University Tennis Teaching and Scientific Research Documents under the Background of Big Data

Huifen Yang and Yu Wei

Nanchang Institute of Science and Technology, Jiangxi 330108, China

289605422@qq.com

Abstract: With the advent of the era of big data, a brand-new vision and broad thinking have been provided for the evaluation of college physical education teaching. This article mainly studies the analysis of college tennis teaching scientific research literature under the background of big data. In order to ensure the credibility of the survey content, the retest method was used to test the reliability of the questionnaire during the survey. Thirty students in the public sports tennis class were selected, and the same questionnaire was distributed and tested at intervals of 2 weeks. After the recovery, the correlation analysis with the previous questionnaire was carried out. This article uses SPSS17 statistical software to perform mathematical statistics on the experimental results. Among them, the independent sample T test is mainly used to carry out mathematical statistics on the cultural class scores and motor skills assessment after the experiment. The statistical results include the average score, standard deviation, variance between groups (F) and coefficient significance test (sig). The data input and statistics are strictly operated in accordance with the requirements of the SPSS software to ensure the accuracy and practicality of the results. The data shows that 22%, 84%, 88% and 88% of the students think that they are required, like, adapt to the social requirements and improve their tennis skills, while 17%, 86%, 88% and 75% of the students in the control class. The results show that it is feasible to apply big data to college tennis teaching evaluation.

1. Introduction

With the rapid development of society in the era of big economy, the quality of people's life is getting higher and higher, and the change of people's consumption concept, tennis is no longer regarded as a noble sport as before, but gradually transformed into a popular and popular sport. People at all levels of society have the opportunity to participate in it and experience the fun of

tennis. In the traditional teaching process, teachers or coaches teach technology according to their previous learning skills.

With the rapid development of social networks, big data has gradually come into people's view and set off a hot wind in all walks of life [1]. Social networks have also ushered in the era of big data analysis. A large amount of data is generated in social networks all the time. If these data are gathered together, they may represent a certain trend and predict the development direction of things [2]. In recent years, tennis has developed rapidly in Colleges and universities in China. Almost every college has set up tennis elective courses [3-4]. Some sports colleges and universities have included tennis courses in the list of compulsory courses. Some colleges and universities have set up their own tennis clubs and school teams, and competitions between schools are also in an endless stream. Through investigation, the number of students participating in tennis has increased year by year. Now college tennis has shown a thriving scene, the prospect of tennis is unlimited [5-6]. In college tennis teaching, the communication between teachers and students can fully reflect the artistry of language use in teaching, which provides a new perspective for the theoretical research of sports teaching [7-8]. Communication in tennis teaching can make teachers and students better understand each other's real ideas and puzzles in tennis class, and provide a new entry point and more ideas for tennis teachers to solve various problems in training [9-10].

With the development of society and the progress of the times, the centralized curriculum has been far from meeting the needs of the market economy and the changing times. The reform is imminent. In the environment of curriculum reform, the reform of tennis education and teaching is also imminent. As a leisure and entertainment activity, tennis has become more scientific and systematic with the development of society, and has become a competitive project of major events.

2. College Tennis Teaching

2.1. Big Data

In the Internet, each user can create and send their own information through the human-computer interface, forming a flow of information, which can be transferred, processed, analyzed and stored in the Internet through the invisible flow way. This is a kind of information exchange with individual users as the information source. Other users who can establish a network connection relationship with the information source in the Internet can receive this information through the information presentation of the information flow interface.

Canny operator firstly smoothes the gray image by Gaussian filtering:

$$G(x, y) = \frac{1}{2\pi\sigma^2} e^{-\frac{x^2+y^2}{2\sigma^2}} \tag{1}$$

Where σ is the Gaussian filter parameter. In the image, the weighted average of the pixel values is used to remove the Gaussian noise to obtain the smoothed image I. Then obtain the gradient amplitude and direction of each pixel of the image I through first-order differentiation. Where the first derivative in the x and y directions at the pixel point (i, j):

$$G_x(i, j) = \frac{1}{2}(I(i, j+1) - I(i, j) + I(i+1, j+1) - I(i+1, j)) \tag{2}$$

$$G_y(i, j) = \frac{1}{2}(I(i, j) - I(i+1, j) + I(i, j+1) - I(i+1, j+1)) \tag{3}$$

2.2. Tennis Teaching in Colleges and Universities

Generally speaking, in tennis teaching, the teacher imparts tennis skills and Tactics Knowledge and theory to the students through collective teaching. The students learn and train by receiving the teacher's information, and feed back the training effect to the teacher. The teacher adjusts the training plan and content, and sends out new information again, thus forming a closed loop system. Theory teaching and technology teaching are inseparable in college physical education. Theory teaching is the basis of college physical education, and technology teaching is the practice of college physical education. So in college physical education, the unity of theory and practice is very important. College physical education also needs to pay attention to the timely communication and interaction between teachers and students in the teaching process. The qualities held by college teachers and students help them to integrate into the tennis circle. With the help of tennis, they can get to know more elites from all walks of life, improve themselves in the exchange of skills and chat, and create a lot of convenience and opportunities for the future. It is undeniable that tennis has become a shortcut in modern communication.

