

*Full Length Research Paper*

# **Influence of perceived organizational support on work engagement of university physical education teachers in Hubei Province, China**

**Ying Zhang<sup>1,2</sup> and Yuan-Cheng Chang<sup>1\*</sup>**

<sup>1</sup>Chinese International College, Dhurakij Pundit University, Bangkok, Thailand.

<sup>2</sup>Department of Physical Education, Hengshui University, Hengshui, China

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**Physical education teachers in colleges and universities have the crucial responsibility of acting as mentors and guides for the healthy growth of students. The work engagement of these teachers affects the quality of higher education personnel training and health education. Based on the job demand-resource model, this study conducted a questionnaire survey on 500 physical education teachers in 20 colleges and universities in Hebei Province, China. The subjects were selected through convenience sampling. Out of the total, 456 valid questionnaires were recovered. The intermediary effect was tested through the AMOS model analysis and the Bootstrap method. The results revealed that the perceived organizational support of the participating physical education teachers in colleges and universities can positively affect their sense of teaching efficacy, which in turn positively affects work engagement and has a partial mediating effect on the relationship between perceived organizational support and work engagement.**

**Key words:** Perceived organizational support, teaching efficacy, work engagement.

## **INTRODUCTION**

The "14th Five-Year Plan for Sports Development" promulgated in 2021 highlighted the necessity of strengthening the integration of sports and education and promoting the healthy development of youth sports (General Administration of Sport of China, 2021). In 2023, the State Council proposed in the government work reported, that the integration of sports and education must be deepened (Central People's Government of the People's Republic of China, 2023). The aforementioned

policies emphasize that the country should focus on physical education. Physical education teachers form the main team for conducting school sports work (Trigueros et al., 2019). They are the key elements for improving students' physical health (Dong Peng et al., 2019). Therefore, the work engagement of physical education teachers affects students' learning attitudes and the learning effect of physical education courses, in addition to affecting students' motor skills and physical fitness

\*Corresponding author. E-mail: [yuan-cheng.cha@dpu.ac.th](mailto:yuan-cheng.cha@dpu.ac.th).

(Trigueros et al., 2019).

Eisenberger et al. (1986) found that perceived organizational support can offer a crucial guarantee for maintaining and improving individual work engagement. Perceived organizational support is the perception of university teachers of the school's support for their work, concern for their interests, and recognition of their value (Ling Wenqi et al., 2006). When an individual perceives a high level of perceived organizational support (Ling Wenqi et al., 2004), their potential is stimulated and they develop a positive attitude toward work. Accordingly, the individual shows greater enthusiasm at work, which affects their work engagement (Blanco-Donoso, 2021). Chen and Eyoun (2021) pointed out that perceived organizational support can help individuals determine work goals and provide the resources required for work. Perceived organizational support is a crucial work resource that can enhance work engagement by improving the intrinsic interest in work tasks (Cacciamani et al., 2022; Ji and Zhao, 2020).

Han and Wang (2021) reported that self-efficacy can motivate an individual in a specific situation and mobilize work resources to improve work engagement. When self-efficacy is high, work engagement will also correspondingly exhibit improvement (Bakker and Albrecht, 2018). Greenier et al. (2021) showed that the higher the teachers' self-efficacy, the higher their work engagement will be. Teaching efficacy, as the application of self-efficacy in teaching (Segarra and Julià, 2022), is the subjective feeling of teachers about the role of education and their own teaching. Yu and Luo (2000) believe that teachers' enhanced sense of teaching efficacy can enhance their work engagement in the teaching process and facilitate effective completion of instructional tasks.

Tschannen-Moran et al. (1998) stated that the formation of teachers' sense of teaching efficacy is affected by various efficacy-related pieces of information, such as perceived organizational support. Perceived organizational support, as a work resource, can influence the formation and development of the sense of teaching efficacy in teachers (Tett and Burnett, 2003). Teachers who perceive the work and life support offered by the school have better expectations of fulfilling role commitments and teaching tasks, as well as higher confidence. Therefore, the sense of organizational support can help improve the sense of teaching efficacy in teachers (Edinger and Edinger, 2018).

