

# The Influence of Social Support on Higher Vocational Students' Learning Motivation: The Mediating Role of Belief in a Just World and the Moderating Role of Gender

Xiaojiao Lin<sup>1</sup>, Yujun Hu<sup>2,3</sup>, Chunmei Chen<sup>4</sup>, Yujie Zhu<sup>5</sup>

<sup>1</sup>College of Marxism, Xiamen Ocean Vocational College, Xiamen, Fujian, People's Republic of China; <sup>2</sup>Human Resources Office, Zhejiang Tongji Vocational College of Science and Technology, Hangzhou, Zhejiang, People's Republic of China; <sup>3</sup>Education Research Institute, Xiamen University, Xiamen, Fujian, People's Republic of China; <sup>4</sup>Teachers College, Jimei University, Xiamen, Fujian, People's Republic of China; <sup>5</sup>School of Marine Culture and Law, Jimei University, Xiamen, Fujian, People's Republic of China

Correspondence: Yujun Hu, Human Resources Office, Zhejiang Tongji Vocational College of Science and Technology, No. 418, Gengwen Road, Xiaoshan District, Hangzhou, Zhejiang, 311231, People's Republic of China, Email at2008@qq.com

**Purpose:** Social support is a valid predictor of individuals' learning motivation, but the specific mechanism of the two is still unclear. In order to explore the specific mechanism between them, we examined the mediating role of belief in a just world (BJW) and the moderating role of gender in the relationship between social support and learning motivation.

**Methods:** A total of 1320 students enrolled in three higher vocational colleges in eastern China were surveyed using the adolescent Social Support Scale, the college students' Motivation to Learn questionnaire, and the College Students' Belief in a Just World Scale. Descriptive statistics and correlation analyses were performed for all study variables, and finally, mediating and moderating effects were tested using the process developed by Hayes.

**Results:** In China, the relationship between social support, BJW, and learning motivation of higher vocational college students shows a two-by-two positive correlation. Social support can directly influence learning motivation and function through the mediation of BJW. Gender moderates the first half of the pathway of the mediating effect of social support – BJW – learning motivation and the direct pathway of social support – learning motivation, ie, the positive effect of social support received on BJW and is more remarkable for boys when compared to girls. In addition, among the mediating effects played by BJW, the intrinsic justice dimension contributed the most, the ultimate justice dimension the second, and the intrinsic injustice dimension the least.

**Conclusion:** This study adds to and extends the relevant research on the influence of social support on individuals. It confirms the moderating effect of gender and provides a new idea for enhancing the learning motivation of disadvantaged student groups. The results of the study can provide a reference for researchers and educators to further explore how to enhance the learning motivation of higher education students.

**Keywords:** social support, belief in a just world, learning motivation, higher vocational college, college students

## Introduction

Motivation is the force that prompts a person to begin sustained behavior of a certain intensity to help him achieve a goal.<sup>1,2</sup> Learning is a complex process, and there is a broad consensus on the importance that motivation plays in it.<sup>3</sup> There are numerous studies have confirmed that learning motivation is the critical factor to initiate and maintain students' learning process in education.<sup>4,5</sup> Learning motivation promotes not only the beginning of learning but also the motivation for further persistence in learning.<sup>6,7</sup> Synthesizing the previous perspectives, in this study, learning motivation refers to the intrinsic psychological processes that motivate and sustain individual learning activities and guide learning behaviors toward established goals. It has been confirmed that learning motivation is an important influential variable in both

offline and online learning styles, negatively correlated with learning burnout,<sup>8</sup> and has a direct positive effect on learning sustainability intentions,<sup>9</sup> learning engagement,<sup>10</sup> academic achievement,<sup>11</sup> positive learning emotions, and online learning performance.<sup>12</sup> In conclusion, learning motivation can promote active learning and improve learning outcomes.<sup>13,14</sup>

In China, vocational education is regarded as the type of education that accepts poor students by society at large, and the enrollment performance of secondary vocational schools is lower than that of general high schools, and that of higher vocational colleges is lower than that of general undergraduate colleges. Higher vocational students are thus labeled as losers in college entrance exams and are at a disadvantage in the college student population. These social stigmas seriously affect students' learning interests and development motivation, and studies have found that higher vocational students have the weaker motivation and poorer school performance.<sup>15,16</sup> Nonetheless, some higher education students end up with high academic achievement and earn the opportunity to continue their undergraduate education or become excellent technical "craftsmen" in a certain field. Therefore, this study aims to find out why some students can grow better with the same discriminated higher education. What are the important factors that influence their motivation to learn? What are the specific paths?

