

Article

The Self-Efficacy of Preservice Physical Education Teachers in Disabilities Education in China

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Abstract: The adapted physical education (APE) field is developing vigorously in China, and an increasing number of students with physical education (PE) as their major will encounter students with disabilities in their future teaching careers. This study thus surveyed PE major students from eight Chinese sports colleges and universities in order to explore how perceived social support could affect the self-efficacy of PE major students who are expected to face students with different types of disabilities; furthermore, it aimed to demonstrate the regulating effect of APE studies and internships. The survey found that (1) perceived social support positively affected self-efficacy among Chinese PE majors who would be facing students with different types of disabilities; (2) APE studies and internships positively affected self-efficacy among Chinese PE majors who would be facing students with different types of disabilities, and; (3) APE studies and internships strengthened perceived social support's effects on self-efficacy among Chinese PE majors who would be facing students with different types of disabilities.

Keywords: APE; self-efficacy; perceived social support; APE studies and internship; PE major students

1. Introduction

Adapted physical education (APE) refers to theoretically grounded and empirically based physical education programs that are specially designed, implemented, and evaluated for students with disabilities. These programs allow learners to acquire the competence needed to take part in sports, leisure, and entertainment activities throughout life, and thus contribute to their physical fitness and health [1]. People with disabilities are an important part of society and should enjoy the same rights as other people, including the right to receive an education and participate in sports activities. In 2016, the population of people with disabilities in China reached 85 million, accounting for 6.21% of China's total population (CDPF, 2017). At present, 54.2% of China's 442,200 students with disabilities are enrolled in regular primary schools, junior high schools, or affiliated special education classes (Ministry of Education of the People's Republic of China, n.d.). They are often excluded from physical education (PE) classes. Teachers in various countries worldwide have been confronted with the placement of students with disabilities in general classes, and the need to provide them with support and APE. However, PE teachers often do not feel prepared or self-confident enough for this inclusion [2]. Students with disabilities who are able to attend PE classes together with their classmates are often treated as bystanders and are thus, in effect, deprived of their right to receive PE [3].

While society's attitude toward people with disabilities, along with existing educational models, school facilities, and school administrators' efforts, all influence disabled students' opportunities to

receive PE education, the self-efficacy of PE teachers is an important aspect that can positively affect the situation for these students. Support provided by family, the community, and society as a whole can greatly affect the self-efficacy of university and college students with PE as their major, who are about to embark on an APE career.

At present, China is facing a serious shortage of APE teachers and training institutions. Many of the current crop of APE teachers graduated from general physical education programs that did not offer any APE courses. Consequently, many educators encounter students with disabilities and begin to think about educational issues concerning them only after they have started their APE careers. Therefore, to meet the PE needs of students with disabilities and to improve APE quality, we must train qualified PE teachers, facilitate PE majors' understanding of and training in APE, and increase their sense of self-efficacy.

2. Literature Review

2.1. Self-Efficacy Theory

Self-efficacy, a core concept within Social Learning Theory, was proposed by Albert Bandura in 1977 and refers to individuals' belief in their own ability to complete a specific task [4,5]. Self-efficacy plays a role through four mediators: individual cognition, motivation, emotion, and selection. Usually, self-efficacy affects cognitive processes in various ways, such as goal setting, attributable style, and psychological expectations [6]. Self-efficacy also affects motivation when facing different tasks, and emotional feedback makes it more complicated [7]. Finally, self-efficacy can affect the choice of environment and behavior [8]. Self-efficacy is people's judgment regarding the level of ability they believe they can reach with regard to their work. Expectations of personal efficacy are derived from four principal sources of information: accomplishments, vicarious experience, verbal persuasion, and physiological states [9,10].

As a psychological variable, self-efficacy can affect subjective initiative with regard to activities; this initiative is manifested through persistence and hard work toward achieving goals [11]. Unlike other psychological variables, such as self-esteem and self-concept, self-efficacy is linked to a specific task. It does not refer to an individual's general feelings of self-worth [12] but, rather, to their judgment regarding future practice states where they will have to strive to complete a specific task. It is easy for an individual to display high self-esteem and a strong self-concept by lowering their standards. Self-efficacy, not self-esteem, can drive people to complete a specific task even if their performance does not meet their standards [13]. Self-efficacy can significantly affect whether people feel they are capable of completing a specific task. In 1995, Gawith pointed out that, even if a person has the ability to complete a given task, they may fail to do so if the motivation provided by self-efficacy is lacking [14]. Therefore, self-efficacy is an important psychological motivating factor that affects whether people can achieve success and make self-beneficial decisions [15].

