one chart. Therefore, we can divide specific areas according to different actions in each group, and mark the current situation of the completion of difficult actions in each area according to the specific learning effect of each action of the students. On a chart, we can clearly see the learning effect of the students in different actions in this group, and accurately grasp the completion degree, advantage action and lack of action of each action of the students Work, etc. In a period of continuous evaluation, we can find the change of students' learning effect of each action and the overall development trend.

## **3. Establish Visual Evaluation Radar Chart Of Competitive Aerobics Learning Effect**

### ***3.1 Distinguish Evaluation Area***

According to the 2017-2020 “fig Competitive Aerobics Rules”, it can be learned that the difficult movement groups of competitive aerobics are divided into four groups: A, B, C and D; they are group A: upper extremity dynamic force, group B: upper extremity static force, group C: jump and jump, group D: flexibility and balance. In group A, it also includes: push ups, push ups and support UPS; in group

B, it also includes: supports, high angle supports and horizontal supports; in group C, it also includes: straight jumps, horizontal jumps and group jumps; in group D, it also includes: splits, turns and balance turns; so the difficulty of the action The level is divided into ten levels, with a minimum score of 0.1 and a maximum score of 1.0. Each higher level is increased by 0.1. Therefore, in the practice of using radar structure chart to evaluate the learning effect of difficult movements in competitive aerobics, according to four groups a, B, C and D, as well as the number of difficult movements included in the set, corresponding regions can be divided in the structure chart, each region represents an action. In the process of students' learning, these actions are classified into different areas according to the groups of difficult actions.

### ***3.2 Establish Regional Standard Level***

According to the grades of the difficult actions that students learn in different periods, these difficult actions are marked in different standard grades in the region. Through the observation of the current distribution of students' difficulty movements, we can clearly and accurately understand the students' current learning situation and the space for improvement. By presenting the learning effect of students in the form of radar structure chart for a period of time, we can intuitively find out the grade change of difficult actions of students in each area, which also represents the change of students' ability. According to the specific learning effect, students can understand their own level, and strengthen their self-learning according to the shortcomings; the coach teacher can according to the specific students Learning effect, then make the next teaching plan.

### ***3.3 Make the Learning Effect into a Visual Radar Map***

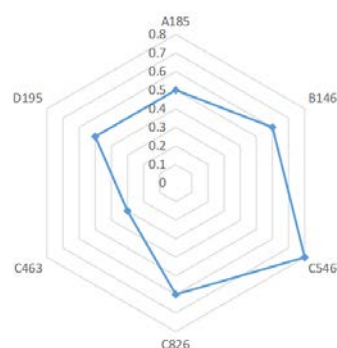
In this study, Jiangxi Normal University Aerobics Team members and sports performance class aerobics students as the research object, arranged a learning task. The task is based on a complete set of actions, including some difficult actions in groups a, B, C and D. After ten weeks of study, the learning effect is checked and accepted in the form of routine display. The learning effect of difficult actions of middle school students in the routine is recorded in the form of data and made into radar structure chart. In this paper, we randomly display the radar chart of the learning effect of 6 students' difficult movements, and compare the visual effect with the traditional three line table. At the same time, by comparing with each other, it analyzes the specific learning effect of students and the weak points of current ability.

*Table 1 : Statistics Of Difficulty Action Learning Effect of Boys in Sports Performance Class*

Difficulty action number	Difficulty score	Difficulty group
A185	0.5	A
B146	0.6	B

C546	0.8	C
C826	0.6	C
C463	0.3	C
D195	0.5	D

From the above table, we can see that the difficulty actions completed by students in a set of actions are A185 of group A, with a score of 0.5; B146 of group B, with a score of 0.6; C546 of group C, with a score of 0.8, C826, and The value is 0.6, C463, the score is 0.3, and the D195 of the D group has a score of 0.5. The tabular data is difficult to give students and teachers a more intuitive and clear view of the difficulty of each difficulty. The data is therefore presented again in the form of a radar structure diagram as follows.



*Fig.1 : Evaluation of the Difficulty Learning Behavior of Male Students in Sports Performance Class*

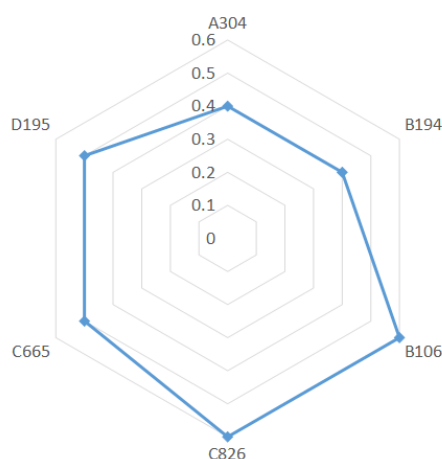
mpetitive aerobics single action is 1 point, and the lowest difficulty is 0.1 points. Through the radar structure diagram, it is possible to clearly and intuitively see the difficulty scores of the various difficulty actions completed by the students, the advantages of the individual difficulty and the weakness points. The most difficult action that the boys in the sports performance class can currently accomplish is the curved body and the legs are stretched out, which means that the boy's jumping power and upper limb strength are better; the least difficult action is the Kasaka, which represents this. Boys have poor cardio-resistance and it is difficult to continue to perform high-intensity difficult movements in a set of movements. Therefore, choose a simple Kasaka to cushion the strength after the scissor. The average difficulty score of this male generation set is 0.57, which can increase the development space.

