

The Development Plan of Primary School Students' Table Tennis Sports Specialty Education——Analyzing through a Mixed Survey Research Method

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Abstract. Nowadays, many table tennis specialty students (TTSSs) in primary school are facing the question of whether to become professional table tennis players (PTTPs). This article researches the development plan of table tennis sports specialty education for TTSSs of primary school. Using mixed methods included questionnaires, interviews, and literature review. It has been found that males often have better physical quality than females within TTSSs. During the process of growth and development, the female menstrual cycle has different impacts on their competitive abilities. The influence of psychological factors on students' competitive ability is universal, and there is a high uncertainty in their psychological improvement and development. Psychological quality and physical quality are both personalized factors. If students of primary school plan to become PTTPs, they need support from their parents, and their teachers to observe themselves for a long time. At the same time, a personalized education plan should be made to come up with their integrated development. In addition, the dilemma of TTSSs education such as academic pressure, and how to optimize TTSSs education were discussed.

Keywords: Table tennis, specialty education, development plan.

1. Introduction

Nowadays, many table tennis specialty students (TTSSs) in primary schools are facing the question of whether to choose to become professional table tennis players (PTTPs). Because of the lack of detailed and standardized selection criteria for PTTPs, many students have chosen development directions that are not suitable for them. In the process of cultivating PTTPs, a large amount of their academic class time is occupied by learning table tennis. In this situation, their academic level is often not as good as that of ordinary students, and this situation will continue for a long time, which will affect the future development of further education [1]. The selection method for competitions is not entirely applicable to TTSSs aged 9-14 who move from provincial and municipal training teams to provincial and municipal professional teams, which can easily cause negative psychological effects and lead to the loss of excellent PTTPs [2]. If there are clear criteria for selecting PTTPs, it will help reduce the number of failed cases in cultivating PTTPs and assist TTSSs of primary schools in choosing a more scientific plan for the development of table tennis sports education.

The detailed theory of selection criteria for PTTPs can help people better grasp the future [3]. The question of whether TTSSs become PTTPs often requires determining their long-term physical education development during primary school. This issue is crucial for the future development of pupils. In addition, it is also helpful for the success rate of cultivating national PTTPs. It can enable national or provincial professional table tennis teams to more accurately select talents who are suitable for table tennis competitions. Based on the theories of sports training and sports physiology, as well as practical investigation and research results, this study has a preliminary understanding of the main factors affecting the selection criteria for PTTPs, and provides more scientific planning suggestions for the development of TTSSs of primary school. However, there is still a need for more scholars to pay attention to and study the theoretical criteria for selecting PTTPs.

2. Methods

2.1. Design

There are three research topics in this article. They are closely related to the development plan of table tennis sports education for TTSSs of primary school. They are the selection criteria for PTTs, the impact of psychological qualities on the competitive ability of TTSSs of primary school, and the willingness of TTSSs of primary school and their parents to plan the development of their physical education.

2.1.1. Questionnaire

This study used a self-designed questionnaire survey and a convenient sampling method. The survey questionnaire targets table tennis teachers, TTSSs of primary school, and their parents. This questionnaire investigates the selection criteria and related issues for PTTs from the perspective of table tennis professionals. This study investigates the willingness of TTSSs of primary school and their parents to plan table tennis physical education, as well as the psychological quality of TTSSs of primary school. Based on these two perspectives, this study used Wenjuanxing (An online survey software that can collect information through website links) to edit two different questionnaires and collect data online through WeChat links.

2.1.2. Interview

The interview used semi-structured interviews as a research method. The subjects of the interviews study include a prominent primary school and a prestigious middle school in Beijing, a retired player from the Beijing municipal table tennis professional team's second team (Miss Xie), and a national-level table tennis coach from Hebei Province (Coach Wang). This study mainly investigates the selection of PTTs and other related issues.