Many research fields have studied self-efficacy, particularly the fields of education, medicine, economics, and military science. For instance, we are aware of studies conducted by Kerpelman in education of African American students, Winzenberg in medicine for osteoporosis, Wuepper in economics for economic development and Delahaij for coping with acute stress in the military [16–19]. Also, some studies have assessed the self-efficacy of preservice teachers in special education or inclusive education [20–23]. However, in the field of PE, and especially APE, the concept has not received the attention it deserves, especially in China. With the continuous development of the PE field in China, self-efficacy-related studies should be advocated and supported.

2.2. Studies on the Self-Efficacy of PE Major Students in APE

A study by Hutzler et al. [24], which examined PE major students' teaching attitudes and self-efficacy with regard to disabled students in inclusive education, was the first one to investigate PE major students' self-efficacy regarding APE. The study confirmed that PE major students with

experience in teaching children with disabilities had significantly higher self-efficacy levels than those without such experience. They also found that female students showed significantly higher self-efficacy levels with regard to instructing people with disabilities than did male students. This may be because males are more conservative and authoritarian and have a stronger orientation towards coaching rather than teaching. The stronger authoritarian and coaching orientation may increase the sense of conflict over the need to include a child with disability, and thus pose a greater perceived threat to male students [25].

In the following decade, European and American scholars, led by Professor Martin E. Block, an APE expert at the University of Virginia, USA, conducted studies on PE major students' self-efficacy with regard to inclusive PE in their respective countries. Block et al. developed and test the Self-Efficacy Scale for Physical Education Teacher Education Majors toward Children with Disabilities (SE-PETE-D) in 2013 [26–30], and Alhumaid et al. [31] used the scale to carry out research in Serbia, Greece, Lithuania, China, and Saudi Arabia, aiming to develop inclusive PE programs and improve teacher training in these countries. These researchers generally believe that self-service PE teachers have a higher level of self-efficacy toward physical disabilities than intellectual disabilities, and related courses and internships could promote their level of self-efficacy.

Thus far, Chinese scholars have paid little attention to the self-efficacy of PE major students who are facing special educational needs groups, such as those with disabilities. Conducting relevant studies in this respect could help to identify current Chinese PE majors' teaching beliefs regarding the education of students with disabilities and predict the effects of these attitudes for future teaching [32]. Based on these studies, we are able to make suggestions regarding APE-related activities, thus contributing to the development of APE and sports in China.

2.3. Perceived Social Support and Its Effect on Self-Efficacy

Perceived Social Support refers to an individual's expectations for—and appraisal of—social support; it is the belief in possible social support [33]. Perceived Social Support, as opposed to Received Social Support, is an important sociological concept that was proposed in a study on the structural components of social support. These two types of social support have a low correlation, indicating that they are two different psychological structures that may play different roles in an individual's psychology. Several studies on the different functions of the two social support concepts have shown that, compared to received social support, perceived social support has played a much more significant role in understanding and predicting an individual's psychological disposition, as it is much more likely to benefit individuals' mental health [34–36].

Perceived social support refers to the emotional support that an individual subjectively perceives to receive and to the subsequent emotional experiences and satisfaction resulting from being understood. Thus, perceived social support, which depends on an individual's subjective feelings, can effectively measure an individual's expectation for—and appraisal of—social support. Wu et al. [37] believe emotional workers who experience more supportive working conditions (i.e., better logistical resources and lower demands) report more manageable workloads, experience less emotional exhaustion and stress, feel greater self-efficacy, and report using evidence-supported instructional practices more often with their students. Perceived social support, as a belief in possible social support, can improve students' enthusiasm for learning [38,39]. Consequently, the improved enthusiasm, initiative, and working conditions can boost students' self-efficacy in the learning process. In light of this, we propose Hypothesis 1 (Figure 1).