According to the job demand-resource model (JD-R), various work environments and job characteristics can be classified into two categories: job requirements and job resources. Job resources play an extrinsic role which can reduce individual work demands and promote individual work engagement (Bauer et al., 2014), work resources are manifested as workers feel various motivating factors, including perceived organizational support (Wu and Qi, 2021), Hobfoll (2002) pointed out

that through the role of resource gain, personal resources can help individuals perceive other work resources, thereby mediating the effect of work resources on work engagement (Grover et al., 2017). According to the JD-R model, self-efficacy, as a typical personal resource, can make an individual to be motivated and mobilize work resources to improve work engagement in a specific situation (Han and Wang, 2021). Therefore, work resources can activate personal resources to increase work engagement through a certain mechanism (Hobfoll, 2001).

In summary, perceived organizational support can affect the sense of teaching efficacy and work engagement in teachers. Teaching efficacy has some effect on the relationship between perceived organizational support and work engagement. The work engagement of physical education teachers endorses the physical and mental health of students, and healthy development of students profoundly affects the country's health education (Ren et al., 2022). Therefore, based on the JD-R model, this study explored the relationship between perceived organizational support, teaching efficacy, and work engagement among physical education teachers in colleges and universities in Hebei Province. To verify the mediating effect, this study addressed the following objectives:

1. To explore the influence of perceived organizational support of colleges and universities in Hebei Province on the work engagement of physical education teachers.
2. To explore the influence of teaching efficacy on work engagement of the physical education teachers.
3. To explore the influence of perceived organizational support in on the teaching efficacy of the physical education teachers
4. To explore the mediating effect of teaching efficacy of physical education teachers on the relationship between perceived organizational support and work engagement.

### **Perceived organizational support and work engagement**

Work engagement is a positive state of work-related enrichment (Schaufeli et al., 2002). Teachers with high levels of work engagement display positive work attitudes and behaviors, which, in turn, affect their teaching effectiveness (Cacciamani et al., 2022). The high level of work engagement among physical education teachers can stimulate students' interest in sports and cultivate exercise habits in them, thereby influencing the development of school sports and students' physical health (Xiong et al., 2020). Hakanen et al. (2021) reported that work engagement is affected by many factors. Regarding organizational factors, the organization's work help or emotional support for individuals is a vital source of individual work resources.

Based on the principle of reciprocity, when individuals feel that they are supported by the organization, they will also try to meet the organization's expectations and help the organization achieve its goals, which thus increase their work engagement (Eisenberger et al., 1986; Yongxing et al., 2017). In a study of 366 teachers in Tibet, China, Ji and Zhao (2020) stated that perceived organizational support can significantly and positively affect the work engagement of teachers. The first research hypothesis is thus as follows:

**H1:** Perceived organizational support of physical education teachers in colleges and universities positively affects work engagement.

### Teaching efficacy and work engagement

Self-efficacy is a self-motivation mechanism in which people think they can accomplish their set goals. People with a sense of self-efficacy are motivated to spend considerable effort and persist for a long time to overcome difficulties (Bandura, 2005). The higher sense of self-efficacy in teachers is more helpful in awakening or maintaining their own positive working state, such that they can be highly involved in education and teaching (Grenier et al., 2021). The concept of teaching efficacy originated from Bandura's (1977) self-efficacy theory (Segarra and Julià, 2022). The teaching efficacy of teachers refers to their subjective feelings about their educational and teaching functions (Lipscomb et al., 2022). Teachers with a sense of teaching efficacy are willing to devote more time and energy to their work, solve difficulties encountered at work, and devote themselves more to their teaching work (Cai et al., 2022). Accordingly, the second research hypothesis is as follows:

**H2:** Teaching efficacy of physical education teachers in colleges and universities positively affects work engagement.