*Table 2 : Statistics On the Effect of Difficulty Learning for Girls in Sports Performance Classes*

Difficulty action number	Difficulty score	Difficulty group
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A304	0.4	A
B194	0.4	B
B106	0.6	B
C826	0.6	C
C665	0.5	C
D195	0.5	D

Through the above table, we can see that the difficulty movements performed by girls in the sports performance class in a set of actions are A group A304 with a score of 0.4; B group B group with a score of 0.4, B106 and a score of 0.6; C group C665 The score is 0.5, C826, and the score is 0.6; the D195 of the D group has a score of 0.6. The data is again presented in the form of a radar structure diagram as follows.



*Fig.2 : Evaluation of the Difficulty Learning Effect of Girls in Sports Performance Classes*

It can be seen that there is a large space for girls in the sports performance class, and the highest scoring difficulty is C826, C665, D195.

The scores are 0.6, 0.6, and 0.5, which all represent the student's flexibility. The lowest score is B194, with a score of 0.4, which means that the student's waist core strength and leg control ability are poor. The ability of the students in Group C and Group D is better, and the ability of Group B is relatively lacking, but the overall difference is not big, and there is not much ability to be short-board. The average difficulty score is 0.53, which needs to be steadily and steadily improved

in the future. At the same time, two athletes of the aerobics team of Jiangxi Normal University (1 male and 1 female) and 2 first-class athletes (1 male and 1 female) were selected to make their difficult action learning effects system into a three-line table and a radar structure. , details as follows.

Table 3 : Statistics On the Difficulty Learning Effects of the Athletes in the Gym

Difficulty action number	Difficulty score	Difficulty group
A230	1	A
A228	0.8	A
B278	0.8	B
C548	0.9	C
C587	0.7	C
D218	0.8	D



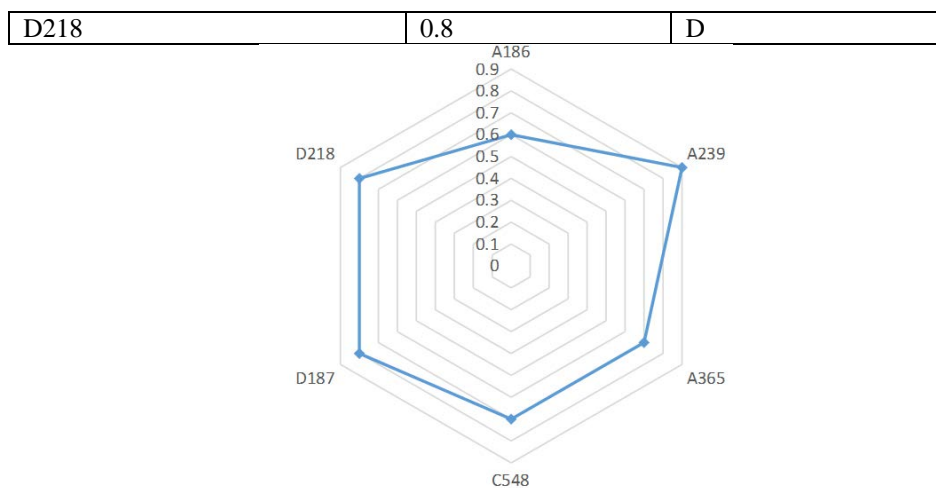
Fig.3 : Evaluation of the Difficulty Learning Effect of the Athletes in the Gym

According to the above table, the overall ability of the grade-level boys is very strong. The highest score is A230, and the score has reached the highest score of 1. The lowest score is C587 with a score of 0.7. A228, B278, C548, D218

The scores are higher. The average difficulty score has reached 0.83, which is higher than the highest difficulty of many ordinary students. This means that the special physical and special skills of the general boys have reached a very high level.

Table 4 : Statistics On the Difficulty Learning Effect of the Athletes in the Class

Difficulty action number	Difficulty score	Difficulty group
A186	0.6	A
A239	0.9	A
A365	0.7	A
C548	0.8	C
D187	0.7	D



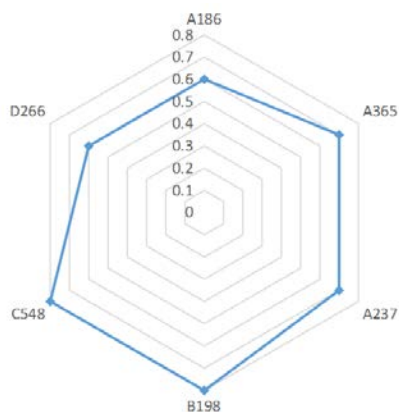
*Fig.4 : Statistics on the Learning Effects of the Difficulty Level of the Girls*

According to the above table, the overall ability of the athletes at the level is also very strong. The highest scoring difficulty includes A239 and D218, which means that the girl's balance and flexibility are very good; C548 is also very difficult, reaching 0.8. The score, which means that the girl's jumping ability is also very strong; A365 and D187

The difference is 0.7, the lowest difficulty is A186, and the difficulty is 0.6. The average difficulty score for the girl's set is 0.77, which exceeds the ability of all body watch boys.