Given the positive role of motivation on individual learning, more and more researchers have explored its antecedent variables that can influence learning motivation, trying to uncover its intrinsic regulatory mechanisms. Since the 1980s, researchers have found that students' background factors have a significant impact on learning motivation. Studies have indicated that adolescents' learning motivation should not only be explained about specific learning situations but also be understood in combination with the whole social background and psychological mechanism formed.<sup>17,18</sup> Among many antecedent variables, a growing body of studies has shown that social support contributes positively to students' learning motivation, which is an important influencing factor.<sup>19–23</sup> There is a significant positive correlation between social support and learning motivation, and the higher the level of social support students receives, the stronger, and the more motivated they are to learn.

Social support is a multidimensional concept that has a significant impact on the physical and mental health of individuals,<sup>24</sup> reflecting the individual's interactions with others. It enables individuals to believe that they are cared for, loved, and respected by others, thus protecting them from the harmful effects of stress.<sup>25,26</sup> Individuals with this protective factor can face the crisis optimistically and have a positive life experience even in adversity. Studies have suggested that social support systems, including family, teachers, and friends, play a positive role in adolescent development.<sup>27</sup> Good social support can improve learning efficiency and self-confidence.

When faced with academic stress, students who have more social support resources can seek help to obtain more material support and emotional encouragement, solve problems with more positive and mature coping strategies, and thus increase learning motivation. In contrast, students who have less effective support from their learning environment are more likely to feel helpless, which leads to negative emotions and thus lower learning motivation. A study with a sample of Chinese students showed that social support has a direct effect on learning motivation and indirectly influences academic performance through learning motivation.<sup>28</sup> In a sample of college students in the Kurdistan region of Iraq, studies have found that external social support is one of the most critical factors influencing learning motivation.<sup>29</sup> Thus, it is clear that providing students with adequate social support can help increase students' learning motivation, whether from parents or the school environment.<sup>16,30</sup> However, the specific mechanisms underlying the relationship between social support and learning motivation have not been fully elucidated and deserve further exploration.

Belief in a just world (BJW) theory states that individuals need to believe that they live in a just world where "people get what they deserve".<sup>31,32</sup> The belief that the world just provides individuals with a sense of control over the world and allows them to believe that the social environment they live in is stable and orderly, thus helping individuals adapt to these environments.<sup>33</sup> Over the past three decades, more and more studies have explored the mechanism that shapes BJW, and several empirical studies have revealed the predictive role of social support on BJW. Studies from the field of organizational behavior have noted that the higher the level of social support, the higher the perceived level of organizational justice.<sup>34,35</sup> A research with a sample of college students found that social support significantly positively correlates with BJW.<sup>36</sup> When individuals receive a higher level of social support, they tend to believe that the world is just and therefore generate higher BJW.

According to theoretical postulates, one of the main functions of BJW is to motivate individuals to focus on future goals, follow social norms, and devote themselves to actions that achieve their deserved outcomes. If such beliefs are absent, it is difficult for individuals to commit themselves to pursue long-term goals. It has been shown that for students, experiences of injustice may reduce their motivation to learn, which can negatively affect academic performance.<sup>37</sup> Therefore, this study hypothesizes that BJW may be a mediating variable in the relationship between social support and learning motivation.

In addition, studies on social support have found gender differences. The more social support a person feels, the more intimate and trusting interpersonal relationships they can build with others. Generally speaking, men are taught from an early age to be independent and control their emotions and ask for help as little as possible. In contrast, women are taught from an early age to actively express their emotional needs, which is conducive to developing good relationships and building a mutually supportive social network system.<sup>38</sup> Therefore, compared with men, women are more active in need of social support in real life,<sup>39</sup> and receive more social support.<sup>40,41</sup> A survey on social support among college students in China has found that male college students receive less social support than females.<sup>42</sup>

According to self-determination theory, relationship needs are one of the three basic psychological needs that are universal. All individuals strive to meet these needs and tend to the environment in which these needs are met. Basic psychological needs are central to linking the external environment with individual motivation and behavior, and when environmental factors promote the satisfaction of basic psychological needs, they encourage personal internal causes, which in turn support individual behavior.<sup>43</sup> It has been found that significant gender differences in essential need satisfaction are observed.<sup>44</sup> Since social expectations and perceptions of gender differences (encompassing both psychological and behavioral differences) constitute gender roles,<sup>45</sup> men's psychological needs for social support may be repressed. In addition, chronic experiences with social norms may create a sense of injustice in men, who do not perceive themselves to be treated equally with women regarding social support. It has been found that college women have significantly higher BJW than men,<sup>46</sup> and it may be that the accumulation of feelings of injustice weakens BJW.<sup>47</sup>

