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## A research on teaching level of physical education teachers at special education schools in Hebei Province of China

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### ABSTRACT

Hebei Province has a rather large disabled population and is one of the provinces which have the most special education schools and students on campus. Questionnaires, literature consultation and mathematical statistics are employed to study teaching ability of physical education teachers at special education schools in Hebei Province of China. In this study, constructive proposals and measures are provided for improving teaching ability of physical education teachers at special education schools in Hebei Province by investigating the ability status quo of physical education in special education and analyzing the influencing factors.

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### KEYWORDS

Hebei Province of China;  
Special education;  
Teaching level.

### INTRODUCTION

With the rapid development of China's special education and the further reform of school physical education, increasingly higher standards are set for P.E. teachers of special education schools. Hebei Province has a rather large disabled population and one of the provinces which have the most special education schools and students on campus. This project aims to investigate the teaching ability of P.E. teachers at special education schools in Hebei Province, to get a basic idea about the status quo of their teaching level and to analyze the relevant constraints so as to put forth some constructive advice on how to improve their teaching ability.

### RESEARCH METHODS

#### The method of literature consultation

The author consults a number of relevant papers through CNKI database, VIP database, Superstar electronic library and Google. On the basis of a wide consultation and deep understanding of the theories, research methods and frontier research about special education and physical education, the author makes an attempt to synthesize the relevant theories and assimilate the precious researching results.

#### Questionnaire method

##### Form and content of the questionnaire

By means of filling out the questionnaires of Likert Scale, the author surveys the P.E. teachers at special education schools in Hebei Province from the perspective of the professional knowledge, professional competence, professional ethics and the attendance of spe-

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cial education training, evaluating at the score from one to five, with the greater score indicating the better performance. The author also makes a rough survey about other basic conditions of the teachers.

### The validity and reliability test of the questionnaires

- 1) The validity is tested through the consultation of some relevant experts. Twelve experts of special education and physical education are consulted about two rounds of questionnaires. The author sorts out and integrates the feedbacks. The final questionnaires are completed according to the experts' suggestions. Finally, about 91.7% of the experts conclude that the designing content of the questionnaires is effective to reflect the focus of the research with a sound structure.
- 2) The questionnaires are examined by the binary reliability test. The binary reliability coefficient is 0.926, signifying a higher reliability of the questionnaires.

### The distribution and the collection of questionnaires

A survey is conducted of the P.E. teachers at 18 special education schools of 6 cities or districts in Hebei Province. Sixty-five questionnaires are distributed and all of them are collected back, among which sixty-three of them are valid, with an effective response rate of 96.9%.

### The method of mathematical statistics

The collected questionnaires are analyzed through computer.

### The method of logical reasoning

On the basis of the result of the questionnaires, the author analyzes the constraints of the improvement of the P.E. teachers' teaching ability at the special education schools in Hebei Province and provides some strategies to solve it.

## ANALYSIS OF THE STATUS QUO OF THE P.E. TEACHERS' TEACHING ABILITY AT SPECIAL EDUCATION SCHOOLS IN HEBEI PROVINCE

### Basic situation

### The student-faculty ratio

There are 65 P.E. teachers and 4,015 students on campus at 18 special education schools in 6 cities or districts in Hebei Province. The student-faculty ratio is 1: 61.8. It is little different from that of the general schools in Hebei Province, yet a little better than that. There are 17 part-time teachers among the faculty, accounting for 26.2% of the total number of faculty. Since the part-time teachers cannot devote themselves wholeheartedly to the work at schools, plus the workload of PE teaching staff is relatively great, the number of faculty is not enough to meet the demand of the work.

### Gender and age characteristics

There are 65 P.E. teachers at 18 special education schools in 6 cities or districts in Hebei Province, among which 45 are male teachers and 20 are female teachers. Obviously, the ratio of female teachers is rather lower. The age is between 25 and 55, with an average age of 34.5 years old. The teaching span is between 3 and 20 years, with an average span of 12.5 years. They spend fewer years on special education and lack of experience.

### Major, education background and the characteristics of the structure of professional titles

The condition of the P.E. teachers' majors and education background is the key maneuverable index to evaluate the professional level of the P.E. teachers. Their majors are the direct foundation to fulfill their teaching tasks and their education backgrounds are the important symbols to indicate their educational degrees and learning. As can be seen from the survey (as shown in TABLE 1), there are 51 teachers with college degrees or above, accounting for 78.4%, lower than that of 82.2% of the faculty of special education schools. As is shown in the survey, 32.3% are teachers with junior professional titles, 61.5% with intermediate professional titles and 6.2% with senior professional titles, without any expert teachers. The reason for the lower structure of professional titles is as follows. One is that P.E. teachers' self-awareness and diligence is not enough. The other is that the assessment of professional titles is not much in favor of special education schools in some districts.