### Perceived organizational support and teaching efficacy

Self-efficacy is generally considered a basic perception of the self. It is gradually formed through various external factors and the continuous exercise of the self to the mind (Wang et al., 2017). Eisenberger (1986) stated that the function of perceived organizational support can affect the self-confidence of individuals. In short, perceived organizational support can affect self-efficacy. A high perceived organizational support allows individuals to maintain a positive attitude to deal with difficulties and setbacks, reduce the negative and adverse effects of stress, and improve their self-efficacy (Greenglass and Burke, 2000). Musenze et al. (2020)

found that the sense of organizational support of teachers significantly affects their sense of self-efficacy. Teaching efficacy is the application of self-efficacy in education (Gibson and Dembo, 1984). Teel (2003) showed that the support received by teachers from schools or leaders for their work includes both material and spiritual connotations. Work resources can affect the formation of teaching efficacy in teachers and their other personal resources. The third research hypothesis is as follows:

**H3:** Perceived organizational support of physical education teachers in colleges and universities positively affects the teaching efficacy.

### The relationship among perceived organizational support, teaching efficacy, and work engagement

According to the JD-R model, work resources can meet the requirements of individuals, stimulate their work potential, and trigger a high work engagement level (Bakker et al., 2003). Hobfoll (1989) proposed the concept of personal resources. Through the role of resource gain, personal resources can help individuals perceive other work resources (Hobfoll, 2002). Thus, personal resources can mediate the effect of work resources on work engagement (Grover et al., 2017). Xanthopoulou et al. (2009) found that personal resources have a partial mediating role in the process of prediction of effect of work resources on work engagement. Self-efficacy, a personal resource, is people's confidence or belief that they can achieve a specific behavioral goal. Moreover, it is the expectation of whether people are able to achieve behaviors in a specific environment (Bandura, 1977). Perceived organizational support can directly affect teachers' self-efficacy and work engagement and indirectly affect their work engagement through self-efficacy (Caesens and Stinglhamber, 2014). The perceived organizational support is the application of self-efficacy of teachers in education (Gibson and Dembo, 1984), Han et al. (2021) found that this perceived organizational support can mediate the impact of work resources on work engagement, and therefore, the fourth research hypothesis is as follows:

**H4:** Teaching efficacy of physical education teachers in colleges and universities can mediate the relationship between perceived organizational support and work engagement.

### RESEARCH FRAMEWORK

This study is based on the JD-R model. According to this model, while work resources promote work engagement, personal resources can help individuals perceive other work resources through resource gains, thereby mediating the effect of work resources on work engagement (Grover et al., 2017). Therefore, in

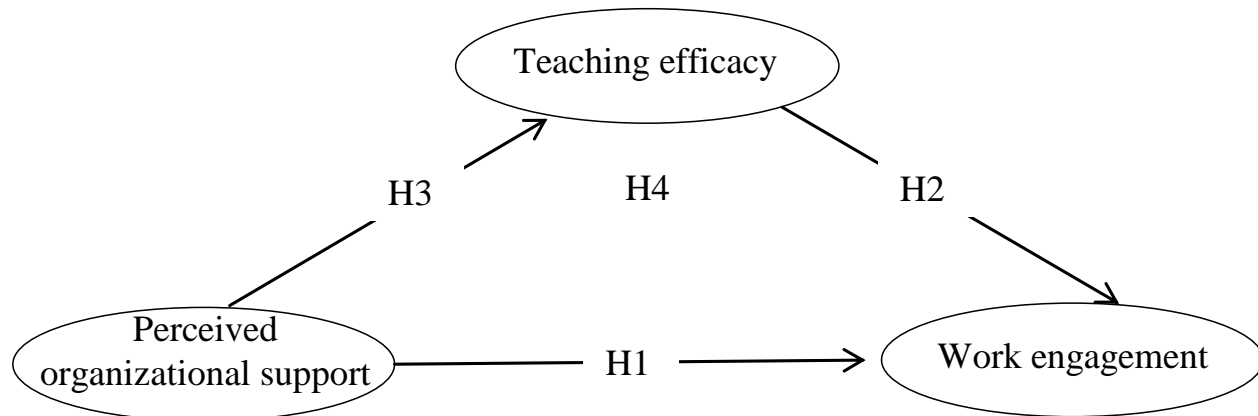


Figure 1. Research framework.

this study, perceived organizational support is considered a work resource, and the sense of teaching efficacy is considered an individual resource. As shown in Figure 1, we explored the influence of perceived organizational support and teaching efficacy on the work engagement of physical education teachers in colleges and universities in Hebei Province and examined whether organizational support influences work engagement through teaching efficacy.