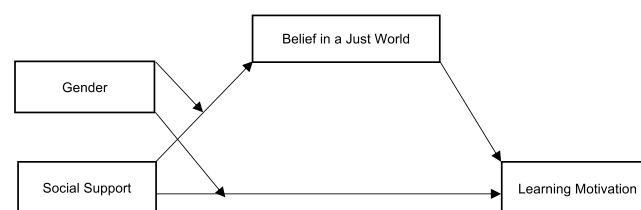
Schill, etc.<sup>48</sup> report that men with lower BJW tend to have stronger self-defeating behaviors. Moreover, a study found that the more strongly individuals believed in fairness beliefs, the more confident they were in achieving their goals.<sup>49</sup> More men tend to believe that the environment is fair when perceived social support is increasing. In such an environment, they will work harder to pursue of goals,<sup>50</sup> and it becomes easier to achieve their goals.<sup>51</sup> Accordingly, this study hypothesizes that gender may influence the role of social support on BJW and learning motivation. Specifically, this study expects that the positive effect of perceived social support on their BJW and learning motivation is more robust for boys than for girls.

In summary, this study proposes the hypotheses that (1) social support and BJW show a positive relationship; (2) BJW shows a positive relationship with higher vocational college students' learning motivation; (3) BJW plays a mediating role between social support and higher vocational college students' learning motivation; (4) gender moderates the effect of social support on BJW; (5) gender moderates the effect of social support on learning motivation influence. The theoretical path model of this study is shown in Figure 1.

## Methods

### Subjects

A convenience random sampling method was used to randomly select students from first-year students to seniors in three higher vocational colleges in Shandong Province, Fujian Province, and Guangdong Province as study subjects. The



**Figure 1** Theoretical path model.

questionnaire was administered anonymously, with students volunteering to respond, and finally, one thousand three hundred forty-five questionnaires were collected through the online questionnaire distribution platform of sojump. After the screening, 25 subjects containing missing values as well as extreme values were excluded, leaving 1320 valid questionnaires.

## Research Tools

### Personal Data Questionnaire

This survey consisted of questions regarding student background information. Participants reported their gender, grade, and Place of birth.

### Belief in a Just World

The BJW Scale developed by Du et al<sup>52</sup> in 2008 was used to measure the BJW of higher vocational college students. The questionnaire contains 19 questions, of which 12 are scored forward and 7 are scored backward. The questionnaire included three dimensions, which were: “ultimate justice” reflects people’s belief that everything in the world will end up justly; “immanent injustice”, “immanent injustice” reflects people’s belief that what has happened or what exists is unjust; “immanent justice” reflects people’s belief that what has happened or what exists is just. The sample question was “I think I usually get what I deserve”. A 5-point Likert scale was used, ranging from “strongly disagree=1” to “strongly agree=5”, with higher scores indicating more excellent agreement and higher total scores indicating higher BJW. Cronbach’s alpha coefficient of the original questionnaire was 0.808. In this study, the internal consistency reliability of the questionnaire was tested, and Cronbach’s alpha coefficient of the total questionnaire was 0.932.

### Learning Motivation

The learning motivation questionnaire developed by Tian et al<sup>52</sup> in 2006 based on Ausubel’s achievement motivation theory model was used to measure the learning motivation of higher vocational students. The questionnaire consisted of 34 questions, including four dimensions: interest in knowledge, ability pursuit, reputation acquisition, and altruistic orientation, and the sample question was “I always find university study enjoyable”. A 5-point Likert scale was used to rate the questions, ranging from “very unconforming=1” to “conforming=5”, with higher scores indicating greater conformity and higher total scores indicating stronger motivation. In this study, Cronbach’s alpha coefficient of this questionnaire was 0.968.

### Social Support

The Adolescent Social Support Scale developed by Ye et al<sup>52</sup> in 2008 was used to measure the social support of higher vocational students. The questionnaire consisted of 17 questions, including three dimensions: subjective support, objective support, and support utilization, and the sample question were “Most of my classmates care about me”. A 5-point Likert scale was used for scoring, ranging from “does not meet=1” to “meets=5”, with higher scores indicating higher compliance and higher total scores indicating better overall social support. In this study, Cronbach’s alpha coefficient of this questionnaire was 0.973.