### The ability status quo of physical education in spe-

**cial education**

**The vocational attitude of engaging in special physical education**

Teachers' Vocational attitude refers to their value evaluation, affective response and behavior disposition on the career they work on, which is the inner and stable psychological expectation for the teachers and their career. It also has motivative and instructive influence on the teachers' professional behavior and will determine their behavioral direction, manners and consequences<sup>[2]</sup>.

The average score of the teachers' vocational attitude is 4.12, which reflects a better vocational attitude, good trend of vocational willingness and better tend of vocational treatment. What's more, it also reflects the higher professional dedication, the correct realization of the social value of the special education teachers work, the firm working ideal and the positive working attitude; the statistics feedbacks the teachers have higher ethical quality and the devotion spirits and responsibility towards the disabled, but it is also found that the tend of vocational treatment is slightly lower, which shows that some teachers are not satisfied with the current vocational treatment and still have the higher expectation towards the vocational treatment.

**The grasp of sports professional knowledge in special education**

Special education is the way of using a series of

common or specially designed courses, textbooks, teaching manners, organization form and equipments to educate the disabled teenagers in order to reach some common or special training targets. P. E. teachers in the special education school should not only accept the professional physical education, but also the special educational training. Different from general education, special education has special vocational demands on the teachers who are engaging in the education, and must have distinctive vocational knowledge. So P. E. teachers in the special education must receive the special training, have systematic special education theory, understand the physical and mental characteristics of the disabled kids, grasp the rules and skills of special education, only in this way can meet the special physical demands of disabled kids. Research shows that the total professional knowledge level of special education teachers in Hebei province is lower, with the knowledge structure being imbalance, especially there is a short of knowledge of special education and physical teaching. The vocational knowledge scores 3.09, lower than the total average score of 3.26. More systematic and comprehensive study of the mentally retarded children should be strengthened, which is about the pathology, recovery and psychology.

**Professional teaching ability of physical education in special education**

Special education physical teachers' vocational

**TABLE 1 : Statistical table about the education background of P.E. teachers at special education schools in hebei province**

Education background	Master's Degree and above	Bachelor's Degree	Junior College Education	Below Junior College Education	Without a Degree	Total
Number of teachers	0	11	40	13	1	65
Percentage	0%	16.9%	61.5 %	20%	1.5%	100%

**TABLE 2 : Statistical table about the structure of majors of P.E. teachers at special education schools in hebei province**

Major	Physical Education	Special Education	Preschool Education	General Education	Others	Total
Number of teachers	17	26	11	9	2	65
Percentage	26.2%	40%	16.9%	13.8%	3.1%	100%

**TABLE 3 : Statistical table about the structure of professional titles of P.E. teachers at special education schools in hebei province**

Professional Title	Without a Title	Junior Title	Intermediate Title	Senior Title	Expert Teachers	Total
Number of teachers	0	21	40	4	0	65
Percentage	0%	32.3%	61.5%	6.2%	0%	100%

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TABLE 4 : Statistical table about teaching ability of P.E. teachers at special education schools in hebei province

Aspects in special education	Index	number of People n=65	Average M	Question number	Average score of each question M	Standard deviationSD	Total average score M
Vocational attitude	Tend of vocational willingness	65	15.160	3	4.88	.521	4.12
	Tend of vocational attitude	65	12.801	3	4.00	.804	
	Tend of vocational treatment	65	19.443	3	3.45	.912	
Professional knowledge in physical	General knowledge	65	16.454	5	3.40	.446	3.26
	Special pedagogy and psychology knowledge	65	17.985	6	3.09	.555	
	physical education and related sport technique knowledge	65	27.325	8	3.34	.605	
	disabled sports health care and recovery knowledge	65	16.892	5	3.22	.781	
Teaching ability in physical	Movement demonstration ability	65	15.025	4	3.56	.785	3.34
	Language expression ability	65	11.863	3	3.68	.823	
	Properly choosing teaching material ability	65	11.798	4	3.12	.682	
	Course design ability	65	11.894	4	3.16	.750	
	Teaching organization and management ability	65	11.055	3	3.46	.675	
	Teaching measurement and evaluation skill	65	7.487	2	3.36	.767	
	Special Olympic projects' teaching ability	65	8.732	3	3.12	.530	
	Applying modern teaching technology's ability	65	7.725	2	3.45	.822	
	Disabled students' sports health care and recovery guides ability	65	15.682	5	2.96	.583	
	Communicating ability with disabled students	65	12.067	4	3.21	.773	
	Individual teaching ability	65	10.467	3	3.28	.627	
	Dealing sudden events ability	65	7.293	2	3.30	.693	
	Ability of psychological counseling disabled students ability	65	5.551	2	3.22	.889	
Ability of organizing kinds of sports competition activities for disabled students	65	8.764	3	3.10	.536		