Hypothesis 1 (H1). *Perceived social support significantly and positively affects Chinese PE major students' self-efficacy with regard to teaching students with disabilities.*

2.4. The Positive Regulating Effects of APE Studies and Internships

A study by Liu found that a small percentage—less than 13%—of the surveyed Chinese students had taken relevant APE courses or participated in relevant internships [40]. The self-efficacy among these 13% was significantly higher than for those who lacked such experiences and their peers in the United States. This shows that Chinese PE major students hold great potential with regard to self-efficacy in the education of students with disabilities. The provision of relevant courses and internships involving the education of people with disabilities could help Chinese PE major students gain sufficient confidence for inclusive PE. The lack of such courses and internships may negatively affect Chinese PE major students' self-efficacy scores [29]. We believe that students may find it difficult to significantly improve their self-efficacy through other means if they have not taken the relevant courses and lack competence in inclusive PE. Building on these ideas, we proposed Hypotheses 2 and 3 (Figure 1).

Hypothesis 2 (H2). *The provision of related course learning and internships experiences positively affects Chinese PE major students' self-efficacy with regard to teaching students with disabilities.*

Hypothesis 3 (H3). *The provision of relevant studies and internships has a positive regulating effect between perceived social support and Chinese PE major students' self-efficacy with regard to teaching students with disabilities.*

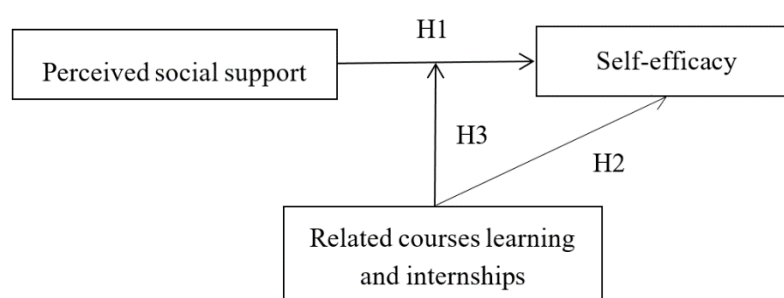


Figure 1. Research model.

3. Research Method

3.1. Data Collection

Since preservice PE teachers are trained by both sports universities and normal universities, the survey participants were recruited from eight sports universities and normal universities in China, including Beijing Sport University, Shenyang Sport University, Chengdu Sport University, Wuhan Sports University, Huazhong Normal University, Huadong Normal University and Beijing Normal University and Jimei University. These universities are the most important preservice PE teacher training bases in China.

All 490 distributed survey questionnaires were returned; 289 male and 201 female students were surveyed, and the average age was 21.3 years; SD = 0.23. Of these, 453 questionnaires were valid, indicating a validity rate of 92.45%; 269 males (59.38%) and 184 females (40.62%) participated. All respondents were junior and senior students majoring in Physical Education and likely to become PE teacher in future. They received little physical education training for the disabled, and also no internship experience.

There were 55 respondents who had had inclusion PE courses learning, 53 respondents with inclusion PE internship experience, and 53 respondents who had inclusion PE courses learning and internship experience. Using G* Power to perform a post hoc power analysis, we proved that the effect size (0.71) meets the standard.

3.2. Ethics Statement

The present study was conducted in accordance with the recommendations of the ethics committee of Huaqiao University, with written informed consent obtained from all respondents. All the respondents were asked to read and approve the ethical consent form before participating in the present study. The research protocol was approved by the ethical committee of Huaqiao University.

3.3. Measurement of the Variable

This study utilized a self-efficacy scale called “Situational-Specific Self-Efficacy and Inclusion of Students with Disabilities in Physical Education” [26]. It has three subscales for individual self-efficacies regarding teaching students with intellectual, physical, and visual disabilities. This scale was first translated into Chinese by this paper’s authors; the Chinese version was then back-translated into English by Dr. Liu Zhaohua from the Guangzhou Academy of Social Sciences. Next, the translation by Liu Yang and other researchers was reviewed and confirmed by Block [3]. The questionnaire was also localized and verified. Liu Yang used this questionnaire to study the self-efficacy of PE major students at sports colleges and universities. The Cronbach’s alpha for this scale, as a whole, was 0.979; those for the three subscales were 0.939, 0.963, and 0.953, respectively.

