The impact of perceived organisational support on organisational commitment of vocational college teachers - the mediating effect of career-related continuous learning

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Abstract: This study uses a sample of 220 questionnaires from vocational college teachers in China. It introduces dimensions of career-related continuous learning, including advantage analysis, disadvantage analysis, and focusing on scientific research, as mediating variables to construct a research model, and explores the impact of perceived organisational support on organisational commitment from the perspective of teacher perception. The findings are as follows: perceived organisational support has a significant positive effect on organisational commitment and each dimension of career-related continuous learning. The advantage analysis of career-related continuous learning has a significant positive effect on organisational commitment and acts as a mediator in the relationship between perceived organisational support and organisational commitment. The conclusions of this study provide important managerial implications for higher vocational colleges on how to promote teachers' career-related continuous learning and enhance organisational commitment through organisational support.

Keywords: vocational college teachers; perceived organisational support; organisational commitment; career-related continuous learning; mediating effect.

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1 Introduction

Vocational education is an important component of the national education system and human resource development. It carries the important responsibility of cultivating diversified talents, inheriting technical skills, and promoting employment and entrepreneurship. In the new economic and social context, the development of vocational education and the encouragement of young skilled talents are crucial guarantees for 'Made in China' to go global. In 2021, the General Office of the Communist Party of China Central Committee and the General Office of the State Council issued the 'Opinions on Promoting the High-Quality Development of Modern Vocational Education', which put forward higher requirements for building a modern vocational education system and promoting high-quality development of vocational education. As an important component of the vocational education system, higher vocational colleges bear the important task of cultivating high-quality technical talents to serve regional development. Currently, higher vocational colleges in China generally face the serious problem of a shortage of highly qualified teachers. Strengthening the construction of the teacher team in higher vocational education and promoting the improvement of the quality of vocational college teachers has become the primary task at present.

Perceived organisational support theory is one of the important organisational behaviour theories that promotes a good relationship between higher vocational colleges (organisations) and vocational college teachers (individuals), and has an important role in improving the organisational commitment of the group of vocational college teachers and reducing turnover rate. With the emergence of phenomena such as organisational flattening and boundaryless careers, higher vocational colleges need to increase their support for teachers and make them feel cared for by the school to encourage individuals to engage in behaviours that benefit the organisation's development (Gu et al., 2014; Weng and Xi, 2010). Previous research has shown that when individuals perceive that the organisation provides them with support, they tend to behave in a way that is consistent with organisational development, that is, organisational support can enhance individual commitment to the organisation (Lu et al., 2013). Similarly, when conducting research on the teacher group, it was found that organisational support is not only an effective way to promote the improvement of teacher competence, but also can enhance their organisational commitment through the teachers' own sense of organisational support. That is to say, it makes teachers more actively improve their education and scientific research level and more effectively contribute to school reform and development (Chung, 2019; Jiao et al., 2022). Therefore, the issue of organisational support has gradually become one of the hot topics in the field of scientific research management for vocational college teachers (Lv et al., 2022; Hermanto and Srimulyani, 2022). Relevant studies have shown that the school's organisational support has a positive effect on the vocational development of vocational college teachers. When schools provide vocational college teachers with sufficient resources such as career development paths and opportunities, it

not only improves their professional literacy and ability level, but also enhances their professional creativity and expandability, allowing them to demonstrate their talents and abilities in teaching reform, scientific research innovation, industry-university cooperation, and other areas (Lv et al., 2022; Hermanto and Srimulyani, 2022), thereby increasing their level of organisational commitment. Through reviewing existing literature, it is found that the analysis of the internal mechanism between teachers' perceived organisational support and organisational commitment requires further exploration, especially the impact of individual-level behaviour on the relationship between perceived organisational support and organisational commitment in the context of digital information era.

