Research Based on Evaluation Model of Application of Team Teaching Method in Basketball Training in Colleges and Universities

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Abstract

At present, it is difficult for the traditional basketball training methods in colleges and universities to meet the growing entertainment demands from students, while there is a new breakthrough regarding foreign basketball teaching methods, of which the team teaching method used has achieved good results. Therefore, how to use this method to enhance practice and scientificity of basketball training in colleges and universities is the focus of this research. First of all, a brief overview of the team teaching method is given, and the necessity of this method in basketball training is analyzed. The empirical analysis method is used to verify feasibility of the team teaching method, and the constraints of team teaching are analyzed. Finally, some suggestions on application of the team teaching method in basketball training in colleges and universities are proposed in this paper, in order to provide valuable reference for basketball training in other colleges and universities.

Keywords: Evaluation Model, Team Teaching Method, Colleges and Universities, Basketball, Training, Application.

1. RESEARCH BACKGROUND

1.1 Literature review

Rapid development of China’s social economy has led to innovation of college education mode, especially basketball training teaching mode. At present, there are many researches on teaching methods and basketball of colleges and universities in China. Aimed at solving problems existing in the teaching methods of basketball training tactics, Jin Yiping applied “graphic teaching method” to carry out experiments regarding tactics cooperation of basketball in colleges and universities according to basketball characteristics. It is found from the research that the basketball teaching method conforms to the teaching characteristics of basketball tactics cooperation in colleges and universities (Jin, 2007), while Xie Bing systematically analyzed the practical application theories of basketball teaching in colleges and universities with literature, experiment interview, logical analysis and other methods from the perspective of hierarchical teaching (Xie, 2011). After that, Wang and Zhu, from the point of view of game teaching method, carried out deep research on basketball teaching in colleges and universities with teaching contents as passing, dribbling, single-handed shooting, etc., from which it was found from researches that students could study and play at the same time, that dynamic integration of training and practice could increase students’ action memory, enhance the basketball students’ interest in learning and promote the learning quality of college basketball (Wang and Zhu, 2011). Later on, researches were carried out by Jiang Yan on teaching effects of basketball training in colleges and universities using the analytic hierarchy process from the perspective of hierarchical analysis teaching method, aiming at innovating traditional basketball teaching methods in colleges and universities. Moreover, the hierarchical teaching method was effectively applied in basketball training in colleges and universities according to special attributes of basketball itself and advantages of basketball teaching method (Jiang, 2013). In addition, basketball teaching in colleges and universities was studied from the point of view of competition teaching method, so as to enhance students’ basketball skills, establish basketball consciousness, and cultivate good morals of basketball players (Mi, 2015). It can be learnt from above researches that there are many researches on basketball training in colleges and universities with different teaching methods in China, which are not deep and systematic, however, they point out a research direction for studying basketball training in colleges and universities through models established in this paper, and are especially of important practical significance for applying a new teaching method—team teaching method in basketball training in colleges and universities.
1.2 Purpose

How to use the team teaching method to achieve scientific and effective basketball training in colleges and universities is the main purpose of this research. In view of this, a brief overview of the team teaching method is given, and the feasibility of this method in basketball training is analyzed. In order to further verify feasibility of this method, verification of the empirical analysis method, the team teaching method and related models proves that the team teaching method plays an important role in basketball training in colleges and universities, is able to achieve effectiveness of training, and has good reference significance for basketball training in colleges and universities.

2. THEORETICAL BASIS FOR APPLICATION OF THE TEAM TEACHING METHOD IN BASKETBALL TRAINING IN COLLEGES AND UNIVERSITIES

The team teaching method is a teaching model in order to achieve the established goal and encourage people to cooperate and work together voluntarily, which can arouse all resources and intelligence of team members (Liu, 2015). The cooperation mode of members from each basketball team fully embodies the principle of equality, which urges each basketball student to participate in basketball training (Ding, 2016). In addition, evaluation on and score demonstration of each basketball team effectively show the main position of students in the basketball class activities, while spirits of cooperation, unity, creativity and inquiry of students are cultivated in the process of activities carried out by each basketball team. The following obvious effects can be achieved through the team teaching method, which are mainly shown in the following points:

First of all, ability of each trainee can be trained by the team teaching method. Each basketball team is required to take part in the basketball preliminaries. Study methods of trainees need to be changed and various training preparations needs to be used to improve self-learning ability of basketball trainees, paving the way for basketball course design and graduation design in colleges and universities in the future. Secondly, the team teaching method can significantly improve learning enthusiasm of college basketball players. It is likely that more than 90% of the basketball players will be more interested in this team teaching method (Li et al., 2015). Specifically, the basketball classroom can become more active and vivid through this method. The team teaching method can cultivate students’ interest in learning, help them to gain the confidence in basketball training, and encourage students to work harder to train basketball. Again, students from different roles in each basketball team are trained. Through the team teaching method, the basketball students can perform their own tasks, so that basketball players with the learning ability of different levels can communicate with each other.