### Participants

The development of higher education is relatively weak in Hebei Province of China, facing opportunities for the coordinated development of Beijing, Tianjin, and Hebei. The degree of work engagement of physical education teachers in colleges and universities of Hebei Province is particularly crucial in implementing the policy for the integration of sports and education for college students. The present study used convenience sampling to conduct a questionnaire survey on physical education teachers in these colleges and universities. In total, 150 questionnaires were distributed in the pre-test stage, and 142 valid questionnaires were recovered. For the formal questionnaire, 20 colleges and universities in Hebei Province were selected, and 25 physical education teachers were randomly selected from each school. In total, 500 formal questionnaires were distributed, and 456 valid questionnaires were returned from 190 men and 266 women.

### Instruments

This study adopts the "Perceived Organizational Support Questionnaire for Teachers in Higher Vocational Colleges" compiled by Zhao (2014). The scale comprises three dimensions, namely working support, identifying value, and caring about well-being, and has a total of 22 items. The reliability coefficient (Cronbach's alpha) of the returned questionnaire was 0.943. The results of the confirmatory factor analysis were as follows:  $\chi^2/df = 1.906$ , RMSEA = 0.045, SRMR = 0.030, RMR = 0.039, GFI = 0.929, AGFI = 0.913, NFI = 0.941, TLI (NNFI) = 0.968, IFI = 0.971 and CFI = 0.971. The fitting indicators were in line with the standard of general structural equation modeling (SEM) research (Qiu Haozheng, 2006), and the perceived organizational support model had a good fit. The questionnaire was more consistent with the research object of this study on perceived organizational support, that is, college physical education teachers. Therefore, this scale

was used in this study to measure the perceived organizational support of college physical education teachers.

This study adopted the Chinese version of the Work Engagement Scale translated by Zhang and Gan (2005). The scale comprises three dimensions, namely vigor, dedication, and absorption, and had a total of 17 items. The reliability coefficient (Cronbach's alpha) of the returned questionnaire was 0.914. The results of the confirmatory factor analysis were as follows:  $\chi^2/df = 2.598$ , RMSEA = 0.059, SRMR = 0.038, RMR = 0.054, GFI = 0.933, AGFI = 0.912, NFI = 0.927, IFI = 0.954, TLI (NNFI) = 0.946, and CFI = 0.954. The fitting indicators were in line with the standard of general SEM research, and the model exhibited a good fit. The scale conforms to the local Chinese culture, and thus was used in this study for measuring the work engagement of college teachers.

This study adopted the "Teacher Teaching Effectiveness Scale" compiled by Yu et al. (1995). The scale is divided into two dimensions, namely personal teaching efficacy and general teaching efficacy, and has a total of 27 items. The reliability coefficient (Cronbach's alpha) of the questionnaire was 0.960. The results of the confirmatory factor analysis were  $\chi^2/df = 1.738$ , RMSEA = 0.040, SRMR = 0.030, RMR = 0.038, GFI = 0.919, AGFI = 0.906, NFI = 0.938, TLI (NNFI) = 0.970, IFI = 0.973, and CFI = 0.972. The fitting indicators were in line with the standard of general SEM research, and the model fit was good. The survey objects involved while compiling and revising the scale were all Chinese teachers, which meets the needs of this research on Chinese college physical education teachers. Therefore, this study used this scale to measure the teaching effectiveness of college physical education teachers.