ability is the skill to successfully finish the teaching task in the educational teaching practice. The teachers men-

tioned not only have the general teaching abilities the same as the common teachers, but also have more abili-

ties about special education which are developed in their teaching environment. Because of the differences, particularities and physical ill-conditioned of the disabled kids, there are higher demands on the ability of the special physical teachers than the common PE teachers. Besides the teaching abilities, special P. E. teachers should have more abilities such as ability to communicate with others with different demands, ability to creatively design the teaching, ability to cope with various unexpected event, ability to cooperate with people from all walks of life, ability of PE rehabilitation guidance, ability of exercise training and organizing the competitions, ability of educational research, and the ability of self-regulation. The investigation finds that the PE teaching ability in special education scores 3.34 on average, which is not so ideal and reflects some shortcomings such as the low professional level of the PE teachers in special education in Hebei province, and the imbalance of such teaching abilities. From the chart4 we can see the weaknesses in the following aspects.

Therefore, we can use round-to-integer model to improve the tessellation model and further obtain the relationship between the oven length, width and the number of pan units.

(1) Square unit

$$N = \left\lfloor \frac{W}{\sqrt{A}} \right\rfloor \cdot \left\lfloor \frac{L}{\sqrt{A}} \right\rfloor$$

(2) Regular hexagon unit:

$$\begin{cases} h = \sqrt{\frac{2\sqrt{3}}{3} A} \\ N = \left\lfloor \frac{\left\lfloor \frac{W}{h} \right\rfloor}{2} \right\rfloor \cdot \left\lfloor \frac{L}{h} \right\rfloor + \left( \left\lfloor \frac{L}{h} \right\rfloor - 1 \right) \cdot \left( \left\lfloor \frac{W}{h} \right\rfloor - \left\lfloor \frac{\left\lfloor \frac{W}{h} \right\rfloor}{2} \right\rfloor \right) \end{cases}$$

(3) Circle unit:

$$\begin{cases} A = \pi r^2 \\ N = \left\lfloor \frac{\left\lfloor \frac{W}{2r} \right\rfloor}{2} \right\rfloor \cdot \left\lfloor \frac{L}{2r} \right\rfloor + \left( \left\lfloor \frac{L}{2r} \right\rfloor - 1 \right) \cdot \left( \left\lfloor \frac{W}{2r} \right\rfloor - \left\lfloor \frac{\left\lfloor \frac{W}{2r} \right\rfloor}{2} \right\rfloor \right) \end{cases}$$

$\lceil \rceil$   $\lfloor \rfloor$  represent floor and ceiling functions.

## AN ANALYSIS OF INFLUENCING FACTORS

### Restrictive factors from policies

Although recently China has attached great importance to special education and continuously increased investment, some administrative department on education and the attitudes of school leaders have become the biggest restrictive factor. Most administrative department on special education do not value students' sports education and have a lower demand for teachers who are qualified for sports teaching, for the quality of teaching sports, for the initiative of building up ranks of special education sports teachers and for the capital investment in special education on sports. The reasons are as follows:

#### 1) Sports teachers are not prominent in the recruitment of teachers, resulting in the small proportion of sports teachers with higher professional level

There are not enough sports teachers. Some schools have only 1 or 2 sports teachers and teachers' team can not be established to perform regular teaching and research such as teaching discussion and collective lesson preparation. This also hinders the renovation of sports teachers' concepts, the perfection of knowledge and the enhancement of professional ability. Moreover, some teachers cannot concentrate on teaching sports due to partly teaching sports and partly teaching cultural classes and labor classes.

#### 2) Fewer opportunities for further education are offered to sports teachers

Professional training for special education in Hebei province is short of training special education sports teachers. Of 63 persons investigated, 59 persons do not take part in any professional training related to special sports education, up to 93.7%. Special education sports teachers obtain less professional development and trainings organized by administrative department on education and no corresponding academic education for adults. Generally, schools do not value sports teachers' further education and improvement. Inadequate number of teachers and great amount of work for teachers make them have no more time to improve their teaching skills and further their education.