This study used the perceived social support scale developed by Zimet et al. [41], which contains 12 items and three dimensions—family support, friend support, and other support. The mean value for each item was calculated. A higher mean value indicated a higher degree of perceived social support. The Cronbach’s alpha for this scale as a whole was 0.948, and those for the three dimensions were 0.910, 0.931, and 0.871, respectively.

The moderator variables that we hypothesized, related courses learning and internship experiences, are category variables. Therefore, we used ANOVA to analyze the moderating effect.

4. Results

4.1. Analysis of Common Method Biases

Using Harman’s single-factor test method, we conducted an exploratory factor analysis on all the items included in the two scales without setting the parameter of “rotation” or specifying the number of factors. Analysis results showed that the characteristic roots of four factors were more than 1, and the variance of the solution to the first factor was 23.50%, which is lower than the critical value of 40%, thus indicating that this study had no serious common method biases.

4.2. Analysis of PE Major Students’ Self-Efficacy Scores with Regard to APE

The average self-efficacy score of Chinese PE major students with regard to teaching students with disabilities was 3.67 (3.61 (SD = 0.76), 3.67 (SD = 0.80), and 3.71 (SD = 0.83) with regard to teaching students with intellectual, physical, and visual disabilities, respectively); these results indicated that there were no significant differences in Chinese PE major students’ self-efficacy with regard to teaching students with different types of disabilities ($df = 2$, $F = 1.696$, $p > 0.05$), and the effect size is 0.12, which is low.

4.3. Effects of Demographic Variables on PE Major Students’ Self-Efficacy in APE

There were no significant differences, in terms of self-efficacy, between PE major students of different genders with regard to teaching students with different types of disabilities. There were no significant differences, in terms of self-efficacy scores, between PE majors from different grades in APE.

4.4. The Effects of Perceived Social Support on Chinese PE Major Students’ Self-Efficacy in APE

Using a correlation analysis, we found that perceived social support positively affected Chinese PE major students’ self-efficacy with regard to teaching three types of students; the correlation coefficients

were 0.75 ($p < 0.01$), 0.85 ($p < 0.01$), and 0.63 ($p < 0.01$) for students with intellectual, physical, and visual disabilities, respectively. Hypothesis 1 was thus confirmed.

4.5. The Effects of APE Studies and Internships on Students' Self-Efficacy

Table 1 shows that APE courses and internships significantly affected Chinese students' self-efficacy. As shown in Table 1, 55 respondents participated in APE courses and 53 respondents participated in APE internships. These respondents showed significantly higher self-efficacy when dealing with students with the three different disabilities than those who had not participated in APE courses and internships. The Cohen's d values were more than 0.50, even more than 0.80, indicating that the effect size was medium to large. Hypothesis 2 was thus confirmed.

Table 1. The effects of APE courses and internships on Chinese students' self-efficacy.

			<i>n</i>	%	Average	Standard	<i>t</i>	Cohen's <i>d</i>
Inclusion Education Course Learning	Intellectual	Yes	55	12.14	4.02	0.83	4.35 **	0.59
	Disability	No	398	87.86	3.56	0.73		
	Physical	Yes	55	12.14	4.14	0.80	4.63 **	0.67
	Disability	No	398	87.86	3.61	0.79		
	Visual	Yes	55	12.14	4.14	0.89	4.13 **	0.58
	Disability	No	398	87.86	3.65	0.81		
Inclusion Education Internship	Intellectual	Yes	53	11.70	4.08	0.71	4.90 **	0.73
	Disability	No	400	88.30	3.55	0.75		
	Physical	Yes	53	11.70	4.30	0.64	6.20 **	0.97
	Disability	No	400	88.30	3.60	0.80		
	Visual	Yes	53	11.70	4.30	0.71	5.70 **	0.87
	Disability	No	400	88.30	3.63	0.82		

Notes. ** $p < 0.01$.