## RESULTS

### Discriminant validity and relevant analysis

The average values of perceived organizational support, teaching efficacy, and work engagement were 3.597, 3.666, and 3.581, respectively, and the correlations among the variables were all positive and significant ( $p < 0.001$ ; Table 1), indicating that a positive relationship existed among the variables. The diagonal line is the square root of the average variance extracted (AVE) in each dimension, which is greater than the standardized

**Table 1.** The AVE and correlation coefficients of all variables (N = 456).

Variable	Mean	Standard deviations	Perceived organizational support	Teaching efficacy	Work engagement
Perceived organizational support	3.597	0.775	0.775 <sup>a</sup>		
Teaching efficacy	3.666	0.786	0.463 <sup>***</sup>	0.763 <sup>a</sup>	
Work engagement	3.581	0.774	0.448 <sup>***</sup>	0.531 <sup>***</sup>	0.749 <sup>a</sup>

Square root of average variance extracted (AVE). \*\*\*p < 0.001

**Table 2.** Difference between Model 1 and Model 2.

Variable	Model 1	Model 2
$\chi^2/df$	2.147	2.114
GFI	0.988	0.981
AGFI	0.968	0.960
RMSEA	0.050	0.049
IFI	0.989	0.984
NFI	0.979	0.971
CFI	0.989	0.984
TLI(NNFI)	0.979	0.974
RMR	0.027	0.026
SRMR	0.030	0.030

correlation coefficients outside the diagonal line, suitable for the subsequent SEM analysis.

### Model analysis

In this study, AMOS software was used to construct a structural equation model for perceived organizational support, work engagement, and teaching efficacy. According to the mediation effect test procedure proposed by Wen and Ye (2014), first, Structural model 1 of the total effect of the perceived organizational support of teachers on job engagement was established. If the path coefficient was significant, teaching efficacy was added as an intermediary variable to establish Structural model 2. In Model 2, if the path coefficients of perceived organizational support to teaching efficacy and teaching efficacy to work engagement were significant, then a mediating effect on teaching efficacy was considered to exist. If the path coefficient of organizational support and work engagement was significant and lower than that of Model 1, teaching efficacy was considered a partial mediator.

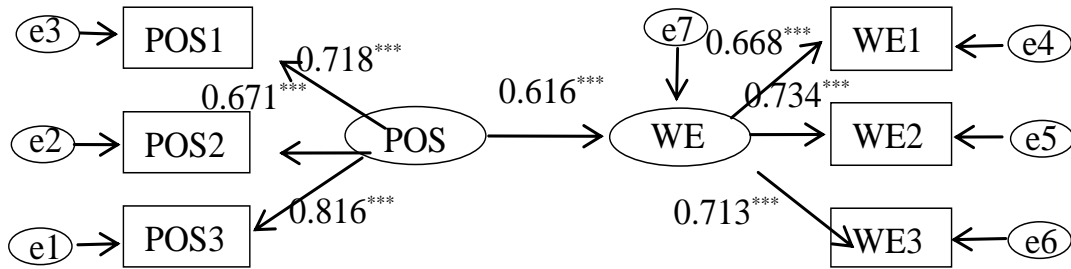
First, the total effect of the perceived organizational support of teachers on work engagement was tested, and Structural model 1 was established, as shown in Table 2. The fitting indicators of Model 1 were as follows:  $\chi^2/df = 2.645$ , GFI = 0.992, AGFI = 0.978, RMSEA = 0.045, IFI = 0.990, NFI = 0.984, CFI = 0.990, TLI (NNFI) = 0.982, RMR = 0.020, and SRMR = 0.023. Each fitting

indicator reached the standard value, indicating that the model fits well. In Structural model 1, the path coefficient of the total effect of perceived organizational support on work engagement was 0.616 ( $p < 0.001$ ; Figure 2), reaching a significant level. This indicated that perceived organizational support positively affects work engagement, implying that the stronger the perceived organizational support of college physical education teachers in Hebei Province, the higher their work engagement will be. Therefore, H1 was verified.