With the development of technology, career-related continuous learning to support employees has been regarded to generate human resource advantages and enhance employee performance (London and Smither, 1999). Therefore, higher vocational colleges, as learning organisations, usually provide various types of organisational-level learning support to teachers to meet their professional development needs. With the rapid development of internet technology, the dominant position of organisational-level learning has been replaced by self-directed learning, and self-directed learning behaviours have become increasingly diversified. The career of vocational college teachers is a profession that emphasises highly self-directed and continuous learning, and continuous self-directed learning has become one of the important learning behaviours of vocational college teachers (Antera, 2022). Based on this, Chinese universities attach great importance to the construction of a stable and highly professional teacher team, and have carried out a series of support work for teachers' continuous learning in terms of training funds, hardware configuration, teacher team construction, organisational management structure, etc. (Zhang and Chen, 2012). Some studies have shown that organisational support in universities has a positive promoting effect on teachers' self-directed and self-control learning behaviour, which is an important influencing factor on career-related continuous learning of university teachers (Dong, 2016). In addition, individual's career-related continuous learning behaviour will also affect their organisational commitment, and the magnitude of the effect depends on organisational support (Dong, 2016). Ling et al. (2001) found that providing learning and training opportunities for individuals can not only help them better challenge difficulties and achieve career goals, but also increase their organisational commitment and reduce their turnover intention. Subsequent studies on university teachers also show that the more organisational support they receive during continuous learning behaviour, the higher their level of organisational commitment (Wan et al., 2009). Although some studies have conducted in-depth discussions on the relationship between perceived organisational support, career-related continuous learning, and organisational commitment (such as Hall and Mirvis, 1996; Day and Gu, 2007; Cheng et al., 2012; Chen et al., 2020; Budhiraja, 2023), the exploration of the relationship between the three is still in its infancy. There is a lack of empirical analysis to reveal the correlation among them, and related research on the vocational college teacher population is even rarer.

Based on this, the study takes 220 teacher questionnaires from a higher vocational college in a specific region of China as the effective sample for research. Drawing on Dong's (2016) research, this study introduces dimensions of career-related continuous learning such as advantage analysis, disadvantage analysis, and focusing on scientific research as mediating variables to construct a research model. The study systematically explores the relationship between perceived organisational support, career-related

continuous learning, and organisational commitment, with a specific focus on analysing the mediating effects of career-related continuous learning. The innovation of this study mainly lies in the following aspects:

1 Enriching the theoretical content of relevant research. By analysing seven dimensions of career-related continuous learning, including advantage analysis, disadvantage analysis, focusing on scientific research, focusing on teaching, communication and cooperation, teacher skills improving, multiple occupational skills expanding, the study explores the underlying mechanisms and differential effects of the relationship between these dimensions and perceived organisational support and organisational commitment. This has theoretical significance for how higher vocational colleges can support teachers' career-related continuous learning and improve their organisational commitment. It also enriches the theoretical content of research on the impact of perceived organisational support on organisational commitment.

2 This study extends the scope of related research by focusing on the group of vocational college teachers, which has been relatively underexplored in the literature on the relationship between perceived organisational support, career-related continuous learning, and organisational commitment. From an empirical perspective, this study investigates the direct effects of perceived organisational support on organisational commitment and the mediating role of career-related continuous learning. By examining whether the research findings in this specific group differ from those of other groups, this study not only enriches the research on perceived organisational support, career-related continuous learning, and organisational commitment but also contributes to a better understanding of potential variations across different populations.

3 Enhancing the reference value of related research. By adopting social exchange theory, this study examines how the support of higher vocational colleges for teachers' career-related continuous learning influences their organisational commitment. This provides theoretical reference value for optimising the construction of teacher team in higher vocational colleges, improving teachers' professional quality, and enhancing their organisational commitment.

2 Theoretical foundation and research hypotheses

2.1 Social exchange theory

As a theory of behavioural social psychology, social exchange theory holds the core belief that mutual benefit is the driving force behind interpersonal relationships. It proposes that individuals who are treated positively by others will develop an expectation to voluntarily reciprocate in the future (Blau, 1964). The theory suggests that 'reciprocal' behaviour is based on positive outcomes and mutual trust. If one party fails to fulfil their obligations in a social exchange, it can limit future exchanges and impede the relationship's growth. Therefore, scholars in the field of organisational behaviour believe that social exchange theory is suitable as a theoretical foundation for studying the relationship between organisations and individuals. When one party shows positive

behaviour towards the other, the recipient will make a higher commitment to the giver (Shore and Wanye, 1993). Through the application of social exchange theory to organisational settings, organisational support theory was formed. This theory suggests that organisations should identify individual needs and support employees in achieving them, which leads to a perceived sense of support and reciprocity between both parties. Subsequent research has shown that creating a sense of organisational support is a critical prerequisite for enhancing an individual's organisational commitment. When organisations satisfy individuals' needs, they are more likely to reciprocate with higher levels of organisational commitment (Cohen and Vigoda, 2003).

