

# Research on the Operation and Management Mode of University Gymnasiums in Shaanxi Province

Li Li<sup>1,\*</sup> Ke Ning<sup>2</sup>

<sup>1</sup> Physical Education College, Shaanxi Xueqian Normal University, Xi'an, Shaanxi, China

<sup>2</sup> Physical Education Institute, Shaanxi Normal University, Xi'an, Shaanxi, China

\*Corresponding author. Email: 161841358@masu.edu.cn

## ABSTRACT

In this paper, a mode of intelligent operation is proposed to solve the low utilization rate of the venues, traditional management, and low revenues in the operation process of university gymnasiums. The low utilization rate of venues is mainly manifested in the high vacancy rate of university gymnasiums during winter and summer vacations, and poor site conversion capabilities for unpopular projects. The solution of intelligent operation is to order the venue on APP and adjust the time. Traditional venue management methods have the shortcomings, such as incompact management system and unclear ownership of responsibilities. Accordingly, it is suggested to leave records, which can be checked in detail. Also, low revenues are mainly manifested in high labor cost and high venue maintenance charge. Hence, with the use of intelligent operation, it is required to build a market-oriented operation mechanism to ensure the development of the sport industry under the premise of ensuring the public welfare of university gymnasiums.

**Keywords:** College gymnasium, Shaanxi University, Operation management.

## 1. INTRODUCTION

In 1999, the general office of the Ministry of Education issued "notice on opening school gymnasiums to the public on holidays and public holidays", providing a policy basis for opening university gymnasiums to the public. The primary function of university gymnasium is to meet the needs of physical education teaching, training, competition and extracurricular sports activities of colleges and universities. The implementation of the market-oriented operation mode of gymnasium facilities in colleges and universities will help to introduce social capital, overcome the shortage of school gymnasium construction and maintenance funds, improve the utilization rate of gymnasiums, and meet the needs of sports lovers in the surrounding communities of the school for gymnasiums. The intelligent operation of university gymnasiums aims to make full use of the human, intellectual and material resources of colleges and universities, actively create wealth, expand the influence of colleges and universities, and finally

"support gymnasium with gymnasium" on the basis of ensuring the public welfare and sociality of university gymnasiums.

## 2. RESEARCH OBJECTS

30 colleges and universities in Shaanxi Province were selected as the research objects, including 6 colleges and universities in 211 project, 18 provincial colleges and universities, and 6 provincial higher vocational colleges.

## 3. RESEARCH METHODS

Literature review method, expert interview method and questionnaire method were adopted in this study.

The questionnaire in this study was divided into two versions: teacher version and student version. The contents of the questionnaire included: use area per capita, opening hours, area for different sports events, venue attributes, maintenance funding sources, use methods for people outside colleges, channels for creating income, revenue and

\*Fund: This paper is supported by School-level Project of Shaanxi Xueqian Normal University (2019YBRS51).

expenditure status, etc. 5 experts were invited to test the validity and reliability of the questionnaire.

#### **4. OPERATION STATUS OF COLLEGE GYMNASIUMS IN SHAANXI PROVINCE**

As a place full of youth, colleges and universities are especially favored by sports lovers because of unique humanistic environment. In this study, the opening modes of gymnasiums were divided into paid opening and free opening. The paid opening of gymnasiums was divided into two forms: being operated by people outside colleges and self-operation. The self-operation of gymnasiums was divided into three forms: being managed by sports department, being managed by logistics department and being managed by sports department + logistics department. According to the survey, the operation status of university gymnasiums in Shaanxi Province is as follows:

Among the 30 colleges and universities, 82% of gymnasiums are opening to the outside world, of which the gymnasiums being operated by people outside colleges account for only 12.5% of the gymnasiums opening to the outside world. About 76% of gymnasiums opening to the outside world can keep the balance of payments and make fewer profits. And the pricing of public university gymnasiums opening to the outside world is set according to the policies of off-campus charges and preferential policies for teachers and students. However, both inside and outside the university, the charging standard of university gymnasiums is lower than the market price of the region, which is determined by the public welfare of the university. College gymnasiums are required to transform full-amount or partially-owned assets for the operation according to the requirements of national policies. And then, colleges can make up for the difference of funds, and finally "support the gymnasium with the gymnasium". University gymnasiums have large user groups (including students, teachers, community residents, social groups, etc.), which are important reasons for the sustainable operation of university gymnasiums. [1] The charge of university gymnasiums is low and the price fluctuates greatly, which is mainly due to the different number of community sports lovers around different universities, resulting in a certain fluctuation in the price. At present, in the context of the COVID-19, the paid opening of university gymnasiums is mainly aimed at the personnel in the school, so as to control the personnel saturation of

the venues, and the charging is taken as a supplement to the management means, not to create benefits. [2] This situation is expected to be improved after the full vaccination of booster vaccination.

Among the paid venues opening to the outside world, the demands for badminton venue rank first, and then followed by the swimming pool and tennis venue. Among the free venues, the demand for basketball venue ranks first. It is worth noting that in the context of COVID-19, whether for paid or free use of gymnasiums, the service objects are quietly inclined to the teachers and students of this college. Badminton gymnasium and tennis gymnasium in a few colleges and universities can realize field conversion. Most college gymnasiums are not convertible, and the vacancy rate is high during operation.

From the perspective of management, due to post and staffing constraints, it is difficult for most colleges and universities to set up management posts in venue departments. Most management posts are part-time for school logistics staff, students and teachers. Only some colleges and universities have set up the posts of director and deputy director of venue center.