3. PRACTICE ANALYSIS OF TEAM TEACHING METHOD IN BASKETBALL TRAINING IN COLLEGES AND UNIVERSITIES

3.1 Construction of application process of team teaching method in basketball training in colleges and universities

It can be learnt from the above theoretical analysis that TBL plays an important role in basketball team training, and has a good practical function in improving students’ practical ability (Liu, 2017). In this research, first of all, process of basketball team in colleges and universities must be divided, and then, the corresponding data operation and analysis should be carried out. Specifically, the process can be divided into the following 6 aspects, namely, team division, questions, teacher interpretation, student practice, teacher guidance, and final game practice (as shown in Figure 1). Basketball teams are formed to strengthen students’ sense of responsibility for team basketball competition, later on, cooperation tasks of teams are further determined according to feedback of teachers on players in practice, thus achieving effective teaching effects.

![Figure 1. Application Process of TBL in Basketball Training in Colleges and Universities](attachment:image.png)
3.2 Construction of TBL teaching method in basketball in colleges and universities

In the process of building TBL of college basketball, first of all, the class students are divided into several teams (5 people per team); teachers determine contents of basketball teaching, while students prepare in advance according to these contents. As for classroom teaching, 20 minutes out of teaching hours should be used to individual, team and overall application exercises. The period from the beginning of the university to the end is needed for the effective implementation of TBL. In addition, setting in all directions is required with main links as beginning of class, the first class, each teaching unit, the end of the course and the specific process as follows: the first step: before setting up basketball courses in colleges and universities, an accurate evaluation score system needs to be established mainly according to the basketball curriculum design and basketball teaching objectives. In the design of team teaching methods, teachers are required to develop reverse thinking. The second step: the first basketball class, which is a key step to test the success of team teaching method. As a basketball teacher, the following goals should be achieved: ensuring basketball course students are able to understand that why team teaching methods are used, that how all basketball courses will be carried out; organizing basketball course teams. The third step: designing teaching units of each basketball course. The learning unit of the team teaching method begins with the reading assurance process (RAP) for each basketball course (at least 5 to 7 times per semester).

3.3 Model construction and effect evaluation

As for basketball training in colleges and universities, TBL needs to be evaluated from multiple perspectives. Specifically, in order to evaluate the training effect, it is necessary to calculate the number of goals scored, defense, counterattack and other aspects (Zhang, 2012). In order to make a comprehensive analysis and evaluation of TBL basketball training in colleges and universities, not only the teaching aspect, but also the perspective of students’ understanding and practical ability should be considered for comprehensive evaluation of the TBL teaching effects. Therefore, on the basis of Lorenz curve theory, unit square diagonal and the area enclosed by the theory are to be established. Generally speaking, the statistical data are mostly group data in the discrete form, so the area calculation formula of Gini coefficient can be converted to (1),

\[
G = \sum_{i=1}^{n} \frac{q_i}{S} s_i = \sum_{i=1}^{n} s_i t_i = F_t + F_{t-1} - 1
\]  
(1)

Where, \(q_i, q_2, ..., q_n\) is corresponding training number, representing the number of shots; \(F_t\) represents the proportion of average shots in team \(i\) to the total number of shots accumulated. At the same time, according to the calculation of accumulated team share, \(\omega_i\) is combination coefficient (including \(i \in N = \{1, 2, ..., n\}\)). In order to construct the panel model, the explanatory variables are assumed as per capita number of shots and number of team shots; accordingly, explained variables are mainly based on the number of shots per capita under the TBL method. At the same time, in order to eliminate the linear and heteroscedasticity between variables, the logarithm is taken for variables to construct the panel model of Equation (2),

\[
\ln \text{per asset}_{it} = c + a_1 \ln \text{per gdp}_{it} + a_2 \ln \text{wage}_{it} + \epsilon_{it}
\]  
(2)

