An Empirical Study on Influencing Factors of Cheerleading Development in China High School

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ABSTRACT

This study aims at exploring the reasons of cheerleading developing slowly and popularizing unfavorably in China high school from empirical perspective. In the beginning, relevant documents are reviewed. Then first-hand data collected by questionnaires are processed by SPSS20.0. As the study shows, people's cognitive bias and insufficient investment to cheerleading are the two principal factors, which largely hinder its popularization in high school. In the end, reform measures and suggestions are also proposed for better develop this exercise.

Key words: Cheerleading, influencing factors, China high school

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INTRODUCTION

Cheerleading, which originates from America, is found everywhere in NBA, rugby, baseball, track and field, swimming, etc. It has had a history of more than 100 years up to now. Cheerleading is introduced into our country in 2002 and it has been 13 years since then. With the constantly increasing of people's living standards, people pay more attention to cheerleading for its health care, medical care, bodybuilding, fitness and entertainment functions. Cheerleading has attracted numerous amateurs of different ages. And a certain size of consumer group is formed accordingly. In recent years, China cheerleading groups become large gradually, with skills improved continuously as well. Several teams even have made a figure on the international stage, which shows a huge potential for a further development [1-2].

China cheerleading does have made some achievements internationally. However, there is still a wide gap between China and some sport powers such as America and Japan in terms of its popularity. Cheerleading almost enjoys huge popularity everywhere in foreign countries, yet it doesn't get due attention and full development in China. Why? This very subject is worth studying. So the aim of this study is to explore the factors that influence cheerleading development in China high school.

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LITERATURE REVIEW

Many scholars, both at home and abroad, have done research on the factors that influence cheerleading development.

Thomas, D.Q and Seegmiller, J.G studies the relations between competitive level and physical quality from perspectives of strength, vital capacity and body fat [3-4]. But their research can only be called micro research because it is based on individual quality. We can say that the influence on cheerleading development is very little. Clifton, R.T and Gil, D.L studies this question from angles of gender and confidence. They think that cheering team members will show great confidence in things that conform to their genders. Males usually feel confident when they turn somersault or do lifting while females are confident in jumping and dancing [5].

Xie Yalong and others think that factors which improve the exercise level are complicated in PE development process. On the high level, factors consist of national politics, economy, culture, training system, competitive system and management system. Factors that are listed on the low level are training methods and means, instrument and equipment medical care, nutrition and version other conditions [6]. Gao Zhidan and else have summarized 26 factors that influence competitive sports development based on the analysis of substantial research findings. After experts evaluate the research progress, they abstract 13 primary influencing factors in five categories eventually. Li Chunlei studies factors that influence China gymnastics to develop stably, healthily and sustainably. In his opinion, factors that hold heavy weight are management system, athletic investment, political surroundings, backup power, coaches and the training of faculties. Yuan Chunyan investigates and analyzes major factors that influence the competitive ability of cheerleading atheists, from angles of stamina, investment, technical factors, art ability and mental factor [7]. Although Zhao Ningning explores the reasons of cheerleading developing slowly in our country from aspects of outside environment, trainers and atheists, his analysis does lack empiricism on the whole and weights of all factors are not included, either [8].

It is thus obvious that there are many factors influencing cheerleading development. Scholars have not yet get consensus on this issue. In addition, current research is more qualitative than quantitative due to lacking relevant research methods. These problems not only obstruct cheerleading popularization, but also affect the authority to make scientific decisions.

RESEARCH METHODS AND DESIGN

According to the relevant documents mentioned above, we can see that scholars draw different conclusions, according to various points of view. Further research shows that some factors are intercrossing and overlapping each other. So it is necessary to simplify them one more step. Therefore, factors analysis is chosen to meet the purpose of this research.

The primary goal of factor analysis is to describe some more basic latent variables which cannot be measured directly because they are hidden in a group of measured variables. To be more specific, factor analysis is used to extract common factors from groups of variables.

Suppose there are m original influencing factors, which can be expressed as variable $x_1, x_2, ..., x_m$. Then k

($k \leq m$) factors, which can be expressed as $f_1, f_2, ..., f_k$, are abstracted to characterize these original variables

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after dimension reduction process. The relation between factor f_i and variable x_i can be expressed as follows:

$$\begin{cases} x_1 = a_{11}f_1 + a_{12}f_2 + ... + a_{1k}f_k + \varepsilon_1 \\ x_2 = a_{21}f_1 + a_{22}f_2 + ... + a_{2k}f_k + \varepsilon_2 \\ ...... \\ x_m = a_{m1}f_1 + a_{m2}f_2 + ... + a_{mk}f_k + \varepsilon_m \end{cases} \tag{1}$$

Thereinto, a_{ij} is the loading coefficient of variable x_i and f_j, ε_i is the error item.