4.6. Analyzing the Moderating Effect of APE Course Learning and Internship Experience

All respondents (53) who had internship experience also had course learning, but there were two others whose internship experience came from group rather than course learning, we had to analyze the moderating effect of APE course learning and internship experiences to create one set of data. Table 2 shows the results of the ANOVA, indicating that the perceived social support significantly affected self-efficacy ($F = 4.89$, $p < 0.05$), and the effect of perceived social support on self-efficacy was moderated by related course learning and internship experiences ($F = 5.23$, $p = 0.01$). The effect size was 0.85, which is high.

Table 2. ANOVA analysis results.

Variables	<i>MS</i>	<i>df</i>	<i>F</i>	<i>p</i>
Learning & internship	12.82	1	1.06	0.30
PSS	30.04	1	4.89 *	0.02
PSS × Learning & internship	32.57	1	5.23 **	0.01
Learning & internship (G1)	39.28	1	6.11 **	0.00
Learning & internship (G2)	2.26	1	0.87	0.87

Notes. * $p < 0.05$; ** $p < 0.01$.

Figure 2 shows that when respondents have related course learning and internship experience, the fitting line of perceived social support and self-efficacy is relatively steep, and the impact of perceived social support on self-efficacy is significant. However, for respondents who do not have

related course learning and internship experience, the fitting line becomes flat, indicating that perceived social support has a significant effect on self-efficacy and thereby supporting Hypothesis 3.

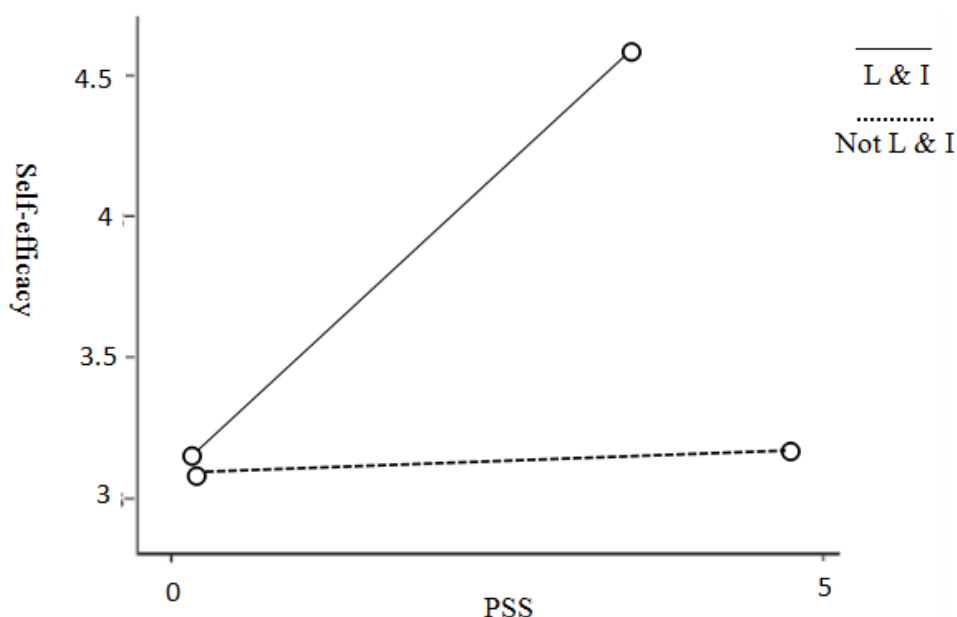


Figure 2. Moderating effects of related course learning and internship experience on perceived social support and self-efficacy.

