

Application Research of Information Technology in College Basketball Teaching

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Abstract: This study deeply discusses the specific application of information technology in basketball teaching. Through the application of information technology by teachers, it is found that the influential factors of information technology teaching are mainly composed of teachers' "cognition", "willingness" and "application". The correlation analysis of the three dimensions showed that: the gender of teachers had no significant difference in cognition, intention and application of information-based teaching ($p>0.05$); There were significant differences in teachers' cognition, intention and application of information-based teaching ($P<0.01$). There were no significant differences in the cognition, intention and application of information-based teaching among teachers' educational background ($p>0.05$). Based on case studies and correlation studies, this study puts forward solutions such as continuous investment in technical equipment, strengthening teacher training and in-depth research on new technologies to promote the wider application of information technology in basketball teaching. In the future, information technology will continue to play a key role in basketball teaching and promote the development of college basketball teaching towards a more scientific and intelligent direction.

Keywords: Basketball Teacher; Information-based Teaching; Informationized Physical Education; Development Status.

1. Introduction

In recent years, with the continuous integration of information means and education and teaching, basketball teaching information mode is also rising day by day. In the process of basketball teaching, the integration of information teaching means can better strengthen the communication and cooperation between teachers and students, so that students can master the skills of basketball more conveniently. At present, there are still some deficiencies in basketball course teaching in Chinese colleges and universities, and it is difficult to play the role of basketball teaching in improving students' comprehensive quality. Chinese colleges and universities should conform to the development trend of the information age, promote the development of physical

education information, and enhance the overall national strength.

2. Application of Information Basketball Teaching Form

Through a questionnaire survey on the application of information-based teaching in a college basketball course, the questionnaire results are shown in Table 1.

Students believe that the information means often used by teachers are the application of "competition video", "technical action video" and "network resource" search. Students said that the information methods that teachers do not often use are mainly "mail, MOOCs", "video teaching evaluation" and "video editing software".

Table 1. Application of different information tools in basketball course teaching

Item	Mean	Qualitative Description
Applicate Competition video	3.96	Information-based teaching has been totally utilized in basbetball courses.
Applicate videos of technical movements related to teach (such as basketball pass and cut)	3.89	Information-based teaching has been totally utilized in basbetball courses.
Applicate the Internet to search teaching resources for teaching	3.85	Information-based teaching has been totally utilized in basbetball courses.
Applicate Email, MOOCs and other network media	1.95	Information-based teaching has been somewhat utilized in basbetball courses.
Applicate Students' movements are recorded and put on the electronic screen for real-time teaching evaluation	1.76	Information-based teaching has been somewhat utilized in basbetball courses.
Applicate Video editing software	1.70	Information-based teaching has been having not been utilized utilized in basbetball courses.

Discussion: First of all, the teacher thinks that students are more interested in basketball game videos. Since sports stars are popular with students, basketball game videos can attract students' attention more, and they can fully feel the passion of basketball through videos, thus stimulating students' interest in courses and improving their cognition of technical knowledge. Secondly, the application of "technical action

video" can provide students with more intuitive visual effects. Through the processing of "technical action video", students can fully understand the key points and difficulties of basketball technology, such as: In the traditional teaching of "one-handed shoulder shooting" technology in basketball, teachers analyze the key points of the technology through demonstration and explanation, but through video technical

analysis, they can explain the technical elements of "shooting" more scientifically and more accurately, how to exert force, how to solve the order of exert force, and which muscle groups exert force. Analysis of the reasons for infrequent application of information technology, mainly because some information means for teachers is not easy to operate, the use of more complex, for older teachers are not easy to accept.

3. Influencing Factors of Information-based Teaching

Through the application form of information technology in the subject, it is found that the influential factors of information technology teaching are mainly composed of teachers' cognition, willingness and application. Through each dimension, it can be more specific to understand the performance of teachers in the application of information technology under different conditions, which is conducive to

a more comprehensive understanding of the differences in information-based basketball teaching, and provide a reference for improving the level of information-based basketball teaching.

3.1. Differences of Teachers of Different Genders

Through the independent sample T-test analysis on the development of information-based basketball teaching by teachers of different genders, it can be seen from Table 2 that there are no significant differences in the cognition, intention and application of information-based teaching between teachers' genders ($p>0.05$). However, from the average point of view, male basketball teachers' cognition of basketball informatization teaching is better than that of female teachers, but in the intention of informatization teaching and classroom application, female teachers are higher than male teachers on average.

Table 2. Differences between teachers of different genders (N=208)

Item	Sex	N	Mean	standard deviation	T	P
Cognize	Male	130	3.360	0.765	0.552	0.165
	Female	78	3.312	0.653		
Will	Male	130	4.011	0.615	-3.107	0.856
	Female	78	4.221	0.543		
Apply	Male	130	3.281	0.705	-0.437	0.501
	Female	78	3.315	0.643		

Discussion: First of all, from the perspective of information teaching, male PE teachers have a higher cognitive level than female PE teachers. This may be related to the innate advantages of male PE teachers in information education, they are easier to accept and understand the emerging educational concepts and technologies, so they show a higher understanding of information teaching. However, female PE teachers are more active in the actual willingness to carry out the information PE teaching, the information PE teaching quality and the development of the daily PE class. This may be related to the careful, patient and caring characteristics of female physical education teachers in the process of education and teaching. They are more willing to invest time and energy to try new teaching methods and improve their information-based teaching literacy, so as to better meet the needs of students in daily physical education classes. But in the actual teaching process, we can not ignore that no matter male or female PE teachers, their performance in information

teaching is not absolute good or bad. We should pay attention to their complementarity in information-based teaching, and improve the information-based teaching level of the whole team of PE teachers by learning from each other.