2.2. Research Process

This study mainly conducted research through survey questionnaires, interviews, and literature review. First, this study conducted some literature reviews. The literature mainly refers to the research theories of sports training, sports physiology, and other scholars to study the selection criteria for PTTs and the development planning of physical education. Second, design the questionnaire content based on relevant theories. Next, conduct the questionnaire survey. This study analyzes the research topic and identifies some issues through the collected data. Finally, conduct interviews with professionals. This study asked them to answer the discovered problems and other related questions.

2.3. Analysis Method

This study adopts a mixed analysis of quantitative and qualitative methods. Based on the results of the questionnaire, this study conducted phenomenon analysis and comparative analysis. Then, this study conducted a qualitative analysis of the different roles (coaches and players) of table tennis professional teams at or above the city level and the traditional table tennis school team teachers in key primary and secondary schools in Beijing through interviews and surveys. Finally, based on the results of the questionnaire survey, interview survey, and literature review, this study conducted a synthesis analysis.

In a comparative analysis, there are comparisons of different roles: firstly, table tennis teachers and TTSSs. Next are TTSSs and their parents. The third are TTSSs and PTTs. The fourth are PTTs and a table tennis professional team coach. Finally, there are the table tennis teachers and the coach of the table tennis professional team. In addition, there is a contrast between amateur and professional roles in these different roles.

This study conducted a comparative analysis in two aspects. On the one hand, the differences in roles and training objectives between TTSSs and PTTs were compared. On the other hand, the differences in educational planning intentions between students and parents were compared. In

addition, a comparison was made between teachers' and students' subjective perceptions of students' psychological qualities.

3. Results

3.1. Gender difference in Table Tennis Sports Specialty Education

There are differences between males and females in table tennis sports specialty education. According to the theory of sports training, competitive ability is mainly influenced by five factors: technology, tactics, physical quality, psychology, and intelligence [4]. In addition, there are many other influencing factors, such as menstruation [1]. Athletes need to combine aerobic and anaerobic exercise in table tennis competitions [5]. Sports physiology research shows that male table tennis players generally have better physical qualities than females, such as better oxygen consumption and lateral movement speed [6].

The results of this study's questionnaire survey show that 90% of teachers believe that physical issues related to students' growth and development, such as menstruation in females, have an impact on their competitive abilities. The survey questionnaire collected 20 table tennis teachers from training institutions, with 70% of the teachers having been in the profession for more than 3 years, and 45% of the teachers stating that they have over 100 individual students.

The national level table tennis coach (Coach Wang) from Hebei Province stated that the physical development issues included in physical quality cannot be predicted with female PTTs, and medication is necessary if necessary, such as the presence of different menstrual problems and training and competition injuries in some female PTTs. Male team members not only do not have such problems, but as they develop, their physical quality becomes stronger and stronger.

Miss. Xie, a retired member of the second team of the Beijing Municipal Table Tennis Professional Team, said that she and her former teammates have experienced menstrual periods affecting their competitions. For her, the impact is not too obvious, but one of her teammates often experiences severe abdominal pain and sweating during menstruation, and even has difficulty getting up. After this team member took painkillers, sometimes it didn't work because she vomited them out about 10 minutes after taking them.

According to the physical education teacher (Teacher Li) of a key middle school table tennis team in Beijing, about one-third of female TTSSs are significantly affected by their menstrual cycle. In their middle school table tennis team, all female TTSSs had menstruation. There are almost no major issues with the training and competition of male TTSSs. The physical education teacher (Teacher Lou) in charge of the table tennis team at a key primary school in Beijing stated that their TTSSs are almost unaffected by their menstrual cycle. Most female TTSSs have not experienced menstruation.

3.2. The influence of psychological factors on students' competitive ability

Sports psychology is related to students' personalities [7]. The temperament type of athletes is related to their competition results, for example, those with mucous and sanguine qualities have better competition results [8]. Through this study's investigation, it was found that psychological factors have a significant impact on students' competitive abilities.