## Data Analysis

The data were first processed for extreme values and distribution patterns using SPSS 21.0, then descriptive statistics and correlation analyses were performed for all study variables, and finally, mediating and moderating effects were tested using the process developed by Hayes.<sup>53</sup>

To avoid difficulties in evaluating the contribution of certain independent variables due to their correlation with each other, this study diagnosed the covariance of the variables in the regression equation during the data analysis. It is generally believed that the larger the VIF (Variance inflation factor), the stronger the degree of multi-collinearity among the variables. In this study, the VIF indicators of the independent variables social support and belief in a just world were both 2.080(<5).<sup>54</sup> This shows that the problem of co-linearity can be ignored.

## Results

Among 1320 valid questionnaires, there were 649 male students (49.2%), and 671 female students (50.8%); 658 freshmen (49.8%), 510 sophomores (38.6%), and 152 juniors (11.5%); 382 students from urban areas (28.9%) and 938 students from rural areas (71.1%). The survey data showed that over 70% of the participants were from rural areas, which is consistent with previous research data that the majority of higher education students were from rural areas.<sup>55</sup>

## Basic Information of Each Variable and Tests for Differences in Gender, Grade, and Place of Birth

The means and standard deviations of each variable are detailed in Table 1. *T*-tests for differences in gender and place of birth for each variable revealed gender differences in social support, BJW, and learning motivation, and no differences in place of birth. A multi-factor ANOVA was conducted on the grade differences of each variable, and the results showed that there were no grade differences in any of the variables. Therefore, in the subsequent analysis of mediating effects, only gender was used as a control variable.

## Correlation Analysis of Each Variable

The results of the correlation analysis of learning motivation, social support, and BJW of the higher vocational students are shown in Table 2. Social support and BJW ( $r=0.721$ ,  $p=0.000$ ) and learning motivation ( $r=0.641$ ,  $p=0.000$ ) were significantly positively correlated, and BJW and learning motivation ( $r=0.664$ ,  $p=0.000$ ) were significantly positively correlated. Gender was significantly positively correlated with BJW ( $r=0.102$ ,  $p=0.000$ ). Assuming that the correlation between Y and X is significant, implying that

**Table 1** Comparison of Means, Standard Deviations, and Differences in Gender, Grade, and Place of Birth for Each Variable (N=1320)

Variables		Social Support			BJW			Learning Motivation		
		M±SD	t	P	M±SD	t	P	M±SD	t	P
Gender	Male	33.33±14.16	-0.14	0.00	38.30±14.16	-3.72	0.00	63.58±26.72	-0.90	0.00
	Female	33.43±12.69			40.91±11.21			64.82±22.91		
Place of Birth	City	32.26±13.27	-1.93	0.05	38.93±12.95	-1.27	0.21	64.35±25.26	0.13	0.90
	Village	33.83±13.47			39.91±12.74			64.15±24.70		
			F	P		F	P		F	P
Grade	First-year students	32.80±12.93	2.28	0.10	39.47±12.51	1.05	0.35	63.69±24.06	0.39	0.68
	Sophomore	34.37±13.81			40.16±12.87			64.96±24.90		
	Junior	32.57±13.43			38.52±13.79			63.93±28.03		

**Table 2** Correlation Coefficient of Each Variable (N=1320)

Variables	1	2	3	4	5	6
Social Support	1					
BJW	0.72**	1				
Learning Motivation	0.64**	0.66**	1			
Gender	0.00	0.10**	0.03	1		
Grade	0.02	-0.01	0.01	-0.01	1	
Place of Birth	0.05	0.04	-0.00	0.05	0.02	1

**Note:** \*\*Significantly correlated at the 0.01 level (bilaterally).

the regression coefficient  $c$  is significant, and the mediating variable  $M$  is considered under this premise. The correlation between  $M$  and both  $X$  and  $Y$  should be significant.<sup>56</sup> Based on the results of the correlation analysis, the mediating effect of BJW in the relationship between social support and learning motivation can be further tested.

## Analysis of the Mediating Effects of BJW

With gender as the control variable, Model 4 in the SPSS Process plug-in (version 4.0) provided by Hayes was used to test the mediating effect of BJW between social support and learning motivation. The sample size was chosen to be 5000, and the mediating effect was held if the results did not contain 0 at the 95% confidence interval for bias correction. The specific results, shown in Table 2, indicated that the mediating effect of BJW in the relationship between social support and learning motivation is significant, with a 95% confidence interval of [1.109, 1.263] and a mediating effect value of 1.186. Therefore, hypothesis 3 holds. In addition, the results showed that the effect values of direct and indirect effects were 0.620 and 0.565 with 95% confidence intervals of [0.517, 0.723] and [0.467, 0.664] respectively, indicating that BJW played a part in a mediating role in the relationship between social support and learning motivation.