3.2. Differences in Teachers of Different Ages

Through the single factor ANOVA test analysis on the survey results of teachers of different ages in all dimensions of information-based physical education teaching, the results show that teachers of different ages have significant differences in cognition, willingness and application of information-based teaching ($P<0.01$), so the survey results are statistically significant.

As can be seen from Table 3, teachers aged 19-29 have the highest scores in the willingness and application of information-based teaching, teachers aged 30-39 have the highest scores in the awareness, and teachers aged 40 and above have the lowest scores in all dimensions.

Table 3. Differences among teachers of different ages (N=208)

Item	Age	N	Mean	standard deviation	F	P
Cognize	19-29	73	3.246	0.762	5.155	0.005**
	30-39	103	3.441	0.709		
	<40	32	2.813	0.755		
Will	19-29	73	4.231	0.557	9.342	0.000**
	30-39	103	4.112	0.610		
	<40	32	3.580	0.532		
Apply	19-29	73	3.789	0.800	9.843	0.000**
	30-39	103	3.643	0.664		
	<40	32	2.977	0.852		

** : $p<0.01$

Discussion: Teachers in the younger age group of 19-29 have higher application ability of information-based teaching and strong ability to accept and learn new things and

knowledge. Therefore, teachers in the age group of 19-29 have the most outstanding willingness and action to carry out information-based teaching. Teachers between 30 and 39

years old have some teaching experience, so they have more cognitive knowledge of information-based teaching, and have more teaching experience and teaching methods in basketball courses. Teachers aged 40 and above have certain difficulties in accepting fresh information teaching methods mainly due to age problems, and teachers in this age group are more inclined to traditional teaching mode. Therefore, teachers in this age group have the lowest score in the three dimensions of information-based teaching.

3.3. Differences of Teachers with Different Educational Backgrounds

Through the single-factor ANOVA test analysis on the survey data of teachers with different educational

backgrounds in all dimensions of information-based teaching, the results are obtained (Table 4): There is no significant difference in the survey results of teachers with different educational backgrounds in all dimensions of information-based teaching ($p>0.05$).

According to the average of the data, teachers with undergraduate degrees or less have the lowest scores in all dimensions, while those with postgraduate and doctoral degrees have the highest scores in all dimensions. It can be seen that teachers with bachelor's degree or less have received less information education content, while postgraduates and doctoral students have received more comprehensive modern education and complete knowledge structure due to their higher education, so they have the highest scores in cognition, willingness and application of information teaching.

Table 4. Differences among teachers with different educational qualifications (N=208)

Item	Educational background	N	Mean	standard deviation	F	P
Cognize	Lower than bachelor's degree	4	2.935	1.160	1.157	0.315
	bachelor	112	3.213	0.735		
	Master's and Doctor's	92	3.373	0.802		
Will	Lower than bachelor's degree	4	4.093	0.447	1.221	0.295
	bachelor	112	4.098	0.621		
	Master's and Doctor's	92	4.275	0.528		
Apply	Lower than bachelor's degree	4	3.534	0.620	0.022	0.976
	bachelor	112	3.635	0.784		
	Master's and Doctor's	92	3.655	0.758		

4. Conclusion

The application of information technology in college basketball teaching not only improves students' learning enthusiasm and teaching effect, but also brings a series of challenges. In order to better promote the application of information technology in basketball teaching, we need to take the following measures:

(1) Continue to invest in technical equipment; Schools need to continue to invest in the purchase and update of advanced technical equipment to ensure the smooth application of information technology.

(2) Strengthen teacher training: set up special training institutions or platforms to provide regular technical training for educators and improve their information technology level.

(3) Build perfect hardware facilities to promote the use of digital teaching materials: update and upgrade the school's hardware facilities, including computer LABS, multimedia classrooms, projectors, etc. Ensure that the equipment can support the advanced information teaching needs. Promote the use of digital teaching materials, including e-books and online videos. This not only helps to improve students' interest in learning, but also facilitates teachers to manage and update teaching resources.

(4) Establish an online learning community to strengthen monitoring and evaluation: Create an online learning community for basketball teaching to promote interaction and cooperation between teachers and students. Communities can be used to share resources, exchange experiences, and answer questions. Establish a monitoring and evaluation mechanism, regularly evaluate the effect of information-based teaching, and adjust and improve according to the evaluation results.

In the future, with the continuous innovation of information technology, college basketball teaching will usher in more opportunities and challenges. Through unremitting efforts, we are expected to achieve a deeper integration of information

technology and basketball teaching, and promote the level of college basketball teaching to a new level.

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