#### **5. ANALYSIS ON THE FACTORS RESTRICTING THE OPERATION OF UNIVERSITY GYMNASIUMS**

##### **5.1 Security Factors**

With the opening of university gymnasiums to the outside world, the increase of mobile social personnel in the campus and the surge of exercise people in the venues have become important factors for teachers and students to resist the opening of gymnasiums to the outside world. [3] In the context of COVID-19, it is required to consider the strong demand for physical exercise. Also, it is suggested to it control the mobility and concentration of people. Security factors have become a major resistance to the opening of university gymnasiums to the outside world.

##### **5.2 Time Conflict**

The original intention of the construction of university gymnasiums is for students' physical education and sports activities. In terms of time allocation, working days are used for students' classes. It does not conflict with the opening hours of the venue. However, the time of student sports

activities organized by the colleges is not fixed, or conflicts with the opening time of gymnasiums on weekends. Accordingly, it is required to consider the vacancy of sports venues in winter vacation. This is also a common problem for colleges and universities.

### **5.3 Uneven Income and Expenditure**

University gymnasiums build standard sports venues according to teaching requirements, and the investment is relatively high, so the later maintenance cost is also relatively high. Due to the public welfare of university gymnasiums, the university gymnasiums are opening to the outside world with low payment. In the long run, the cost and income are uneven, resulting in the opening reduction of university gymnasiums to the outside world.

## **6. SOLUTIONS OF INTELLIGENT OPERATION**

Nowadays, with the rapid development of intelligent technology, there are still many deficiencies in the standardized, scientific and efficient operation and management of university gymnasiums. [4] Intelligent technologies, such as network service platform, mobile payment and mobile app application, provide technical reference for the operation of gymnasiums.

The advantage of intelligent system is that in the operation of university gymnasium, the largest expenditure is venue maintenance charge and manual management fee. The low utilization rate and uneven revenue and expenditure of gymnasiums are all due to the traditional operation and management mode. The intelligent operation system of gymnasium includes inventory system, procurement system, sales system, financial system, real-time supervision system, etc. Among them, the real-time supervision system greatly facilitates users' online reservation, replacement and cancellation, which not only improves the utilization rate of venues, increases venue revenue and reduces labor expenditure, but also makes the whole process have records. Then, people can search for records and make the files. The intelligent operation of the gymnasium has realized the upgrading of venue management software. At the same time, targeted training and learning should also be carried out for gymnasium managers, so that managers can understand the intelligent

operation mode of the gymnasium and master operation mode.

The advantages of intelligent system are also reflected in: online reservation, big data analysis, user feedback, health supervision, user forum, etc. The online reservation function not only facilitates users' payment and return. With the use of Big data, the user's reservation will be analyzed, and managers can know each user's sports preferences, sports habits, sports cycle, etc. The intelligent system can regularly push articles on health to users according to the user's gender, age, exercise frequency and other information, and provide users with relevant exercise guidance schemes in order to increase their stickiness to the venue. [5] In addition, the map navigation and the venue introduction of the intelligent system are not only very suitable for new scholars, but also promote the advanced nature of the operation and management of the gymnasium. With the use of AI face recognition access control system, personnel contact and potential safety hazards are reduced. And it is especially suitable for venue management under epidemic situation. The real-name registration system of the intelligent system can be used to supervise the health status of users. This not only meets the requirements of national epidemic prevention and control, but also is responsible for the health of every sports lover, increases the trust of users and gives users a reassuring experience. In addition, the use of user credit point system with the real-name registration function is more conducive for managers to maintain the order of the gymnasium than with the use of the traditional gymnasium operation and management mode. If the users have bad behaviors such as language or physical conflict when using the venue, credit points will be deducted. If the credit score is too low, users will be put into the user blacklist, and then they cannot enter the gymnasium. This virtually restricts the user's behavior and creates a good sports atmosphere. As the representative of the driving force of scientific and technological development, colleges and universities have incomparable advantages in the development of intelligent operation and management of gymnasiums. Intelligent operation will ensure the public welfare of university gymnasiums, give full play to the sports humanistic advantages of colleges and universities, and develop the sports industry.

The disadvantage of intelligent system lies in the large initial investment. Although the purchase of AI equipment requires fixed asset expenditure and leads to increased depreciation, the financial

cost of the purchase expenditure can be deducted before tax.[6] The use of intelligent system can be used for VAT deduction based on the input tax of business increase or decrease. [7]The labor cost of traditional management cannot be deducted from VAT. At the same time, intelligent systems require no salary, no vacation, and no social security payments, no injuries, only machine repair and maintenance costs. [8]It is worth mentioning that at present, when intelligence is more popular, the cost of machine repair and maintenance is also more people-friendly. After the intelligent system and machine are put into operation, colleges and universities must organize the managers of gymnasiums for learning and training, which has a certain time cost. However, colleges and universities have a strong learning atmosphere and high-quality staff. After short-term training, they will be able to get started quickly. After a comprehensive analysis, the advantages outweigh the disadvantages of the intelligent operation and management mode of university gymnasium, which is also the inevitable result of the development of university gymnasium operation in the future.

## 7. CONCLUSION

Today, intelligence has already penetrated into all aspects of life, such as shopping, catering, travel, entertainment and so on.

However, the intelligent operation and management of university gymnasiums is still in its infancy.[9]The intelligent management system solves many problems in the traditional operation mode of gymnasiums, such as venue maintenance charge, management labor cost, low venue utilization rate, low venue income, difficult user feedback, difficult communication between users, difficult venue date change, etc. As a high-quality concept and operation mode, intelligent gymnasium is worthy of reference and popularization in colleges and universities.

## AUTHORS' CONTRIBUTIONS

Ke Ning is responsible for experimental design, and Li Li wrote the manuscript.

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