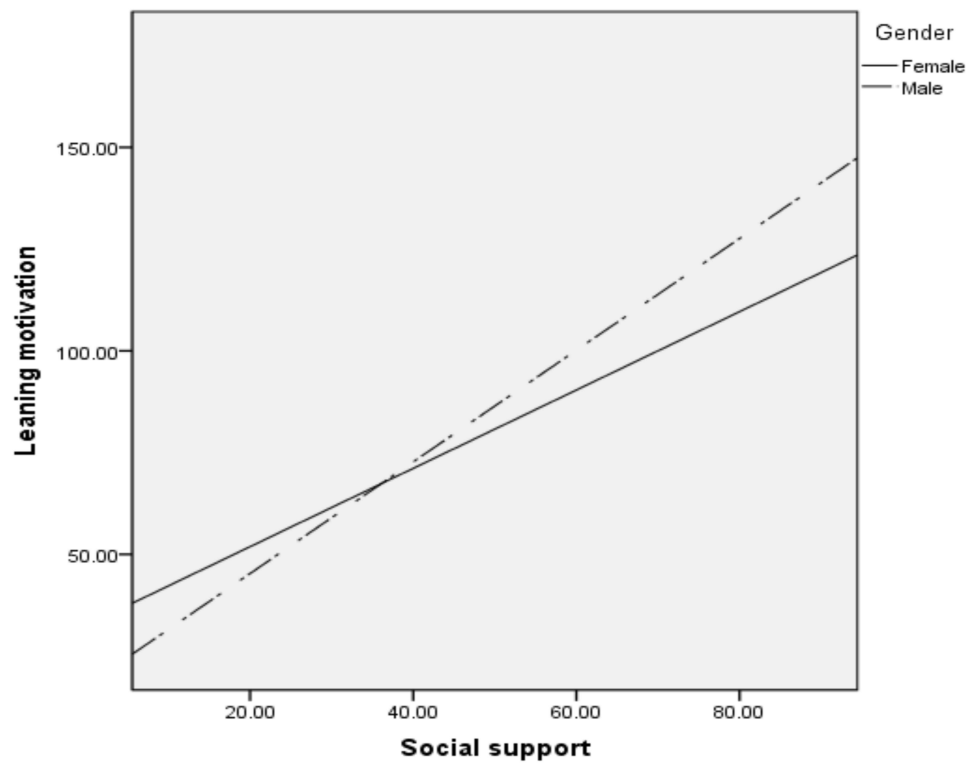
To further examine the role played by BJW dimensions in their partial mediation of the social support to learning motivation pathway, this study continued to examine the specific effect values for the three dimensions of BJW, as detailed in Table 3. The results found that all three dimensions, ultimate justice, intrinsic injustice, and intrinsic justice, had significant mediating effects on the relationship between them, indicating that the relationship between BJW mediating social support and learning motivation was realized through all three dimensions together, but the intrinsic justice dimension played the most considerable role (68.01% of the total), the ultimate justice dimension the second (22.07% of the total), and the intrinsic injustice dimension the most minor (9.9%).