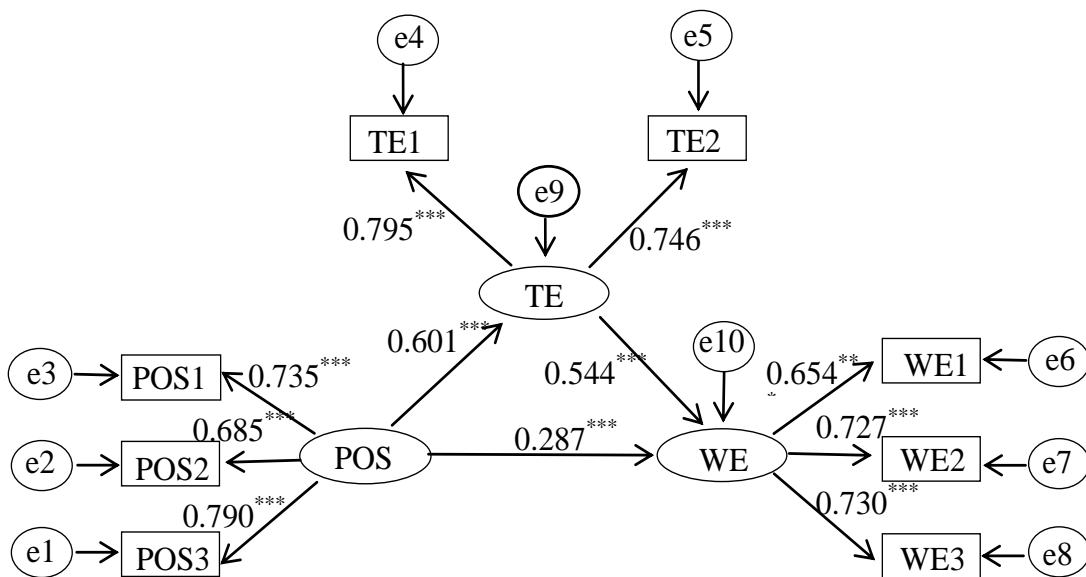
Second, teaching efficacy was added between perceived organizational support and work engagement, and Structural model 2 of the mediation effect was established. The fitting indicators of Model 2 (Table 2) were as follows:  $\chi^2/df = 3.467$ , GFI = 0.972, AGFI = 0.952, RMSEA = 0.055, IFI = 0.966, NFI = 0.953, CFI = 0.966, TLI (NNFI) = 0.952, RMR = 0.028, and SRMR = 0.034. The fitting indicators were all in line with the standard values of general SEM research (MacCallum et al., 1992), and Structural model 2 of the mediation effect is presented in Figure 3.

Model 2 showed that teaching efficacy significantly and positively affected the work engagement of the teachers ( $\beta = 0.544$ ,  $p < 0.001$ ; Figure 3; Table 3). The  $\beta$  value was 0.544, and the p value was  $< 0.001$ , indicating that the relationship was significant. Thus, the higher the teaching efficacy of physical education teachers in Hebei Province, China, the higher their work engagement level will be, thereby verifying H2.

The sense of organizational support significantly and



**Figure 2.** Model of the total effect of perceived organizational support on work engagement (Model 1). POS: Perceived organizational support; POS1: working support; POS2: identifying value; POS3: caring about well-being. WE: Work engagement; WE1: vigor; WE2: dedication; WE3: absorption.



**Figure 3.** Perceived organizational support, teaching efficacy, and work engagement SEM path analysis (Model 2). POS: Perceived organizational support; POS1: working support; POS2: identifying value; POS3: caring about well-being. WE: Work engagement; WE1: vigor; WE2: dedication; WE3: absorption. TE: Teaching efficacy; TE1: personal teaching efficacy; TE2: general teaching efficacy.

positively affected the sense of teaching efficacy ( $\beta = 0.601$ ,  $p < 0.001$ ; Figure 3; Table 3). The  $\beta$  value was 0.601, and the  $p$  value was  $<0.001$ , indicating that the relationship was significant. Thus, the stronger the perceived organizational support of physical education teachers in colleges and universities in Hebei Province, China, the higher their sense of teaching efficacy will be. H3 is thus valid.