In the current socio-economic and vocational education development context of China, this study argues that there is an increasing demand among vocational college teachers for continuous learning to enhance their professional competence. Additionally, higher vocational colleges have a growing need for a highly skilled teaching workforce. Therefore, by providing support for teachers' career-related continuous learning, higher vocational colleges not only meet the teachers' self-development needs but also enhance their organisational commitment. As a result, this contributes to the formation of a highly skilled teacher team with advanced professional competence.

2.2   *Perceived organisational support and organisational commitment*

Organisational commitment was initially believed to be a psychological phenomenon where employees felt compelled to stay in an organisation due to their increasing 'unilateral investment' in the organisation (Becker, 1960; Mowday and Porter, 1979). Subsequent research found that organisational commitment is not solely driven by economic considerations but also reflects employees' emotional attachment to the organisation (Becker, 1960; Mowday and Porter, 1979). As an important indicator of teachers' loyalty to the school, organisational commitment reflects the extent of teachers' identification and engagement with the school. Teachers with high organisational commitment are fully dedicated to their work and align their personal developmental goals with the school's objectives. On the other hand, teachers with low organisational commitment not only exhibit lower job performance but also hinder their career development and may even contribute to employee turnover (Chung, 2019).

Perceived organisational support, proposed by Eisenberger et al. (1986) based on social exchange theory, the norm of reciprocity, and the concept of organisational personification, refers to the extent to which employees perceive that the organisation values their contributions, cares about their welfare, and attends to their well-being. This perceived value and care from the organisation is manifested as support to employees and becomes an exchangeable resource in return for employees' organisational commitment (Setton et al., 1996). Previous studies have shown a significant positive correlation between teachers' perceived organisational support and organisational commitment (Xiong and Luo, 2008; Chung, 2019; Jiao et al., 2022). According to social exchange theory, teachers with higher perceived organisational support tend to trust the school more and believe that the school will provide the expected rewards. Therefore, teachers with higher perceived organisational support are more likely to demonstrate higher organisational commitment for the overall benefit of the school. Based on this rationale, the following hypothesis is proposed:

H1 Perceived organisational support has a significant positive impact on organisational commitment.

2.3 *Perceived organisational support and career-related continuous learning*

London and Smither (1999) proposed the concept of career-related continuous learning based on their research on career development, vocational learning, and continuous learning. They believe that career-related continuous learning is a proactive and continuous learning behaviour initiated and decided by individuals, which includes a series of formal or informal learning activities that promote career development through the application and transfer of knowledge. Essentially, career-related continuous learning is a career development behaviour primarily driven at the individual level, consisting of three consecutive and independent cognitive stages: pre-learning stage, learning stage, and learning application stage. Dong (2016) identified seven dimensions of career-related continuous learning behaviour, including advantage analysis, disadvantage analysis, focusing on scientific research, focusing on teaching, communication and cooperation, teacher skills improving, multiple occupational skills expanding, corresponding to the three stages of this learning behaviour.

Perceived organisational support conveys the expectations and recognition of employee value from the organisation, playing a positive role in promoting employee career development and learning behaviour. Similarly, research on teachers has found that organisational support from schools has a significant influence on career-related continuous learning behaviour. Firstly, supportive behaviours from the school help improve teachers' self-efficacy and self-awareness, enabling them to better understand their advantage and disadvantage and set clear and specific learning goals (Jiao et al., 2022; Heng and Chu, 2023). Secondly, supportive behaviours from the school in terms of further training, academic seminars, funding support, and cooperative learning are important influencing factors for teachers' career development and learning behaviour (Dong, 2016). Finally, support from the school in terms of human capital, social capital, psychological capital, and organisational environment significantly impacts teachers' professional growth, facilitating the enhancement and expansion of their competencies (Hökkä and Eteläpelto, 2014; Bendermacher et al., 2021). Therefore, this study proposes the following hypotheses:

H2 Perceived organisational support has a significant positive impact on advantage analysis.

H3 Perceived organisational support has a significant positive impact on disadvantage analysis.

H4 Perceived organisational support has a significant positive impact on focusing on scientific research.

H5 Perceived organisational support has a significant positive impact on focusing on teaching.

H6 Perceived organisational support has a significant positive impact on communication and cooperation.

H7 Perceived organisational support has a significant positive impact on teacher skills improving.

H8 Perceived organisational support has a significant positive impact on multiple occupational skills expanding.