In 2024, 278 TTSSs from 23 different primary schools in Beijing will participate in the individual singles events of Group A or Group B of the Beijing Sports Traditional Project School Table Tennis Competition [9]. The questionnaire collected data from 37 TTSSs of primary schools. This indicated that over 10% of TTSSs in Beijing participated in the questionnaire.

The results of the questionnaire showed that 59.46% of TTSSs in primary school start learning table tennis before the age of 8. Their participation in school competitions and club competitions is the highest, with 48.6% of TTSSs having participated in city-level competitions. Only 18.92% of TTSSs stated that they are not easily affected by psychological issues leading to losses, and 78.38% of TTSSs find it difficult to adjust their psychological state during competitions and are not affected by psychological factors such as tension. The TTSSs believe that the three main reasons that affect

the results of the competition are technical issues, psychological issues, and opponents' different playing styles. In terms of the predictability of changes in the main influencing factors of competitive ability, only the predictability of psychological quality is much lower than the other four factors. More than half of the teachers believe that they can effectively improve the psychological quality of students, but only 37.84% of students believe that teachers or other external influences can help them adjust their mentality effectively in competitions.

All respondents acknowledged that the influence of psychological factors on students' competitive abilities cannot be ignored, and this phenomenon is very common. Coach Wang stated that the degree and performance of each person's psychological factors are different, which is related to their individual psychological quality.

3.3. The unclear selection criteria for PTTPs

The questionnaire results showed that 45.95% of TTSSs are willing to become PTTPs, but only 18.92% of their parents are willing to let them become PTTPs, and 78.38% of their parents are willing to let them continue the development of physical education for TTSSs. When the wishes of TTSSs and their parents are different, referring to PTTPs selection criteria may help people make decisions.

The theory of selection criteria for PTTPs can help improve the success rate of professional athlete training [3]. It is found that the selection criteria for PTTPs are not clear enough in terms of the psychological qualities that affect students' competitive ability. The results of the questionnaire survey show that 55% of teachers believe that they are very clear about the selection criteria for PTTPs, but they mainly summarize their so-called standards based on some keywords such as technical level, competition, physical quality, psychological quality, etc. Their evaluation is more based on their subjective feelings, and a small number of teachers have technical and physical testing and evaluation systems. Their ability to evaluate students' psychological qualities is insufficient. Teacher Lou believes that she is not professional enough. When encountering TTSSs with excellent conditions, she will seek more professional table tennis teachers to evaluate TTSSs. Teacher Li and Coach Wang stated that apart from other aspects of psychological qualities, they have systematic evaluation criteria. However, TTSSs generally have fewer competitions than PTTPs, so it is more difficult to rely on their competition results and processes to reflect their psychological state. Coach Wang stated that in terms of psychological quality, she can only encourage her team members to participate in more competitions and practice more.

4. Discussion

4.1. Difficulties in TTSSs Education

Table tennis specialty students (TTSSs) can enjoy the benefits of direct promotion or special recruitment during their further education. They focus on academic learning, and their educational mobility is similar to that of ordinary students. Their characteristic is a moderate level of competitive ability in table tennis, and they have many choices for their future development. Professional table tennis players (PTTPs) mainly specialize in table tennis and train in provincial, municipal, or national professional teams. They are almost all dropouts. Their characteristic is a high level of competitive ability in table tennis, and their future development is limited (they may only be able to do table tennis-related work). One option in the TTSSs educational program is to become PTTPs, which carries potential risks.

TTSSs are confused about the choice of educational development plans. Elementary school students' thoughts and cognition are not yet mature enough, and they may not be able to imagine some of the obstacles that may arise in the future, so they need to discuss with their families. But their families may not necessarily be people who understand the table tennis education industry. In the case of vague selection criteria for PTTPs, educational plans that are not suitable for students will likely be made. The psychological and developmental issues mentioned earlier are difficult to fully solve.