Perceived organizational support significantly and positively affected teaching efficacy ( $\beta = 0.601$ ,  $p < 0.001$ ; Figure 3; Table 3). Teaching efficacy significantly and positively affected their work engagement ( $\beta = 0.544$ ,  $p < 0.001$ ). The standardized path coefficient of perceived organizational support on work engagement was significant at 0.616 ( $p < 0.001$ ), as shown in Model 1.

Although the path coefficient reduced to 0.287 ( $p < 0.001$ ) for Model 2, it was still significant (Figure 3). According to the mediating effect test criteria (Wen and Ye, 2014), the results showed a partial mediating effect on the relationship between perceived organizational support and work engagement of college physical education teachers in Hebei Province, China.

The Bootstrap mediation effect test method was adapted to test whether the mediation effect was significant. In this study, the Bootstrap method was used 2000 times of repeated sampling (Nevitt and Hancock, 2001). The mediation effect test was conducted. If the 95% confidence interval contained 0, it meant mediation was lacking. If the 95% confidence interval contained no 0, it meant that a mediation effect existed.

**Table 3.** Structural equation modeling analysis path coefficients.

Effect	$\beta$	SE	C. R.
Perceived organizational support→Teaching efficacy	0.601 <sup>***</sup>	0.064	9.409
Perceived organizational support→Work engagement	0.287 <sup>***</sup>	0.069	3.867
Teaching efficacy →Work engagement	0.544 <sup>***</sup>	0.077	6.418

\*\*\* $p < 0.001$ , \* $p < 0.05$

**Table 4.** Bootstrap SEM analysis of total, direct, and indirect effects.

Effect	Estimate	95% LLCI	95% ULCI	$p$
Perceived organizational support→Work engagement	0.287	0.134	0.434	0.001
Perceived organizational support→Teaching efficacy →Work engagement	0.327	0.228	0.450	0.001
Total effect	0.614	0.524	0.692	0.001

Table 4 shows that the indirect effect of organizational support on work engagement was 0.327, which was significant within the 95% confidence interval (0.228–0.450). The confidence interval did not contain 0, indicating the presence of a mediating effect. The direct effect was 0.287 significant in the 95% confidence interval (0.134–0.434), and the 95% confidence interval did not contain 0, indicating the presence of a partial mediation effect. The total effect was 0.614 significant in the 95% confidence interval (0.524–0.692), indicating the presence of a partial mediation effect. Therefore, the teaching efficacy of physical education teachers in colleges and universities has a partial mediating role in the relationship between perceived organizational support and work engagement. Thus, H4 is valid.

## DISCUSSION

The study found that perceived organizational support of college physical education teachers in Hebei Province, China, significantly and positively affected their work engagement, and the research hypothesis H1 was valid. This result is consistent with those of Kurtessis et al. (2017) and Ji and Zhao (2020), indicating that the higher the teacher's perceived organizational support, the higher their work engagement level. According to the JD-R model, perceived organizational support is a vital work resource for college teachers and can supplement emotional labor-induced resource consumption. A high level of perceived organizational support can reduce the pressure on teachers. At the same time, perceived organizational support can expand the tolerance range of college teachers. Therefore, teachers would have more power to face students positively and reduce pretense and performances (Zheng, 2022). This would help teachers achieve work goals, stimulate individual potential, affect individual work attitudes, and alleviate

the damage induced by work demands to individuals. Therefore, a high level of perceived organizational support improves the positive work attitude of an individual, eventually affecting their work engagement (Blanco-Donoso, 2022).

Perceived organizational support of physical education teachers in colleges and universities in Hebei Province, China, positively and significantly affected the sense of teaching efficacy. This result is consistent with those of Teel (2003) and Lazarides and Warner (2020), indicating that the higher the perceived organizational support of teachers, the higher is their sense of teaching efficacy. The formation of sense of teaching efficacy in teachers is affected by various efficacy-related information, such as school environment and organizational support. According to the JD-R model, as a work resource, perceived organizational support can affect the formation and development of personal resources such as teaching efficacy. Therefore, if perceived organizational support is high, teachers will adopt a positive attitude to deal with difficulties and setbacks. This would also reduce the negative and adverse effects of stress, thereby promoting an improvement in teaching efficacy.