*Table 5 : Statistics On the Learning Effects of Difficult Athletes in First-Class Athletes*

Difficulty action number	Difficulty score	Difficulty group
A186	0.6	A
A365	0.7	A
A237	0.7	A
B198	0.8	B
C548	0.8	C
D266	0.6	D



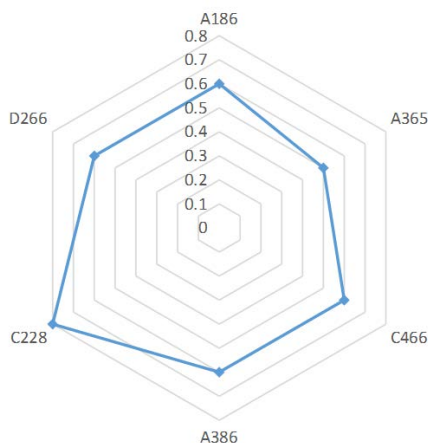
*Fig.5 : Statistics on the Learning Effects of Difficult Athletes in First-Class Athletes*

It can be seen that the overall ability of the current first-level athletes and boys is relatively balanced, and it is possible to perform both basic difficulty actions and high-level actions. There are already two more difficult movements in the set, namely B198 and C548. The scores of the two difficulty levels are 0.8 respectively; the scores of A365 and D266 are 0.7 respectively. The average difficulty score of the boy is 0.7, which can gradually improve the difficulty of the overall movement while maintaining the advantage of the first. The overall ability can reach the difficulty of the standard by training.

*Table 6 : Statistics On the Difficulty Learning Effect of the First-Level Athletes*

Difficulty action number	Difficulty score	Difficulty group
A186	0.6	A
A365	0.5	A
C466	0.6	C
A386	0.6	C
C228	0.8	C
D266	0.6	D





*Fig.6 : Statistics on the Learning Effects of Difficult Athletes in First-Class Athletes*

It can be seen that the overall level of athletes of the current level of athletes is very balanced. Among the difficulties that can be completed, there are 5 actions with a score of 0.6. These difficulties are hip lifting, helicopter, and scissor hopping. Longitudinal leg jump and Elysin; the most difficult is the curved body and the legs are stretched and lowered, with a score of 0.7. The average difficulty score of this girl is 0.62, which means that the girl's flexibility and balance, jumping ability and upper body strength are relatively balanced, which means that the girl's advantage is very small, which can increase the space. The difficulty of achieving the standard of the athletes requires a comprehensive and intensive training program.

By presenting the difficult actions that the above students can learn in the complete set, in the form of a radar structure diagram, it is possible to clearly see each student's current dominant movements, difficulty shortcomings and room for improvement, and excellent athletes. The difficulty radar structure chart is compared, you can see the gap between yourself and the excellent players, stimulate students' learning motivation, and improve students' initiative and training.

## 4 Conclusions and Recommendations

### 4.1 Conclusion

1) In the complete set of movements, competitive aerobics is evaluated from the aspects of exercise content, theme content, space application, and artistic expression. These evaluations are more arduous. Therefore, in the daily teaching process, it is of great practical significance to seek a more concise and intuitive evaluation method.

2) With the help of the radar structure diagram, it can not only understand the overall situation but also understand the characteristics of each specific situation, and is used to evaluate the learning effect of the difficult movements of competitive aerobics. In the specific use of the evaluation of the competitive aerobics difficulty action learning effect, the radar map can be established according to the different action groups, the radar map is divided into regions according to the difficulty actions within the group, and then the quality level is completed according to the completion of the difficulty action. Division. Grasp the completion, dominant movements, and lack of movements of each movement of the students. Continuous evaluation over a period of time can reveal the changes in the learning effects of students and the overall development trend.

3) In the specific teaching, using the radar mechanism map to evaluate the students' learning effect, we can clearly see each student's current dominant movements, difficulty shortcomings and room for improvement, and compare with the difficult athletes' radar structure diagram. You can see the gap between yourself and the outstanding players, stimulate the students' motivation to learn, and improve the initiative of students to learn and train.

#### **4.2 Suggestions**

4.2.1 In the process of teaching, teachers should disseminate the concept of scientific evaluation and quantitative analysis to students, and tell students the current learning effect and room for improvement in the form of specific data, avoiding excessive use of qualitative evaluation and causing students to blur their own shortcomings. And the gap.

4.2.2 Schools can provide relevant computer courses to teach students how to use computer software to create visual analysis radar structure maps, and equip the teaching environment with equipment to enable students to analyze and compare the learning effects of each period of time. The physical education of the dimension evaluation can also be presented in the form of a radar structure chart when producing the semester transcript.

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