2.4   Career-related continuous learning and organisational commitment

Previous studies have shown that career development behaviours have a good predictive effect on organisational commitment (Zhang, 2016). Nie (2014) found in his research that clear learning goals and continuous learning dimensions in a learning-oriented organisational culture, as well as teamwork dimensions, can enhance employees' organisational commitment. In addition, organisational commitment is not only positively influenced by factors related to employee training and project coaching for career growth, but also significantly driven by the transfer effect of personal training (Weng, 2009; Ling, 2012). Research on teacher organisational commitment has been explored in multiple research directions. Firstly, on the individual level, teachers decide whether to stay in a school based on their perception of their own job competence (Wang, 2015). Secondly, in terms of career development, teachers' investment in professional learning not only contributes to their personal professional growth but also has a significant positive correlation with career commitment (Chen et al., 2019). Additionally, in terms of organisational atmosphere, close cooperation and trust among teachers have a significant positive impact on their organisational commitment (Tian and Zhao, 2016). Furthermore, in terms of peer communication, when teachers communicate with peers from other schools, they compare their own school with similar schools horizontally, which generates a strong collective self-esteem and further leads to higher organisational commitment towards their own school (Xiong and Luo, 2008). The final aspect is professional development, during which university teachers continuously enhance and develop their professional abilities while working at the school. This not only strengthens the teachers' loyalty to their school, but also significantly reduces their turnover intention (Li, 2013). Therefore, this study proposes the following hypotheses:

H9   Advantage analysis has a significant positive impact on organisational commitment.

H10 Disadvantage analysis has a significant positive impact on organisational commitment.

H11 Focusing on scientific research has a significant positive impact on organisational commitment.

H12 Focusing on teaching has a significant positive impact on organisational commitment.

H13 Communication and cooperation have a significant positive impact on organisational commitment.

H14 Teacher skills improving has a significant positive impact on organisational commitment.

H15 Multiple occupational skills expanding has a significant positive impact on organisational commitment.

Figure 1   Research model (see online version for colours)
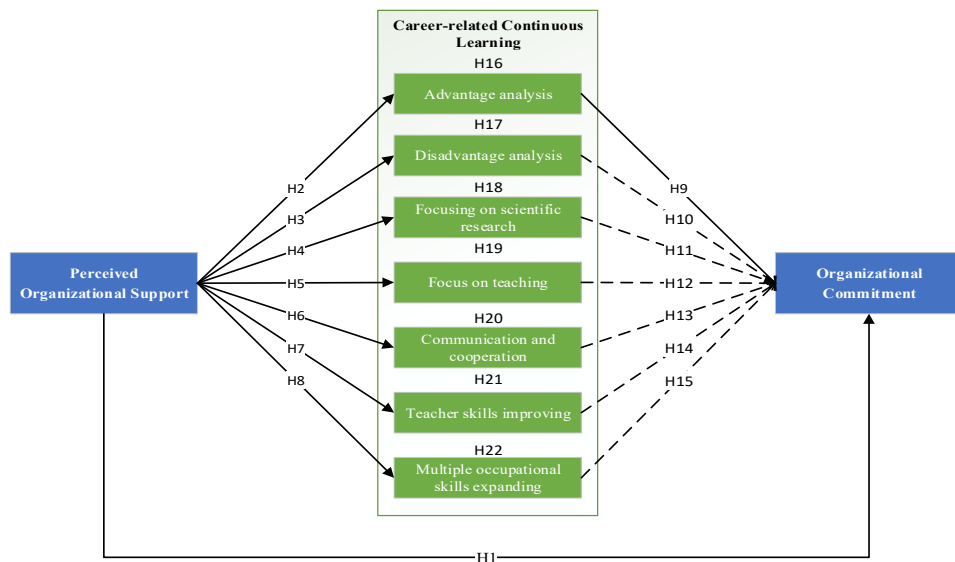
2.5   The mediating role of career-related continuous learning

Research has shown that employees' career growth within an organisation is a 'reciprocal' behaviour and an intrinsic psychological contract between the organisation and the employees (Weng and Xi, 2011). Therefore, employees who engage in self-assessment, actively participate in training, reflect, and receive support from the organisation or colleagues tend to have higher levels of organisational commitment and job satisfaction (Kuznia et al., 2010). Thus, employees' perceived organisational support is one of the important factors in their career development, which in turn has a positive impact on organisational commitment (Ballout, 2007). As a learning organisation, schools usually provide learning support for teachers' professional development, such as skill training, academic exchanges, and corporate rotations. Research has found that teachers who receive more organisational support in continuous learning have higher levels of organisational commitment (Dong, 2016). If teachers can authentically self-assess, continuously and proactively learn under the support of the school, enhance their professional abilities and sense of achievement, and gain more recognition in their career, they will deepen their recognition of the school and subsequently increase their level of organisational commitment. Therefore, this study proposes the following hypotheses:

H16 Advantage analysis plays a mediating role in the relationship between perceived organisational support and organisational commitment.