3. College Tennis Teaching Experiment

3.1. Questionnaire Survey

In order to ensure the credibility of the survey content, the retest method was used to test the reliability of the questionnaire during the survey. Thirty students in the public sports tennis class were selected, and the same questionnaire was distributed and tested at intervals of 2 weeks. After the recovery, the correlation analysis with the previous questionnaire was carried out. After the teaching experiment is completed, the relevant index test is carried out. The test content, methods and testers are the same as those before the experiment.

3.2. Mathematical Statistics

This article uses SPSS17 statistical software to perform mathematical statistics on the experimental results. Among them, the independent sample T test is mainly used to carry out mathematical statistics on the cultural class scores and motor skills assessment after the experiment. The statistical results include the average score, standard deviation, variance between groups (F) and coefficient significance test (sig). The data input and statistics are strictly operated in accordance with the requirements of the SPSS software to ensure the accuracy and practicality of the results. The interval between the two release dates of the questionnaire is 10 days.

4. Discussion

4.1. Analysis of Teaching Effect

The feedback system reform based on the concept of school-based curriculum development should have a perfect feedback evaluation system. We should enrich the ways of feedback evaluation system, develop a flexible and dynamic feedback evaluation system based on students, pay attention to the promoting effect of feedback evaluation system on teaching effect, pay attention to students' mutual evaluation, pay attention to students' usual performance and achievements, pay attention to the innovative factors in students' performance, and do not take the advantages and

disadvantages of actions as the only feedback evaluation benchmark. We should take quality education and skill education together as the core standard of feedback evaluation system, and formulate a scientific feedback evaluation system for the purpose of mobilizing the enthusiasm and initiative of college students. The survey results of teachers' gender and professional proportion are shown in Table 1. In the 20 universities surveyed, there are 6 female tennis teachers, accounting for 11.54% of the total; 46 male tennis teachers, accounting for 88.46%. 8 teachers graduated from tennis major, accounting for 15.38% of the total, and 44 teachers graduated from non tennis major, accounting for 84.62% of the total. It can be seen that there is a big gender difference among college tennis teachers, and the proportion of male teachers is higher. It can be seen that college tennis teachers also realize that they should pay attention to the overall development of students in the evaluation, and take the overall improvement of students' ability as the evaluation standard. However, in the specific evaluation process, most teachers still choose the traditional evaluation method, which is lack of innovation and diversification of evaluation standards and methods.

Table 1. Survey results of teacher gender and professional ratio

	Number of people	Percentage
Female teacher	6	11.54%
Male teacher	46	88.46%
Tennis professional	8	15.38%
Non-tennis major	44	84.62%

