



Research Article

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## A study on the teaching knowledge development of sports technique teachers of P. E. schools of normal university

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### ABSTRACT

Sports technique teachers account for a large proportion in P.E. institute of normal university, and the career quality and specialization of them make a great difference in whether the cause and the reform of physical education succeed or not. The study tried exploring sports technique teachers' teaching knowledge structure, attempting to provide some useful references to their specialization. By using the methods of literature reviews, interviews and questionnaires, etc., the study conducted a survey on about 30 normal universities with P.E. institute in China's eastern, western, northern, and southern part respectively. The study found that teaching knowledge structure needed by sports technique teachers consisted of "teaching content knowledge", "teaching course knowledge" and "teaching means knowledge", and that teachers' knowledge accumulation stages and approaches including "course-taking on campus", "pre-career training" and "during-career training, various post-career seminars and other learning experience", etc.

**Keywords:** P.E. schools of normal university; sports technique teachers; teaching knowledge; development

### INTRODUCTION

As worldwide educational researchers know better the complication of teaching career, studies on teachers and education have switched from studying teachers' previous outward behavior to their inward thoughts, and researches on teachers' interior qualities emerges one after another. So at present, researchers are focusing their eyes on projects such as how to eliminate teacher's occupational burnout effectively, how to improve their professional confidence and abilities to control the courses they teach, how to distinguish the concepts of teaching and education, how to promote teacher's professional sense and decision-making, etc [1].

In China, PESNU (P.E. schools of normal university) are the main lands for P.E. teachers to gain teaching knowledge. The quality of primary physical education depends on the comprehensive quality of P.E. teachers at PESNU, among which STT (sports technique teachers) are most important [1]. Whether sports cause succeed or not is closely related to STT' specialization degree, and the key to quicken STT' specialization so as to better their comprehension quality is try to find ways to strengthen and broaden their teaching knowledge. Being clear of STT' teaching knowledge structure and the approaches of pre- and post- career teaching knowledge is vital for us to cultivate more specialized sports talents and P.E. Teachers [2].

### TEACHING KNOWLEDGE STRUCTURE AND RESOURCES OF STT IN PESNU

Having consulted a large body of literature related to P.E. Teachers' teaching knowledge construction and interviewed some P.E. experts and STT; we concluded that teaching knowledge structure needed by STT consisted of "teaching-content knowledge", "teaching-means knowledge" and "teaching-course knowledge". "Teaching-content knowledge" refers to that used by STT in their teaching to convey theoretical concepts and technique;" "Teaching-means knowledge" includes teachers' teaching strategies and classroom organization;

“Teaching-course knowledge” consists of theoretical and practical knowledge, teaching material knowledge and other knowledge resources [3].

Knowledge accumulation of STT occurs at the following three important stages: course-taking on campus, pre-service and -service professional training as well as various seminars and other learning experience, etc. STT gain pre-service teaching knowledge by taking related courses and by participating various activities at school, and all sorts of teaching technique trainings. After service as teachers, their approaches to teaching knowledge are mainly: pre-job training, seminars, researches, academic exchanges, teaching reflections etc (see Fig.1).