## Analysis of the Moderating Effect of Gender

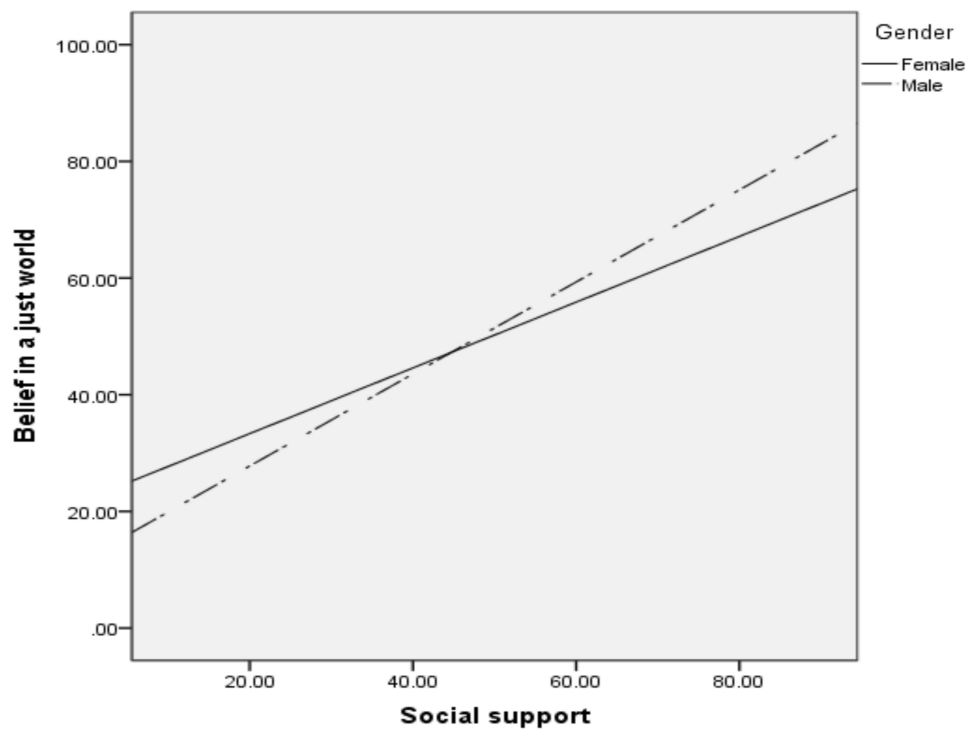
Model 8 in the SPSS Process plug-in (version 4.0) provided by Hayes was used to test for moderated mediating effects, ie, whether gender moderates the first stage of the mediating effect of social support affecting learning motivation through BJW and the direct effect of social support affecting learning motivation. The results showed that the interaction term between social support and gender was significant in predicting both BJW and learning motivation, with 95% confidence intervals of [0.155, 0.295] and [0.086, 0.374] respectively. The direct effect between the effect of social support on learning motivation was first tested for subjects of different genders, with an effective value of 0.745 for boys and 95% confidence interval of [0.616, 0.874]; The effect value for girls was 0.515 with a 95% confidence interval of [0.393, 0.637], indicating that social support had more significant effect on learning motivation for boys compared to girls. Secondly, to test the mediating effect of social support on learning motivation through BJW for subjects of different genders, the effect value for male students was 0.626 with 95% confidence interval [0.506, 0.743]; The effect value for girls was 0.447 with a 95% confidence interval of [0.357, 0.543], making it clear that boys' social support has more significant impact on learning motivation through BJW compared to girls. Finally, a simple slope plot was used to further visualize the moderating effect of gender. As be seen, boys' scores on learning motivation (see Figure 2) and BJW (see Figure 3) increased more rapidly as their social support scores

**Table 3** Analysis of BJW and the Mediating Effects of the Dimensions

Variables	Point Estimate	95% CI		Percentage
		Lower	Upper	
The total effect of social support on learning motivation	1.19	1.11	1.26	–
Direct effect of social support on learning motivation	0.52	0.41	0.63	–
Total indirect effect of social support on learning motivation	0.67	0.56	0.78	–
Social support-ultimate justice-learning motivation	0.15	0.03	0.26	22.07%
Social support-intrinsic injustice-learning motivation	0.07	0.02	0.11	9.9%
Social support-intrinsic justice-learning motivation	0.45	0.33	0.58	68.01%



**Figure 2** The moderating effect of gender on the relationship between social support and learning motivation.



**Figure 3** The moderating effect of gender on the relationship between social support and BJW.



increased. Overall, both the direct impact of social support on learning motivation and the indirect effect of social support on learning motivation through BJW was more significant predictors for boys than for girls.

## Discussion

This study explored the mechanism of social support on the learning motivation of higher vocational college students from a positive psychology perspective. It clarified the roles assumed by BJW and gender in the relationship between them, which provides a new idea for enhancing the disadvantaged student groups. Study results showed that there were different degrees of significant positive correlations among social support, BJW, and learning motivation. Social support had a positive predictive effect on learning motivation. The higher the level of social support, the stronger the motivation to learn. BJW partially mediated the relationship between social support and learning motivation, and gender moderated the relationship between social support and learning motivation. Boys' perceived social support had more significant impact on their BJW and learning motivation than girls.

## The Effect of Social Support on Learning Motivation

Our study found that social support has a positive impact on learning motivation, which is consistent with Xueyun Shi's finding of a significant positive correlation between social support and learning motivation in Chinese middle school students with learning disabilities,<sup>28</sup> as well as with findings from studies of student groups in South Korea and other countries.<sup>57–59</sup> This indicates that the positive effect of social support on learning motivation is cross-culturally cultures. According to the primary effect model and buffer effect model proposed by social support theory, abundant social support resources can significantly promote positive psychological qualities such as the subjective well-being of individuals, thus protecting individuals from the negative effects of stressful events.<sup>24,60</sup> The results of this study found that the higher the level of social support, the stronger the motivation of higher vocational college students. This may be because social support can improve the self-efficacy of higher vocational college students.