Where, subscript \(i=1, 2, ..., 5\) means shooting individual in the team; subscript \(t=5, 10, ... 45\), indicates that the time stays once every 5 minutes; \(\epsilon_{it}\) is a random perturbation term. Regression analysis is carried out on the number of training times and the number of goals shot, and the Eviews8.0 software is used to calculate. First, the unit root test is used to verify the stationarity of the data. The calculation shows that all data passes the stationarity test, that the data of heteroscedasticity does not exist, so the next step can be calculated. Second, F test value is used to verify the mixed effect model; it is found that these models reject the hypothesis of mixed effect model at 1% significant level, for which the fixed effect model is needed. Finally, by calculating, coefficients of determination of the three equations are 0.154, 0.1087 and 0.2417, which shows that the overall regression effect of the model is obvious, which accords with the interpretation of the previous theory.

The constraint model is used to test the constraint factors for application of team teaching in basketball training in colleges and universities. Indicator \(Sat_i\) can perform the task \(task_i\) condition: find a team with team effects \(TW_i\) out of the team teaching method, observe effects of the teaching method \(TWtasks\), which are able to satisfy \(Btasks\) and \(task_k\) without conflicting with other teaching method \(TW-used_i\) already used by the team. That the implementation of team teaching method in basketball training in colleges and universities is restricted by environment, mechanism and personnel are taken into full consideration, and each measurement object is regarded as a unified whole. The following constraint test is carried out on the teaching model combination \(TW-det\) constituted by \(TWtasks\) and \(TW-used_i\), and \(TW\) out of \(TW-det\) is ranked according to \(t;\)
When the team basketball teaching mode is implemented, the interaction situation of each player is observed:  
\[ \forall t w_m \in T W_{det}, T^t w_{m+1} - T^t w_m \geq 0 \]  
(3)

Moreover, basketball training team Curteam is established,  
\[ Curteam. Cost \geq team^{best}. Cost \]  
(4)

It can be found that the team teaching method is suitable for basketball training in colleges and universities and for the long-term use in the teaching.

3.4 Analysis and discussion of experimental results

Under the condition that the effect of basketball training is not obvious, the application of team teaching method in college teaching has gradually increased. This is of great reference value for basketball training. Therefore, the TBL method is used to verify the scientificity and validity of this method. Through empirical research, personal test answers and subsequent team tests are obtained for reaching an agreement. A college basketball teacher, when designing these tasks, should not only pay attention to tightness, consistency and reality of the relevant concepts, but also make the task interesting and challenging, which will lead to a high level of thinking of students. The team teaching method is introduced into college basketball teaching, at the same time, optimization combination of team size is achieved to further improve the level of basketball training in colleges and universities, otherwise the opposite results will happen (as shown in Table 1).

### Table 1 Experimental Results of Team Teaching Method

<table>
<thead>
<tr>
<th>SatNum</th>
<th>TFCA</th>
<th>HTFA-s</th>
<th>HTFA-RC</th>
<th>HTFA-c</th>
</tr>
</thead>
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<td>5</td>
<td>0.157</td>
<td>0.006</td>
<td>0.006</td>
<td>0.0143</td>
</tr>
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<td>0.032</td>
<td>0.013</td>
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<td>0.015</td>
<td>0.008</td>
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</tbody>
</table>

### 4. CONCLUSION

In conclusion, the team teaching method plays an important role in basketball training in colleges and universities, which has certain reference significance for college teaching. Therefore, the effective use of team teaching methods to improve the quality of college basketball training can be started from the following aspects: firstly, optimize and update the sports facilities in colleges and universities, including sports equipment and apparatus, and constantly improve utilization rate of basketball equipment and site in colleges and universities. Improvement of college sports facilities are required to constantly meet the needs of basketball teaching in colleges and universities, as well as the needs of carrying out extracurricular sports activities for basketball students. Secondly, strengthen the construction of basketball teachers in colleges and universities. The national policy guidance is adopted to effectively dig the potential of basketball teachers who are encouraged to learn and study, advocate the use of the group teaching method, and actively learn from each other. Knowledge and ability structure of teachers are improved on this basis to promote learning from each other regarding to basketball knowledge and ability structure.

### REFERENCES