4.2. Analysis of Teaching Quality

The educational background of college tennis teachers is shown in Figure 1. Among the 55 college tennis teachers surveyed, there are only two levels of education. Among them, 32 teachers have bachelor's degree, accounting for 58.18%, and 23 teachers have graduate degree, accounting for 41.82%. In the limited teaching environment, in order to improve the quality of tennis teaching and promote the progress of students' learning, tennis teachers must improve their classroom organization and management ability. In the selection of teaching content, we should consider the students' basic and practical ability, not only to enable students to learn a variety of practical tennis technical movements, but also to prevent too much teaching content and too high technical difficulty. When arranging the teaching schedule, the actual mastery of students' technical movements should be fully considered to ensure that most students have mastered what they have learned. Students hope that the teacher's guidance in tennis teaching mainly focuses on the demonstration and presentation. Among the total number of male and female students, 194 choose to do demonstration while telling, accounting for 97% of the total number; among them, 130 male students choose to do demonstration while telling, and 64 female students choose to do demonstration while telling, accounting for 97.7% and 95.5% of the total number respectively, indicating that this kind of counseling method has been widely recognized and accepted by the students.
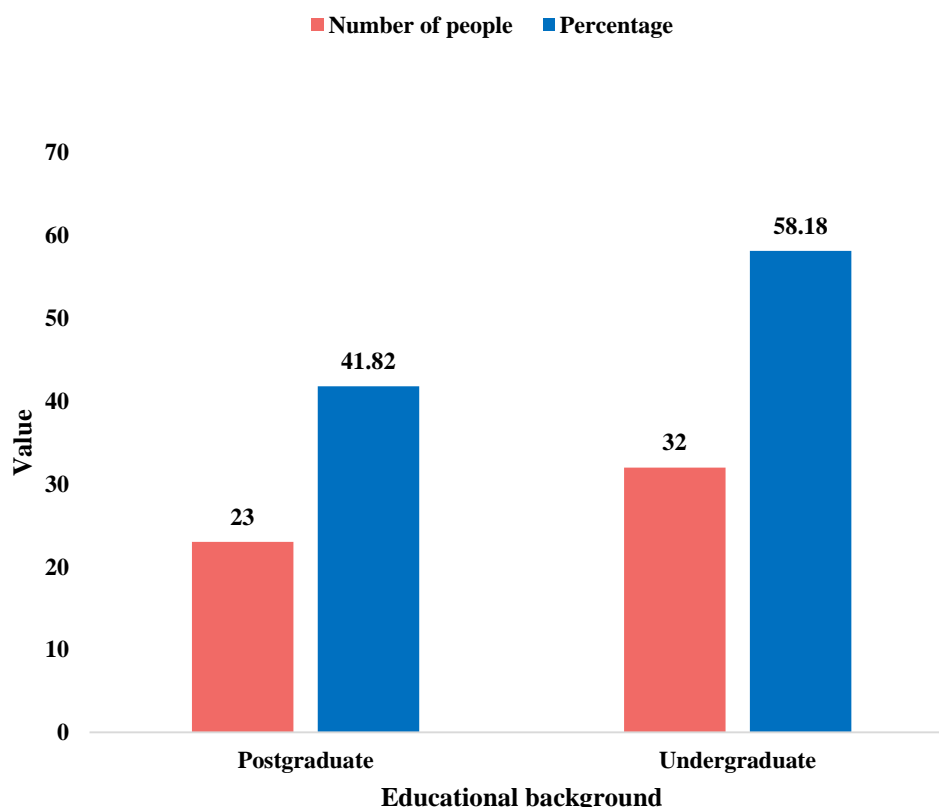
Figure 1. The educational background of tennis teachers in ordinary colleges and universities

The survey statistics of students' motivation to choose courses are shown in Figure 2. It can be seen from the figure that 22%, 84%, 88% and 88% of the students in the experimental class think that they are required, like, adapt to the social requirements and improve their tennis skills, while 17%, 86%, 88% and 75% in the control class. It can be seen that the reason why students choose tennis elective course is that they are interested in it and adapt to the needs of society. Various forms of sports competition can improve students' interest in sports and test the teaching effect. Organizing appropriate competitions in tennis teaching can not only test and evaluate the teaching effect, but also improve students' interest and enthusiasm in learning tennis, promote the improvement of students' technical level, and promote the exchange of tennis culture between schools. The difference between the experimental group and the control group showed that there was a significant difference ($P<0.05$) in the experimental group before and after the experiment, but there was no significant difference ($P>0.05$) in the control group before and after the experiment, which indicated that the experimental group students' liking for tennis class was significantly improved after the task driven teaching mode. Through the school organization emergency training to obtain tennis skills of teachers, it is obvious that this part of teachers can not fully grasp the law of tennis movement, tennis technology is not qualified, students can not learn anything valuable from the classroom.
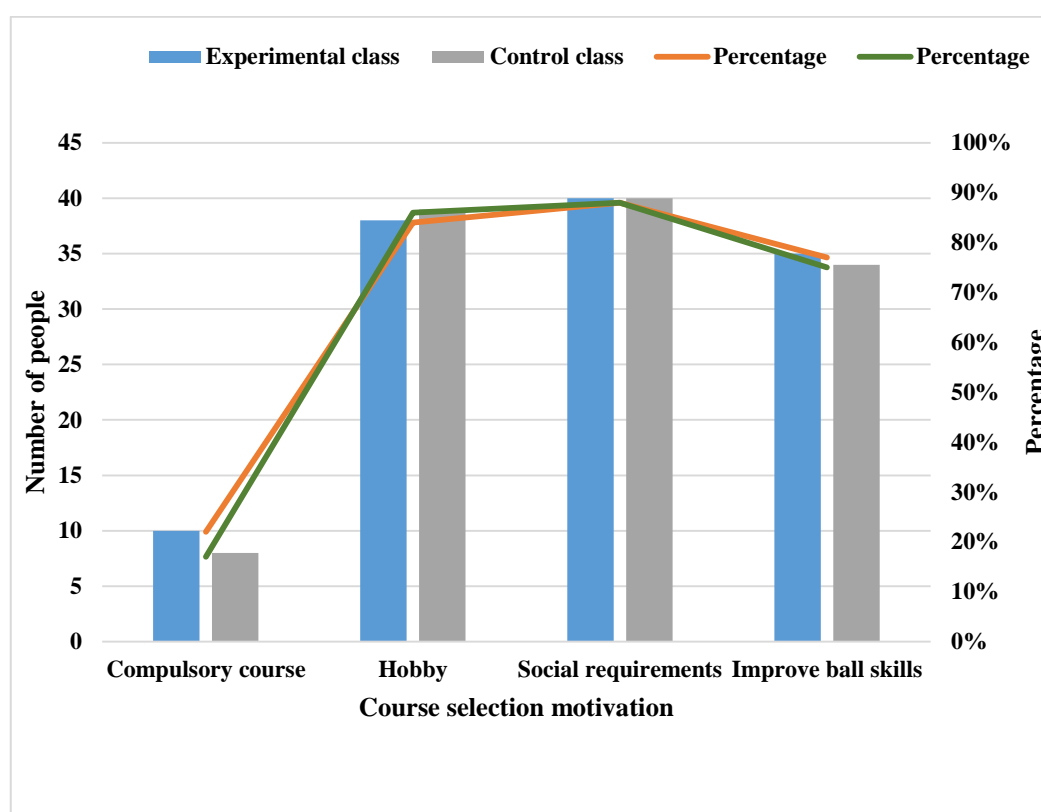
Figure 2. Survey statistics of students' motivation to choose courses