In China, compared with general undergraduate education, higher vocational education is less socially recognized and is regarded by many people as a kind of reluctant choice to retreat to the next level. With the continuous advancement of the popularization of higher education, the enrollment scores of higher vocational colleges have been repeatedly reduced to meet the learning needs of many disadvantaged groups (eg, those with poor academic performance in junior and senior high schools). However, as a result of previous learning setbacks, vocational college students have a low sense of self-efficacy on the whole,<sup>61</sup> and they often label themselves as academic failures; even during the period of vocational education, they cannot get rid of the inertia of academic failure, so their overall level of learning motivation is low.<sup>62</sup> Studies on Chinese higher vocational college students have found that social support can effectively improve the self-efficacy of vocational college students,<sup>62</sup> it may be because support from teachers can play an essential external leverage role.<sup>63</sup> Colarossi et al suggested that teacher support has a significant positive impact on students' self-esteem.<sup>27</sup> From the perspective of the broader learning environment, any negative feedback from the school social system may lead to the reduction of students' sense of self-efficacy.<sup>22</sup> This indicates that if schools can provide students with a skills-based learning support plan (SLSP), including various support systems, they are expected to improve motivation to engage in learning by enhancing students' self-efficacy.<sup>64</sup> Thus, it can be seen that providing an appropriate social support system (learning support and emotional support, including support from parents, teachers, peers, and other subjects) can enhance students' sense of self-efficacy, and is an effective way to improve vocational college students' learning motivation.

## The Moderating Effect of BJW

The present study found that BJW partially mediated the relationship between social support and learning motivation in higher vocational college students, suggesting that the positive contribution of social support to learning motivation is partly dependent on the mediating role of BJW. A safe and trustworthy social support environment is necessary for individuals to develop BJW.<sup>65</sup> As a stable personal trait, BJW can play a critical linking role in the social adaptation of the environment to the individual. Why do some higher vocational college students study hard to make a difference, while others fall into a frustrated funk? The possible reason is that social support becomes a driver of learning motivation through BJW. It has been found that the main reason for higher vocational college students' confusion and learning



burnout is the lack of goals.<sup>66</sup> Then how should higher vocational college students be motivated to establish learning goals? BJW can play an essential self-regulatory function in this regard,<sup>67</sup> which is required for achieving long-term goals.<sup>68,69</sup> Disadvantaged groups in the low social class are often at a disadvantage in the competition because they possess fewer resources of various kinds. BJW can affect individuals' strategies to cope with such adverse situations. Those with higher just world beliefs are more willing to pursue long-term goals and achieve upward mobility through personal struggle, thus changing their social class status.<sup>67</sup>

In exploring the unique role of each BJW dimension in mediating, this study found that the intrinsic justice dimension played the largest role. This may be because China has a collectivist culture as its value orientation and people are more willing to form relationships with each other to help each other. Intrinsic justice is a reflection of the perception that what has happened or exists is just, and that good social support allows individuals to experience more "goodness" and "love" from the outside world, so they are more likely to believe that they are getting what they deserve and living in a just world. Therefore, higher vocational students with higher levels of social support believe that the status is reasonable and are more likely to adopt internal attribution, ie, their success or failure is due to internal factors such as the level of personal effort or the appropriateness of their learning strategies, which leads to a higher belief in a just world and increases their learning motivation and believe that they can "get what they deserve" through hard work.

In contrast, higher vocational students with lower levels of social support are more inclined to external attribution and tend to attribute their poor academic performance to external factors such as lack of learning opportunities,<sup>70</sup> thus reducing their belief in a just world and generating the "useless theory" that studying hard cannot change their current situation, learning motivation is therefore difficult to enhance. Tomaka et al<sup>71</sup> find that students with higher belief in a just world exhibited greater learning motivation and greater confidence to succeed. It has indeed been shown that students who identify more with being treated fairly are fairer in their evaluation of teachers and achievements as well as achieve better results. In summary, the more social support, the more it can help higher vocational college students to build close and trusting relationships with others, which will lead to higher BJW. The higher BJW would help students believe that what has happened and what exists is just so that they can lower their pessimistic expectations of personal development and set up long-term goals, devote more time to studying, and hope that they will "get what they deserve" through hard work.