H17 Disadvantage analysis plays a mediating role in the relationship between perceived organisational support and organisational commitment.

H18 Focusing on scientific research plays a mediating role in the relationship between perceived organisational support and organisational commitment.

H19 Focusing on teaching plays a mediating role in the relationship between perceived organisational support and organisational commitment.

H20 Communication and cooperation play a mediating role in the relationship between perceived organisational support and organisational commitment.

H21 Teacher skills improving plays a mediating role in the relationship between perceived organisational support and organisational commitment.

H22 Multiple occupational skills expanding plays a mediating role in the relationship between perceived organisational support and organisational commitment.

In summary, this study proposes a research model as shown in Figure 1.

3   Research method

3.1   Research tools

To ensure the reliability and validity of measurement tools, this study adopted widely used and validated measurement scales from existing literature, and made individual modifications in accordance with the specific context of this study.

3.1.1   Measurement of perceived organisational support

The questionnaire used the professional support dimension part from the University Teachers' Organisational Career Management Questionnaire developed by Huang and Tian (2007) as the measurement tool for perceived organisational support in this study. Previous studies have shown that the professional support dimension in the organisational career management questionnaire is closely related to teachers' career-related continuous learning and is suitable as a measurement tool for perceived organisational support with good reliability and validity (Dong, 2016). This scale consists of four items and uses a five-point Likert scale. Higher scores indicate a stronger perceived organisational support among vocational college teachers. In this study, the Cronbach's α coefficient of the occupational mission scale was 0.915.

3.1.2   Measurement of organisational commitment

The organisational commitment questionnaire developed by Blau (1985) was used. This questionnaire is a single-dimensional scale with eight items. Without changing the meaning of the options, related descriptions such as 'nursing profession' were modified to 'vocational college teacher profession'. The scale uses a five-point Likert scale, and higher scores indicate a stronger intensity of organisational commitment among vocational college teachers. Among the eight items, items 1, 3, and 7 are reverse-scored, and their scores were reversed during data processing. This scale has been widely used domestically and has good reliability and validity. In this study, the Cronbach's α coefficient of the organisational commitment scale was 0.867.

3.1.3 Measurement of career-related continuous learning

The career-related continuous learning scale was developed by Dong (2016) and includes 7 dimensions: advantage analysis, disadvantage analysis, focusing on scientific research, focusing on teaching, communication and cooperation, teacher skills improving, and multiple occupational skills expanding. Each dimension has three items, making a total of 21 items. The scale uses a five-point Likert scale, and higher scores indicate higher ratings in the corresponding dimensions. This scale has been validated through tests, confirmatory factor analysis, criterion validity, and other methods, demonstrating good reliability and validity. In this study, the Cronbach's α coefficient of the career-related continuous learning scale was 0.950.

3.2 Data collection

The sample data for this study was obtained from a higher vocational college in a specific region of China. A stratified sampling method was used to survey all full-time teachers in the college's secondary schools. Trained investigators were sent to distribute paper questionnaires on-site and provide immediate assistance to the surveyed teachers. A total of 240 questionnaires were distributed, out of which 220 were collected, resulting in an overall response rate of 91.67%. After excluding invalid questionnaires, a total of 213 valid samples were obtained, with an effective rate of 96.82%. The demographic characteristics of the valid sample population are as follows: male teachers account for 40.38%, female teachers account for 59.62%; those aged 30 and below account for 39%, 31–40 years old account for 42.7%, 41–50 years old account for 7.5%, and those above 50 years old account for 10.8%; the majority of teachers hold a master's degree, accounting for 72.3%. Following the recommendations of Podsakoff and Organ (1986), this study employed measures such as anonymous questionnaire completion, clear and explicit instructions, and concise and understandable language to minimise the potential impact of common method variance.