The teaching efficacy of physical education teachers exhibited a positive and significant impact on work engagement. This result is consistent with those of Perera et al. (2018) and Cai et al. (2022), indicating that the higher the teaching efficacy of teachers, the higher the work engagement level. According to the JD-R model, personal resources predict work engagement independently (Bakker and Demerouti, 2014). As a personal resource, teaching efficacy can promote the work engagement of teachers. Teachers with a high teaching efficacy are more confident in their teaching work, can better tackle problems in the education process, and believe in education and their own ability to promote students. Such teachers maintain a proactive state, persistently invest a lot of time and energy, and

work hard. They cause improvement in academic progress and resolve problematic behavior (Llorens et al., 2006). They exhibit high enthusiasm for teaching activities, even in the face of educational and teaching problems. After completing the teaching tasks, they would be highly willing to solve problems in the teaching work. Their own teaching effect and teaching ability will be higher (Simbula et al., 2011), and their work engagement will thus be improved.

Teaching efficacy of physical education teachers in colleges and universities in Hebei Province, China partially mediates the relationship between perceived organizational support and work engagement. This result is consistent with those of Luthans and Youssef (2007), Tierney and Farmer (2004), and Musenze et al. (2020). Self-efficacy plays a crucial mediating role in the relationship between perceived organizational support and work engagement. According to the JD-R model, perceived organizational support as a work resource can improve the intrinsic interest of individuals in tasks and thus positively affect individual work engagement (Eisenberger et al., 1986). Self-efficacy, as a major personal resource, can help individuals effectively face challenging demands through effort and perseverance in the work environment (Pérez-Fuentes et al., 2018). This can positively predict individual work engagement (Bhatti et al., 2018). Work and personal resources can independently affect an individual's work engagement and can be combined to predict work engagement. An individual with a high level of personal resources can perceive more work through resource gains (Xanthopoulou et al., 2009) and additional resources, thereby promoting their work engagement (Hobfoll and Lily, 1993). Thus, perceived organizational support as a work resource can enhance individual work engagement by increasing individual self-efficacy (Bakker and Demerouti, 2008), because teaching efficacy is the application of self-efficacy in teaching (Segarra and Julià, 2022). Teaching efficacy can play a mediating role in the effect of organizational support on job engagement.

## CONCLUSIONS AND RECOMMENDATION

Perceived organizational support of physical education teachers positively affects work engagement in colleges and universities in Hebei Province, China. Universities and relevant departments should understand the realistic demands of teachers and improve perceived organizational support offered to college physical education teachers. First, work support for physical education teachers should be increased, work resources conducive to the completion of tasks should be provided to them, and work vitality of these teachers should be stimulated so as to promote their work engagement. Second, attention must be paid to the value recognition of physical education teachers. Colleges and universities should strengthen the satisfaction of emotional needs of

teachers, focus on the basic and key role of these teachers in the development of the entire educational cause, and enhance the value recognition of these teachers so as to improve their work engagement. Third, care must be taken to protect personal interests of physical education teachers at colleges, increase the concern for these teachers, and improve work enthusiasm of high-level physical education teachers. We must aim to increase the interest of physical education teachers, and thus improve their work engagement.

As a personal resource, teaching efficacy of physical education teachers can be used as an independent predictor of work engagement. It can also be combined with perceived organizational support to predict work engagement. To improve the teaching efficacy of physical education teachers in colleges and universities, first, schools must provide physical education teachers with more opportunities for learning, training, and communication. Through scientific and reasonable training, the professional development and comprehensive quality of physical education teachers can be enhanced, thereby improving their teaching efficacy level. Second, physical education teachers should continually update and enrich their knowledge of sports subjects, form a knowledge system that conforms to the development of modern physical education, improve teaching content and teaching methods and means, and attempt to gain more experience in the teaching process. This type of successful experience in teaching can enhance the teaching efficacy of physical education teachers.

## CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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