RESEARCH PROCESS

Questionnaire and Data Collection

According to the advice of some experts, if a reliable sample with high capacity is not available in a theoretical model construction, a preliminary one can be abstracted from specific small samples. Then this model will be tested by extending it to different research objects. In this way a more precise theoretical model will be constructed and completed.

In order to collect necessary first-hand data, questionnaire is designed for studying the factors that influence cheerleading development in high school. All question terms listed in the questionnaire adopt Likert 5-level scale (1-very disagree, 2-disagree, 3-I don't know, 4-agree, 5-very agree). Investigation is carried out in small scope to get rid of ambiguity in design for a more reasonable questionnaire. Then a formal investigation is launched among leaders, PE teachers and students in 12 non-professional sports colleges across the country. It starts in September and lasts for 3 months. 400 questionnaires of two kinds are distributed; 361 questionnaires are returned; 268 valid questionnaires are selected after getting rid of invalid questionnaires.

Data Processing
Data Test

These data are to be processed by SPSS20.0, then m relevant testing results, which can be expressed as

$x_1, x_2, ..., x_m$, are gotten. There does exist a strong partial correlation because of the $KMO = 0.823$ according

to Table 1, and it means that they are fit to factor analysis.

Table 1   KMO and Bartlett's Test(a)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.836
Bartlett's Test of Sphericity	Approx. Chi-Square	256.31
	df	8
	Sig.	.000

Factors extract

In Table 2, all variances of original variables that are explained by every factor are listed. Thereinto, the part of "extraction sums of squared loading" is to explain original variable variance by the two common factors. The explanation rate is 85.963%, which indicates an ideal analyzing result. While the part of" rotation sums of squared loadings" is to explain original variable variance after factors rotation. The cumulative variance is unchanged, but the original variable variance change a little.

Table 2   Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative e %
1	4.576	47.200	47.200	4.576	47.200	47.200	4.226	42.825	42.825
2	1.501	38.763	85.963	1.501	38.763	85.963	1.821	31.763	84.588
3	1.282	6.025	91.988						
4	.188	2.350	94.338						
5	.163	2.038	96.376						
6	.140	1.750	98.126						
7	.122	1.525	99.650						
8	.028	.350	100.000						

Extraction Method: Principal Component Analysis

Factor Naming and explaining

In Table 3, the loading coefficient between factor 1 and four variables, which are incentive measures, students support, social participation and leader attention, is quite big. Actually these variables mainly reflect cognitive attribute toward cheerleading. So factor 1 can be named Cognitive Attitude. Factor 2 is to explain the following four variables: site facility, trainers, funds and medical condition. The loading coefficient between factor 2 and these variables is very big. Practically speaking, these variables are in relation with investment, so factor 2 can be named Investment Level.

All in all, two main driving factors are found after factor analysis, namely, cognitive level and investment level, which provide some reference and idea for the following-up reform.

CONCLUSION

Cognitive Factor is the Principal reason of cheerleading popularizing unfavorably in high school

Empirical analysis shows the main reason of cheerleading popularizing unfavorably is that all parties concerned hold bias against it.

In the whole research process, we notice an important phenomenon: compared with the understanding and attention paid to this exercise we have seen in foreign countries, people of all levels in our country, from school leaders, trainers, and team members to average students, have little understanding about cheerleading and pay less attention to it. Especially many students see cheerleading as less important than other sports such as volleyball, basketball and aerobics. The view is prevailing that cheerleading is just an auxiliary exercise or a kind of game to active atmosphere. Even high school managers tend to think like this. This subjective bias against cheerleading tremendously hinders its popularization and development in our country.

Investing insufficiently is another factor cheerleading popularizing unfavorably in high school

The tendency of belittling cheerleading leads to insufficient investment. Some universal problems concerning

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investment are: 1) our country is in need of specialized site and associated equipment; 2) Coaches are short in number as well as poor in education; and 3) Its theoretical course building severely lags behind other subjects. To sum up, insufficient investment badly gets in the way of cheerleading development in high school.

Suggestions of cheerleading popularizing in high school

In conclusion, it is imperative to set people's cognition to cheerleading right in order to turn around this unfavorable situation. First of all, school leaders should pay more attention to cheerleading as an emerging exercise. And they should devote more time and energy to carrying out relevant curriculum construction, cultivation and motivation, too. Coaches need spend a lot of time making up popular routine that combines exercise, fitness and art together, which will naturally attract more and more students to take part in this exercise.

Second, school leaders should try their best to attract more investment and put cheerleading at the same important position as other sports subjects. On the one hand, infrastructure construction like site and associated equipment should be strengthened. On the other hand, faculty building should be enhanced in the meantime. In addition, academic exchange and competition communication should be actively encouraged, and participation in relevant competitions held at home or abroad is strongly advocated. All in all, measures in cognitive and material aspects should be taken synchronously to better develop and popularize cheerleading in China high school.

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