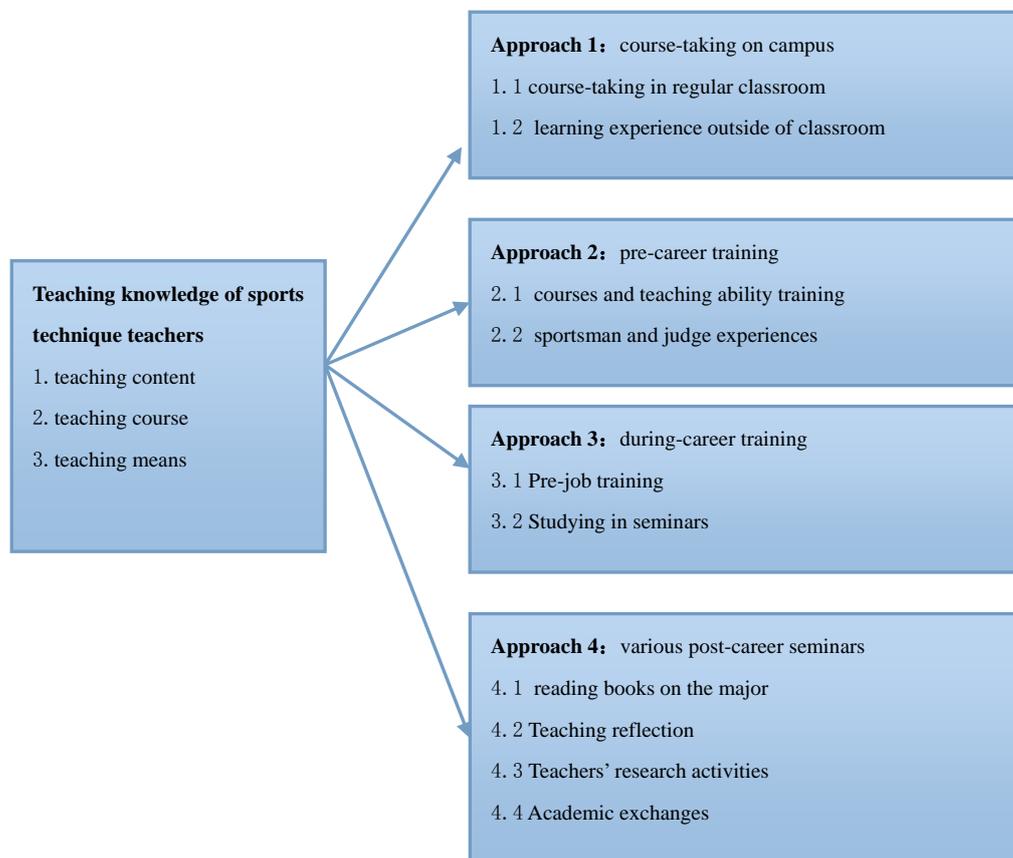


Fig.1: the structure of the teaching knowledge and the approaches of sports technique teachers from P.E. institute of normal university

#### APPROACHES TO DEVELOP PRE-SERVICE TEACHING KNOWLEDGE OF STT IN PESNU

STT mainly gain their pre-service teaching knowledge at normal universities, which is approximately made up of course-taking on campus, pre-career training, experience of being sportsman and judge at after-class sports meetings.

##### 3.1 Course-taking on campus

Having surveyed and interviewed many teachers and students from normal universities, we know that apart from the required major courses like track and field, gymnastics, swimming, martial arts, ball games, etc. students majoring in sports must take other courses such as pedagogy, the sports sociology and humanities, science of human movement, methodology, some general courses and politics, etc. The former courses equip students with knowledge that they must master to higher their teaching quality, while the latter courses, the main approach to STT' pre-service specialization, are vital to construct comprehensive knowledge system of STT in PESNU. (See Table 1)

**Table 1: The mean ranking of courses influencing STT' knowledge accumulation (N=932)**

Course	Mean	Rank	Course	Mean	Rank
Sports physiology	4.67	1	Sports sociology	3.96	20
Pedagogy	4.61	2	Survey and Evaluation	3.93	21
Sports dissection	4.59	3	Sports literature retrieve	3.89	22
Psychology	4.53	4	Teaching techniques	3.86	23
School physical education	4.49	5	Sports biochemistry	3.82	24
Sports training	4.39	6	Sports management	3.81	25
Teaching material and Teaching methods	4.31	7	Sports regulations	3.70	26
Theory of teaching	4.28	8	History of P.E.	3.68	27
Sports health protection	4.22	9	P.E. cultures	3.65	28
Sports medicine	4.18	10	Sports mapping	3.63	29
Sports psychology	4.18	11	Dialectics	3.58	30
Research methodology of P.E.	4.16	12	Ideology	3.55	31
Bio-mechanics of sports	4.12	13	College Chinese	3.53	32
Athletes collection	4.07	14	College English	3.48	33
Application of modern Educational technology	4.05	15	Sports esthetics	3.45	34
General introduction of P.E.	4.03	16	Ideology of Mao Zedong And Deng Xiaoping	3.38	35
Nutrition science of sports	4.00	17	Philosophy of Maxis	3.37	36
Sports statistics	3.98	18	Modern history of China	3.26	37
Computer	3.97	19			