3.3 Analysis methods

The data was statistically processed using SPSS 25.0 software, and Pearson correlation analysis was employed to examine the correlations among perceived organisational support, organisational commitment, and the various dimensions of career-long learning. Referring to the mediation effect testing procedure proposed by Chen et al. (2014) the PROCESS program developed by Hayes was utilised to analyse the multiple mediating effects of the dimensions of career-related continuous learning on the relationship between perceived organisational support and organisational commitment. Finally, research conclusions were derived from the analysis.

4   Research results

4.1   Common method bias

The data in this study were obtained through self-report measures, which may introduce the possibility of common method bias. To address this concern, Harman's single-factor test was conducted on all items using an unrotated principal component factor analysis. The results of the analysis revealed that an unrotated exploratory factor analysis yielded six primary factors, with the first factor explaining only 39.731% of the variance, which is below the critical threshold of 40%. Therefore, this study does not suffer from a significant issue of common method bias.

Table 1   Results of item analysis

Item	Decision value	Correlation with total score	Item	Decision value	Correlation with total score
Item 1	13.104**	0.649**	Item 18	12.277**	0.732**
Item 2	13.496**	0.673**	Item 19	13.206**	0.736**
Item 3	11.661**	0.649**	Item 20	14.302**	0.746**
Item 4	11.711**	0.666**	Item 21	12.748**	0.717**
Item 5	7.879**	0.560**	Item 22	4.445**	0.306**
Item 6	8.697**	0.600**	Item 23	9.118**	0.519**
Item 7	13.816**	0.711**	Item 24	4.133**	0.330**
Item 8	10.968**	0.643**	Item 25	6.974**	0.440**
Item 9	10.244**	0.651**	Item 26	10.638**	0.589**
Item 10	8.490**	0.576**	Item 27	10.358**	0.578**
Item 11	11.568**	0.648**	Item 28	7.629**	0.481**
Item 12	12.273**	0.747**	Item 29	10.728**	0.577**
Item 13	10.598**	0.706**	Item 30	8.449**	0.551**
Item 14	10.740**	0.674**	Item 31	10.133**	0.611**
Item 15	11.998**	0.654**	Item 32	9.963**	0.586**
Item 16	13.075**	0.747**	Item 33	11.302**	0.647**
Item 17	11.706**	0.714**			

4.2   Item discrimination analysis

Item discrimination is typically examined using the extreme group method. This involves sorting all the items in the assessment based on scores, and dividing them into high and low score groups using the 27th and 73rd percentiles as cut-off points. Then, a t-test is used to compare the differences between the high and low score groups, and items that do not demonstrate significant differences are removed. Subsequently, all items showing significant differences are further examined using correlation analysis. It is generally believed that items with a correlation to the total score between 0.30 and 0.80 exhibit good validity and reliability (Jin, 2005). According to the results in Table 1, independent sample t-tests for the high and low score groups of all 33 items showed significant differences, and the correlation of each item with the total score fell between 0.30 and 0.80.

Table 2   Mean, standard deviation, and correlation coefficients

	1	2	3	4	5	6	7	8	9
Advantage analysis	1								
Disadvantage analysis	0.628**	1							
Focusing on scientific research	0.557**	0.454**	1						
Focus on teaching	0.597**	0.542**	0.667**	1					
Communication and cooperation	0.576**	0.474**	0.695**	0.747**	1				
Teacher skills improving	0.529**	0.563**	0.686**	0.675**	0.788**	1			
Multiple occupational skills expanding	0.555**	0.551**	0.608**	0.651**	0.719**	0.780**	1		
Perceived organisational support	0.392**	0.440**	0.410**	0.442**	0.418**	0.413**	0.518**	1	
Organisational commitment	0.382**	0.292**	0.385**	0.351**	0.319**	0.383**	0.394**	0.354**	1
M	3.294	3.687	3.327	3.509	3.457	3.823	3.595	3.659	3.796
SD	0.952	0.897	0.947	0.912	0.898	0.865	0.939	1.009	0.746

Note: $*P < 0.05$, $**P < 0.01$, $***P < 0.001$.