Many aspects of change are stable and easily predictable. However, many problems suddenly occur at some point in the future. For example, a female started learning table tennis at the age of 6 and won many awards at the age of 8. Therefore, she dropped out of school at the age of 9 to receive PTTs training. However, she started menstruating at the age of 11, and it was found that she had a severe dysmenorrhea constitution. She is undoubtedly not suitable to continue that. If she returns to campus again, her academic level will be difficult to keep up with her classmates. Even after overcoming the difficulties of growth and development, psychological changes are difficult to predict. Sexual disparities in the characteristics of physiological systems result in varied reactions, and physical activity is no different [10]. In addition to the tension during competitions, anxiety, and depression can also easily affect students. The mental health of TTSSs who drop out of school is difficult to guarantee in the absence of an academic and educational environment. In the process of cultivating TTSSs education, a significant amount of time and money are required. Both TTSSs and PTTs require the support of family members. Cultivating any hobby or skill requires a certain economic foundation.

4.2. Suggestions for optimizing TTSSs Education

First, schools should provide higher-level training platforms for TTSSs. If economic conditions permit, TTSSs can participate in professional table tennis training and city-level or above table tennis competitions during their spare time. Record daily training and competition situations, such as taking videos. Then conduct multiple analyses. Summarize the problem and attempt to solve it. This is of great help in improving TTSSs' competitive level. Second, schools should establish clear selection mechanisms. If TTSSs have not won any awards in table tennis competitions at or above the city level before the age of 10, there is almost no need to consider becoming PTTs. They should focus on improving their competitive level and strive to win awards in the next table tennis competition at or above the city level. For TTSSs that have won some municipal awards but do not have national awards, entering the table tennis team of key middle schools in the future is the safest choice. As long as they maintain a certain level of competitiveness and pay more attention to the admission policies of TTSSs in their daily lives. It is difficult to choose PTTs for this type of TTSSs. Especially for female TTSSs, it is best not to take risks. Male TTSSs can try to receive PTTs training for about a month during winter or summer vacation. Then, teachers, TTSSs, and their parents mainly observe and discuss the technical level, psychological qualities, and competition results of TTSSs for a long time before making a decision. Last, establish an integrated education for TTSSs. For TTSSs who have won national table tennis competition awards, it is also necessary for teachers, TTSSs, and their parents to observe and analyze them for a long time. If there are no obvious drawbacks, TTSSs can choose to drop out of school and participate in PTTs training. At the same time, it is best not to completely abandon their academic education to prevent the failure of PTTs training.

5. Conclusion

Through this study's investigation and research, it has been found that the development of physical education for PTTs is completely different from that of TTSSs. The changing trends of students' technical, tactical, and intellectual factors have certain regularity and predictability. Males often have better physical qualities than females. The physiological period of females has varying degrees of impact on their competitive ability during their growth and development process. Psychological factors have a universal impact on the competitive ability of TTSSs, and there is a high degree of uncertainty in the improvement and development of their psychological qualities. Psychological quality and physical quality are both personalized factors. Although there are relevant theories on the selection criteria for PTTs, there is a lack of more detailed and scientific measurement criteria. The difference between TTSSs and their parent's plans for the development of table tennis physical education is that their parents are more willing to let them choose the planning route for TTSSs to continue their development, while TTSSs are more willing to try the planning route for PTTs.

This study believes that students, their parents, and teachers need to observe students for a long time to come up with a suitable physical education development plan for them. Among the five main factors that affect competitive ability, including technology, tactics, physical quality, intelligence, and psychology, it is necessary to focus on students' psychological qualities. Female TTSSs should carefully choose whether to enter PTTs' training due to their different physiological periods.

This study hopes to prompt table tennis teachers to reflect and discuss the selection criteria for PTTs, making TTSSs pay more attention to the impact of psychology on their competitive abilities, as well as the influence of children's growth and development on their competitive abilities. Scientifically planning the development of students' physical education can help them better grasp their lives. In the future, a survey can be conducted on PTTs to further investigate their educational issues.

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