\* Mean statistic used ordinal number evaluation: 5=very important 4=important, 3=ordinary, 2= unimportant, 1= rather unimportant

### 3.2 Pre-service education and training

The purpose of pre-service education and training is to provide prospective STT with a platform to develop their teaching knowledge and skills so as to connect theory and practice smoothly. Students get these training through course-taking, sportsman and judge experience.

**Table 2: Effects of teaching ability training on STT during pre-service education (N=932)**

Items of teaching ability Cultivating	received	Not received	Can't remember	rank*
Explaining teaching procedures	54.5%	39.4%	6.1%	7
Giving lectures	90.0%	7.8%	2.2%	2
Doing demonstration	92.2%	6.9%	0.9%	1
Teaching organization	81.8%	16.0%	2.2%	4
Designing sports teaching venues and equipments.	53.2%	39.8%	6.9%	8
Writing lesson plans	87.4%	11.7%	0.9%	3
Multi-media reaching	61.5%	36.8%	1.7%	6
Judge practice	75.3%	23.4%	1.3%	5

At school, course-taking is the first knowledge source for a student and the first step for the future STT to get it specialized [1]. During this time, in addition to giving classes, training of teaching ability is the biggest focus to cultivate students in PESNU. A large body of survey showed that teaching abilities involved the following 8 aspects (see Table 2): ability of doing demonstration, giving lectures, writing lesson plans, teaching organization, judge practice, multi-media reaching, explaining teaching procedures and designing sports teaching venues and equipments.

### 3.3 Experience of being sportsman and judge at after-class sports meetings

For the STT in PESNU, sports experience before career is also an effective approach to gain teaching experience and an important source to form their practical teaching knowledge which can be exchanged and passed on [4]. When studying at school, P.E.-majored students' sports experiences at various grades of sports meetings can more or less enlarge their knowledge. The value of this knowledge- gaining approach is more valuable and beneficial than it is aware.

In addition, judge experience is another knowledge- gaining approach and source to gain practical knowledge for STT [5]. This approach, however, is so unapparent to some degree that requires specific attention and effectively application to help STT to get their knowledge specialized.

## APPROACHES TO DEVELOP IN-SERVICE TEACHING KNOWLEDGE OF STT IN PESNU

### 4.1 Pre-job training

Pre-job training, a formal and motivated professional technique and course training, is re-education for a STT to switch from a student to a teacher and is one of the important sources for the beginners to gain their teaching-method and teaching-content knowledge [6].

**Table 3: the list of pre-job training**

Items of pre-job training	Yes	No	Don't remember	Rank*
How to prepare lessons	70.9%	28.0%	1.1%	3
How to give lectures	72.5%	26.9%	0.5%	2
How to do demonstration	70.3%	28.0%	1.6%	4
How to control classroom	60.4%	36.3%	3.3%	6
How to arrange teaching procedure	83.0%	14.8%	2.2%	1
How to design teaching environment	60.0%	35.7%	4.4%	7
How to apply multi-media	66.5%	31.9%	1.6%	5
How to make use of other teaching aids	47.3%	47.8%	4.9%	8

\*the base of "Rank": the percent of positive answer.

**Table 4: the list of the effects of Pre-service education training on STT**

Items of pre-service training	Very useful	Useful	So-so	Useless	Mean*
General Pedagogy	51.1%	39.0%	9.9%	0	3.41
professional ethics	37.4%	44.0%	18.1%	0.5%	3.18
Modern Educational Technology	52.2%	36.8%	11.0%	0	3.41

\*Mean statistic used ordinal number evaluation: 5=very important 4=important, 3=ordinary, 2= unimportant, 1= rather unimportant.