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### 3) The inadequate site and equipment for sports teaching limit the full display of sports teachers' teaching ability

The restrictive understanding of administrative department on special education deeply hinders the development of school stadium and equipment. Investigation shows those 80% stadiums in city schools and 47.1% stadiums in countryside schools do not meet the requirement, and no one knows if 35.3% stadiums in countryside meet the requirement. There are few standard stadiums in special education schools and most of the school buildings are shabby. The area of the school is small and even some schools do not have its own school campus and rent others' houses as the temporary classrooms, without any site for sports. Sports equipment varies greatly, a big difference from the setting of sports equipment for special education required by the National Committee of Education in 1992(trial). There is also a lack of special sports site and equipment for disabled athletes to perform special sports programs.

### 4) Teachers are influenced by safety factors

Because of physical impairment and mental disability, most students are inefficient in physical functions. As sports activities are mainly performed with body, it is easier to bring accidents of hurting and make the hurt even worse. Therefore, safety in sports activities constitutes a big concern for school leaders, influencing the reasonable setting of sports classes in special education schools and bringing pressure on sports teachers when choosing teaching content and arranging the load in sports classes. All of these greatly weaken the function of sports classes and reduce the efficiency of sports classes.

### Personal factors

#### 1) One reason is the shortage of one's professional education before engaging in their specialty

It is widely acknowledged that teacher's lower-level of professional knowledge should be the biggest obstacle to improve one's skills. Overall, there are two main reasons that why the physical education teachers are lack of professional knowledge, one reason is that the particularities in specialty structure of teaching staff. Based on the data in TABLE 2, the majority of physi-

cal education teachers are made of several types: those who either are short of the professional knowledge in special education or are lack of professional skills in physical education, and those who do not possess complete knowledge system lacking professional knowledge in special education and physical education. The other reason is that colleges have no higher requirements to physical education teachers and do not introduce corresponding guide policies and incentive measures to encourage the teachers to improve themselves and get a continuous education.

#### 2) Teachers lack the awareness of self-improvement and lifelong study

Teachers' further education and development depend on not only innate qualities and external environment, but also the awareness of self-improvement. As is shown in the survey, 93.7% of teachers surveyed never take part in any professional training or further study, which results in a poor awareness if self-improvement and the lack of self-examination of their professional development. They do not have a clear idea about their present situation of professional knowledge and abilities and cannot make effective arrangements for future professional development. Therefore, they cannot improve their teaching abilities through self-planning, self-study, self-adjustment, self-renewal and self-construction.

## CONCLUSION AND SUGGESTIONS

### Conclusion

The teaching ability of P.E. teachers at special education schools in Hebei Province is not well enough. Generally speaking, they lack professional knowledge, which hinders the improvement of their teaching ability. The reason is that different levels of special education schools do not attach much importance to the recruit of P.E. teachers due to the constraints of policies, which leads to the lack of the P.E. teachers with higher professional abilities. Additionally, P.E. teachers are offered fewer chances for further education due to the lack of supporting policy or proper guide. Also the lack of teaching venues and facilities hinders the full play of P.E. teachers' teaching ability. Finally, the concern of safety is also a constraining factor. As for the personal factors,

one is that teachers do not have enough professional education before their engagement in physical education; the other is that teachers lack the awareness of self-improvement and lifelong study.

### Suggestions

#### 1) Policy guidance should be strengthened in physical education

At special education schools, favorable policies should be provided in teacher's recruitment and appointment. The relative policies and reward system should be made to ensure the physical education teachers' pursuing for the further studies. It should strengthen the input in special education either from the perspective of society, government or school, especially in the construction of basic establishments such as places and equipments.

#### 2) Professional teaching skills of the special physical education teacher should be enhanced in colleges and universities

Establishing P. E. major for special education and cultivating related teachers in special education PE major have been carried out in some higher teaching institution of Hebei province.

#### 3) Emphasis should be laid on the continuous education of P. E. teachers at special education schools

This requires the effort of pre-service education and post-service education from schools and all levels of education-related executive departments. Strengthening the construction of training base of P. E. teachers in special education school is an important foundation to increase the adult diploma education and continuing education. To develop the corresponding policies and regulations that adapt to the cultivation of P. E. teachers in special education school has become a concerning topic. This requires the effective training contents and enhancing the cultivation of theoretical knowledge to make it standard and legal.

#### 4) Teaching research should be strengthened in physical education at special education schools

Corresponding research theory and application on physical education at special education schools should be established and conducted.

#### 5) Cognitive level of P. E. teachers at special edu-

#### cation schools should be improved

P. E. teachers at special education schools are required to strengthen the awareness of special physical education in order to get a comprehensive and correct comprehension of the development of their specialty. To find their ways to get a self-improvement in professional quality, knowledge and skills by searching out the shortcomings and gaps has become a primary task.

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