5. Conclusion

The construction of college physical education teaching evaluation system should be combined with the characteristics of big data era. The evaluation process includes four links: data collection, data analysis, and result output and result feedback.

Colleges and universities should increase the construction of tennis courts and other hardware facilities to meet the needs of tennis teaching and ensure that students have time to exercise, and try to open to students free of charge, so that students can carry out tennis activities in a fair environment and reduce the pressure of students' life.

In the process of tennis teaching, students should be regarded as the main body of teaching. Tennis is a technology, and students' subjective initiative should be brought into play. Students should listen more, watch more and practice more. Teachers should cooperate well with students when they are doing guidance work.

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Data Availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

Conflict of Interest

The author states that this article has no conflict of interest.

References

[1] Rich K M, Strickland C, Binkowski T A, et al. K--8 Learning Trajectories Derived from Research Literature: Sequence, Repetition, Conditionals. ACM Inroads, 2018, 9(1):46-55. DOI：10.1145/3183508

[2] Senyo P K, Liu K, Effah J. Digital Business Ecosystem: Literature Review and a Framework for Future Research. International Journal of Information Management, 2019, 47(8):52-64. DOI：10.1016/j.ijinfomgt.2019.01.002

[3] Rizzello A, Kabli A. Social Finance and Sustainable Development Goals: A Literature Synthesis, Current Approaches and Research Agenda. ACRN Journal of Finance and Risk Perspectives, 2020, 9(1):120-136.

[4] Dr D Z P. Psychological Framework for Gifted Children's Cognitive and Socio-Emotional Development: A Review of the Research Literature and Implications. Journal for the Education of Gifted Young Scientists, 2020, 8(1):305-323. DOI：10.17478/jegys.666308

[5] Robert C, Concepción S. Wilson, Lipton R B, et al. Evolution of the Research Literature and the Scientific Community of Alzheimer's disease from 1983-2017: A 35-Year Survey. Journal of Alzheimer's disease: JAD, 2020, 75(3):1-30. DOI：10.3233/JAD-191281

[6] Nishavathi E. Application of Growth Models to Research Literature of All India Institute of Medical Sciences: An Analysis. DESIDOC Journal of Library & Information Technology, 2020, 4(3):153-159.

[7] Segal A. Factors Influencing the Quality of Juvenile Testimony: A Systematic Analysis of Qualitative Research Literature. Social Work, 2020, 18(2):81-93. DOI：10.13165/SD-20-18-2-06

[8] Nazim M, Zia S. Use of Open Access Publishing by Researchers an Analysis of Open Access Availability of Research Literature in the field of Digital Library. DESIDOC Journal of Library & Information Technology, 2020, 40(1):366-373.

[9] Devece C, Enrique Ribeiro-Soriano D , Palacios-Marques D . Coopetition as the new trend in inter-firm alliances: literature review and research patterns. Review of Managerial Science, 2019, 13(2):207-226.

[10] Huo B, Gu M, Jiang B. China-Related POM Research: Literature Review and Suggestions for Future Research. International Journal of Production Economics, 2018, 203(9):134-153. DOI：10.1016/j.ijpe.2018.01.034