Through the interviews and investigations (see Table 3 and 4), we knew some common pre-job technique training. They were techniques training STT to master how to arrange teaching procedure, how to give lectures, how to prepare lessons, how to do demonstration, how to apply multi-media to teaching, how to control classroom, how to design teaching environment and make use of teaching aids. The common pre-job course training was general pedagogy, modern educational technology, professional ethics, etc.

#### 4.2 Studying in seminars

**Table 5: the list of the purpose of studying in seminars**

The purpose of studying in seminars	Yes	No	Rank*
School's requirement	41.7%	58.3%	2
To get self-development	74.3%	25.7%	1
others	2.1%	97.9%	3

\*the base of "Rank": the percent of positive answer.

**Table 6: the list of the categories of studying in seminars**

Categories of studying in seminars	Yes	No	Rank*
To take a refresher course on major	29.2%	70.8%	2
To visit scholars	23.6%	76.4%	3
To obtain higher degree	53.5%	46.5%	1
To get short-termed training	23.6%	76.4%	3
Others	6.3%	93.7%	4

\*the base of "Rank": the percent of positive answer.

Investigation (see Table 5 and 6) showed that STT' in-service training mainly depended on studying in various seminars where they were intended to obtain higher degree, or as visiting scholars, and or just get short-termed training. The motivation for them to attend seminars ranged from developing themselves to higher academic degree to promote professional title.

In-service professional training is a significant part for STT to construct their theoretical and practical knowledge and important source of their comprehensive knowledge. In order for STT to improve teaching knowledge, PESNU are expected to offer STT good in-service professional environment by whether sending them to study abroad or making good use of school-based recourses.

#### 4.3 Teachers' research activities

Teachers' research activities, an in-service knowledge and experience accumulation approach, are helpful for teachers to advance their teaching knowledge and techniques. On the purpose of providing a new knowledge accumulation method, PESNU are supposed to establish a platform of professional growth community by having meetings, doing discussion, and exchanging views [7].

**Table 7: the list of research activities of STT**

Main contents of Teachers' research activities	Yes	No	Rank*
Simple meetings	48.0%	52.0%	1
Preparing new classes in groups	25.0%	75.0%	4
Academic argument	40.2%	59.8%	3
Exchanging views	40.2%	59.8%	3
Doing discussion about teaching	42.2%	57.8%	2

\*the base of "Rank": the percent of positive answer.

We found in the survey (see table 7) that teaching and research sections in quite a few PESNU lost their functions because members of them came together occasionally did nothing but have "a simple meeting". At university, teaching and research sections are set up to have the following functions: a. academic discussion; b. exchanges of teaching views; c. probing into problems encountered during teaching; d. collectively preparing for lessons; e. having simple meetings.

#### 4.4 Academic exchanges and teaching and research activities

**Table 8: the condition of researches and other academic exchanges participated by STT**

Research Activities types	often	occasionally	rarely	never	mean*
Inviting experts to deliver speeches	31.2%	58.9%	7.8%	2.2%	3.19
Sending teachers to study	27.3%	55.0%	15.2%	2.6%	3.07
Attending colleagues' classes	24.2%	61.0%	12.6%	2.2%	3.07
Academic communication between colleagues	38.0%	49.4%	11.3%	1.3%	3.24

\* Mean statistic used ordinal number evaluation: 4=often, 3=occasionally, 2=rarely, 1=never

Academic exchanges can be divided into two layers: a. Formal intercollegiate visits and exchange. Whether inviting scholar and experts from other universities to give lectures, deliver speeches, supervising the work, etc. or sending teachers to study and exchange at other schools is feasible; b. Colleagues' informal visits to each others classrooms, discussions and exchanges between each other. This helps to construct studying community among teachers with similar majors, which is beneficial both to form unity atmosphere and to individual knowledge promotion. Through a sampling survey of STT in PESNU we knew that there were 38.0% of them regularly conducted academic exchanges with others at their spare time, 31.2% reported their schools had frequently invited scholar and experts from other universities to give lectures and deliver speeches, etc., 27.3% reported their schools had ever sent teachers to study and exchange at other schools, 24.25 had regularly visited other teachers classroom. The result indicates that STT in PESNU haven't taken academic exchanges and teaching and research activities seriously (see table 8).