## The Moderating Effect of Gender

This study found that the level of social support, the level of BJW, and the level of learning motivation were significantly higher in higher vocational college girls than in boys. In addition, the first half of the mediating effect of social support affecting learning motivation through BJW was moderated by gender, ie, the magnitude of the indirect effect of social support on learning motivation through BJW depended on the moderating effect of gender, and the social support received by boys had a relatively more substantial positive effect on BJW and further affected learning motivation compared to girls. In addition, the direct pathway of social support on learning motivation was also moderated by gender, ie, social support received by male students was a more excellent predictor of learning motivation than female students. This suggested that although boys received significantly less social support than girls, they played a more significant role in influencing within-group BJW and learning motivation. This may be because social culture generally believes that boys need to be strong and independent, more competitive and responsible,<sup>72</sup> to give more emotional communication and help to females.<sup>73,74</sup> Male students tend to fight for themselves despite these social role expectations.<sup>42</sup> According to self-determination theory, a supportive interpersonal environment satisfies individuals' psychological needs for security, intimacy, and belonging.<sup>75</sup> Adolescents' needs satisfaction is explicitly associated with higher learning motivation, ie, intrinsic and identified.<sup>76</sup> Once boys receive more adequate satisfaction of their basic psychological needs through social support, they are motivated to believe that they will be treated fairly by others and thus study hard to achieve longer-term goals. Thus, the positive effects of social support are amplified. This suggests that future intervention studies on higher vocational college students' learning motivation should take this characteristic of male students into account and give them more social support to form more elevated levels of BJW and thus enhance their learning motivation.

## Limitation

Although this study extends the results of previous studies, there are still several shortcomings. First, in terms of the research population, the sample size of this study was large. Still, the research population was mainly from higher vocational colleges in eastern China, which are in areas with better economic and social development, making the generalizing of the results of this study limited. Future studies can expand the sample coverage, such as increasing the sample of selected higher vocational colleges in central and western China, to improve the generalization and representation of the results. Second, in terms of research content, this study focused on the relationship between overall social support and learning motivation but did not further investigate the specific mechanisms of action between different dimensions of social support and other dimensions of learning motivation, and compare whether there are differences in the role played by each dimension. What's more, which social support can promote learning motivation, and which can be analyzed in more detail in subsequent studies for comparison. Third, this study is a cross-sectional study in which the social support, BJW, and learning motivation of higher vocational college students were reported by the subjects. The data can be collected as a longitudinal experimental study in the future. For example, teachers can provide more objective support to the experimental group in the daily teaching process, collect the data again after an interval of one semester, and conduct a linear comparison analysis of the before and after data to enhance the robustness and reliability of the results.

## Conclusions

This study examines the relationship between social support and learning motivation of vocational students, and the mediating role of BJW in the relationship between social support and learning motivation of vocational students and their gender differences.

The results of our study found that there is a two-by-two positive relationship between social support, belief in a just world, and learning motivation of higher vocational students. Belief in a just world plays a partially mediating role between social support and higher vocational students' learning motivation, ie, higher vocational students' social support can both directly influence learning motivation and work through the mediation of belief in a just world. Gender can moderate the first half of the path of the mediating effect of social support-belief in a just world- learning motivation and the direct path of social support-learning motivation, ie, the positive effect of social support received on belief in a just world and learning motivation is greater for boys compared to girls. In addition, among the mediating effects played by belief in a just world, the intrinsic justice dimension contributes the most, the ultimate justice dimension the second most, and the intrinsic injustice dimension the least.

The results of the study can provide a reference for researchers and educators to further explore how to enhance the learning motivation of higher education students. A good social support system is beneficial for higher education students to improve their perceptions about social injustice, thus enhancing their learning motivation and setting development goals. At present, the Chinese government is focusing on building a skill-based society and actively constructing a modern vocational education system, proposing to shift the function of vocational education from "job seeking" to "people-oriented", to break the traditional perception of "dwarfing" and "narrowing" vocational education.<sup>77</sup> From the perspective of the macro policy environment, the social support system of higher vocational students is improving. In addition to financial support from parents and other family members, they should further strengthen communication and give emotional support. Higher vocational institutions should pay more attention to creating a fair campus environment and provide more resources for students' development, especially teachers should provide learning support in the classroom and give guidance outside the classroom to make them believe they are treated fairly. In addition, both families and schools should pay attention to reducing gender differences and should give no less care and support to male students than female students, to jointly promote the formation of good social adjustment of higher vocational students through the joint efforts of many parties.

## Ethics Approval and Consent to Participate

This study was approved by the Ethics Committee of Zhejiang Tongji Vocational College of Science and Technology and was conducted following the Declaration of Helsinki. We confirm that all participants provided informed consent.

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## Disclosure

The authors report no conflict of interest in this work.

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