5. Conclusions and Suggestions

5.1. Discussion and Conclusions

5.1.1. Conclusions

Self-efficacy, a situational form of self-confidence, is critical to the success of all professionals, including physical education teachers. Most physical educators have confidence in their ability to teach fitness, motor skills, and sports and health concepts. However, their self-efficacy often declines when they face the need to include a student with a disability in a general physical education class [42]. This has been confirmed via studies from the United States [26], Serbia [27], Greece [28], China [30], and Saudi Arabia [31]. According to Bandura's self-efficacy theory, self-efficacy is of great value in regulating individual behavior, especially when encountering difficulties [9]. A teacher with a high level of self-efficacy would work harder to reform their teaching methods and use flexible teaching strategies [43]. So preservice PE teachers' decline in self-efficacy is a normal psychological change, and how to cope with that situation is a recognized challenge. In our analysis, we found that perceived social support and related course learning and internships significantly and positively affected Chinese PE major students' self-efficacy regarding APE. These findings are consistent with two important aspects of improving self-efficacy according to Bandura's theory: Accomplishments and verbal persuasion. Related course studies and internship experiences are direct ways to improve the cognition of inclusion PE. Chinese PE major students' self-efficacy regarding APE has significantly improved; this finding is consistent with the conclusions of research conducted by Liu [40] and Wang [30]. Perceived social support refers to an individual's perception of being supported and understood by society. The buffer effect theory of perceived social support holds that, if an individual actively seeks and accepts subjective and objective support from family, friends, and society, they will be proactive and optimistic regarding all kinds of social issues. With such support, students can become more optimistic and proactive and gain an increased sense of self-efficacy when they face students with disabilities.

Finally, our research confirms that related course studies and internship experiences can effectively enhance the influence of perceived social support on students' self-efficacy, while a situation without related course studies and internship experiences cannot have a regulatory effect on perceived social support or students' self-efficacy. While perceived social support can influence students' mental state, PE major students need high self-efficacy and APE-related knowledge, which has the strongest regulating effect with regard to teaching students with visual disabilities. Therefore, managers in China should constantly improve the support given to preservice PE teachers from all sides, including language teaching, welfare policies, professional knowledge, adequate internship opportunities, and so on.

5.1.2. Discussion

The self-efficacy of preservice PE teachers for inclusive education can directly affect the effectiveness of teaching given to disabled students. The relatively slow development of PE-inclusive education in China is closely related to the lack of qualified PE teachers, and adequate training of qualified PE teachers has become a major issue. This study demonstrated the positive effect of perceived social support as well as the positive moderating effect of related learning and internship on self-efficacy.

The existing literature on perceived social support and self-efficacy has shown a positive and synergistic relationship between the two [44–46]. Such literature has focused on schools and the healthcare system, suggesting that the personnel in these facilities, whether teachers, students, doctors, or nurses, have a particular need for various forms of support and care from the society. Such support and care promote their self-efficacy and efficiency in their respective work fields. However, it is clear that society does not pay the requisite attention to preservice PE teachers for inclusive education in China.

As mentioned earlier, a large body of research has confirmed the positive effects of learning and internships on promoting self-efficacy in preservice PE teachers. However, little research has been done on the moderating effects of these factors on perceived social support and self-efficacy. According to Bandura's self-efficacy theory, learning and internships are preexisting experiences and alternatives, which are among the most important factors affecting self-efficacy. Moreover, these two factors are closely related to perceived social support. If society gives more attention and support to preservice PE teachers, more training courses based on the expertise of these personnel will be considered as the most direct form of support. Our analysis reveals that the impact of the moderating effect of learning and internships is high, indicating that there is an urgent need for preservice PE teachers in China to receive sufficient learning and internship opportunities to improve their self-efficacy, thereby fostering the development of PE inclusive education in China.

5.2. Suggestions

APE is still in its initial stages in China, and so is the training of APE teachers. Considering trends in developed countries, it can be said that an increasing number of students with disabilities in China will receive the same opportunities to participate in sports activities and to receive the same PE as their able-bodied classmates. Therefore, primary and secondary schools can be expected to require more teachers with APE-related knowledge and skills in the future. Based on the study, we propose the following suggestions toward cultivating APE-related knowledge and skills in PE major students: (1) National policies, including adding more APE-related content as part of PE studies at universities and colleges, should be introduced; (2) collaboration with the United States and European countries should be pursued when training APE experts; (3) under the existing inclusive education model, primary and secondary schools should explore new models that suit China's actual situation to provide disabled students with fair opportunities to receive PE, and PE major students with more opportunities to engage in APE; (4) suitable facilities should be created to enable people with disabilities to participate in sports activities and to encourage college students with various relevant majors to participate in sports programs designed for people with disabilities, and; (5) financial support should be provided

for APE studies and related research in order to make possible further achievements within studies in the Chinese context.

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