#### 4.5 Do major-related reading

Major-related reading, just as Zhu Yongxin, the vice-president of the national educational association, said "is like moving ahead by standing on the shoulders' great masters." This shows that reading helps to construct a structure model of teaching knowledge for an ideal teacher, and pave a smooth road for him or her to self develop [8]. Major-related reading is naturally an indirect source for STT to gain teaching knowledge and an effective approach to absorb and learn others' experience.

**Table 9: the condition of STT' buying and reading major-related books**

	often	occasionally	rarely	never	Mean*
Purchase of major-related books	40.7%	47.6%	10.0%	1.7%	3.27
Visiting library of major-related books	46.8%	42.9%	9.1%	1.3%	3.35

\* Mean statistic used ordinal number evaluation: 4=often, 3=occasionally, 2=rarely, 1=never

**Table 10: the list of the effects of Reading major-related books on STT**

Reading major-related books	very effective	effective	ordinary	useless	Mean*
Number of teachers	85	112	30	4	3.20
Percent (%)	36.8	48.5	13.0	1.7	

\* Mean statistic used ordinal number evaluation: 4=very effective, 3=effective, 2=ordinary, 1=useless.

The survey of STT (see Table 9 and 10) showed that 40.7% of them had often, 47.6% occasionally, 10% rarely and 1.7% completely not bought major-related books, and that 46.8% had regularly, 42.9% occasionally, 9.1% rarely and 1.3% completely not visited library. The result indicates that the proportion of STT to buy books and visit library frequently is not high, which is the main cause of them having lower scientific research level.

#### 4.6. Teaching reflection

Teaching reflection is a self-reflection about the previous teaching procedures and details, by which STT can learn experience of enlarging teaching knowledge [9]. Reflection on the features and structure of the teaching materials can help to improve STT "course knowledge"; reflection on the teaching content organization the focus of the processing can help to promote their "content knowledge"; reflection on teaching tragedies can help to better their "method knowledge". Therefore, teaching reflection is a good approach to gain comprehensive knowledge.

**Table 11: the condition of teaching reflection on previous classes (N=932)**

<i>Teaching reflection on Previous classes</i>	<i>Frequency</i>	<i>Percent</i>	<i>Valid percent</i>	<i>Total percent</i>
Having not any reflection	40	4.3	4.3	4.3
Having some kind of reflection	892	95.7	95.7	100.0
Total	932	100.0	100.0	

**Table 12: Teaching reflection on the contents and characteristics of teaching materials used (N=932)**

<i>Teaching reflection on teaching material</i>	<i>Frequency</i>	<i>Percent</i>	<i>Valid percent</i>	<i>Total percent</i>
Having not any reflection	113	12.1	12.1	12.1
Having some kind of reflection	203	87.9	87.9	100.0
Total	819	100.0	100.0	

The survey (see Table 11 and 12) showed that 95.7% of STT had often reflected the previous class. If an STT forms a habit of teaching reflect, he or she will gain teaching more and more experience and eventually obtain his or her own unique teaching knowledge.

### CONCLUSION

In order to eliminate job burnout, apart from psychological intervention, a teacher has to keep studying, creating and promoting his own teaching knowledge. STT are dispensable hardcore in cultivate primary and middle school PE teachers and the dominant force in education cause. So they must be conscious of the urge to promote their own professional knowledge and consciously meet the challenge of "teacher specialization".

To start with, STT must know the structure style of the knowledge they need so as to plan professional career. Secondly, they need to distinguish pre-service and-service specialization tasks, make use of the knowledge-gaining approaches during various stages.

Suggestions: For PESNU, they should keep optimizing curriculum arrangements to lay STT a solid foundation at school; For STT, they should take positively various useful activities and focus on promoting practical knowledge; for the society, it must pay attention to offer nice Pre-service and -service environment and platform for teachers specialization.

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