4.3   Descriptive statistics and correlation analysis

Firstly, through descriptive statistics, the mean, standard deviation, and correlation coefficients of the variables involved in this study can be obtained. Based on this, by conducting Pearson correlation analysis, the preliminary verification of the correlation coefficient values and directional effects of the variables involved in the study can be established. According to Table 2, the average score of perceived organisational support for vocational college teachers is 3.659, and the average score of organisational commitment is 3.796. The theoretical median for both variables is 3, indicating that the perceived organisational support and organisational commitment of vocational college teachers are at a moderate to high level. The dimensions of career-related continuous learning, from highest to lowest scores, are teacher skills improving (3.823), disadvantage analysis (3.687), multiple occupational skills expanding (3.595), focusing on teaching (3.509), communication and cooperation (3.457), focusing on scientific research (3.327), and advantage analysis (3.294). The theoretical median for each dimension of career-related continuous learning is 3, indicating that all dimensions of career-related continuous learning are above the theoretical median and at a moderate to high level. Furthermore, correlation analysis revealed a significant correlation between perceived organisational support, each dimension of career-related continuous learning, and organisational commitment among vocational college teachers. This provides preliminary evidence for further research.

4.4   Mediation analysis

Currently, there are various validation methods for testing multiple mediation models, but many scholars prefer to use the Bootstrap method. Traditional mediation analysis methods, such as the Sobel test, are usually based on normality and large sample assumptions and only provide point estimates of the indirect effect. However, in practical research, data may not meet these assumptions and sample sizes may be small. The Bootstrap method can handle non-normal distributions and small samples, and can more accurately assess significance by providing confidence intervals for the indirect effect, thus obtaining more reliable and accurate results. Relevant studies have shown that this method provides more realistic model parameters, more robust estimation, and more reliable conclusions (Chen et al., 2014). Given that the structural equation model in this study requires multiple auxiliary variables for multiple mediation analysis, the Bootstrap method was employed. SPSS 25.0 with Process 3.3 plugin was used to validate the multiple mediation model. The analysis is generally conducted in the following steps:

1   Analyse the mechanism of the independent variable's impact on the dependent variable. If the result is not significant, stop testing for the mediating effect; if the result is significant, proceed to the next analysis.

2   Analyse the mechanism of the independent variable's impact on the mediating variable. If the result is not significant, stop testing for the mediating effect; if the result is significant, proceed to the next analysis.

3   Analyse the joint impact mechanism of the independent variable and the mediating variable on the dependent variable.

If the result is significant and the coefficient of the independent variable with the dependent variable is less than the coefficients from the first step, it indicates partial mediation by the mediating variable. If the result is not significant and the coefficient of the independent variable with the dependent variable is close to 0, it indicates complete mediation by the mediating variable. If the result is not significant and the mediating variable is not significantly associated with the dependent variable, it indicates no mediating effect by the mediating variable. Based on the research hypotheses proposed, perceived organisational support was set as the independent variable, organisational commitment as the dependent variable, and the advantages analysis, disadvantage analysis, focusing on scientific research, focusing on teaching, communication and cooperation, teacher skills improving, and multiple occupational skills expanding in career-related continuous learning were set as mediator variables in the research model. Additionally, to avoid issues with multicollinearity, the independent, dependent, and mediator variables were centred before conducting the mediation analysis. Subsequently, using the model 4 in the process program, the regression coefficients of the following nine equations were tested for significance by setting the number of bootstrap samples to 5,000 and confidence interval to 95% (the test results are shown in Tables 3, 4, and 5 respectively).

$$Y = cX + \varepsilon_1 \tag{1}$$

$$M_1 = a_1 X + \varepsilon_2 \tag{2}$$

$$M_2 = a_2 X + \varepsilon_3 \tag{3}$$

$$M_3 = a_3 X + \varepsilon_4 \tag{4}$$

$$M_4 = a_4 X + \varepsilon_5 \tag{5}$$

$$M_5 = a_5 X + \varepsilon_6 \tag{6}$$

$$M_6 = a_6 X + \varepsilon_7 \tag{7}$$

$$M_7 = a_7 X + \varepsilon_8 \tag{8}$$

$$Y = c'X + b_1 M_1 + b_2 M_2 + b_3 M_3 + b_4 M_4 + b_5 M_5 + b_6 M_6 + b_7 M_7 + \varepsilon_9 \tag{9}$$

In the equations, c', $a_1 \sim a_7$ and $b_1 \sim b_7$ are regression coefficients, and $\varepsilon_1 \sim \varepsilon_9$ are residuals. These nine equations correspond to the three steps of the bootstrap method, where equation (1) represents the first step, equations (2) to (8) represent the second step, and equation (9) represents the third step.

According to Table 3, in the relationship between the independent variable and the dependent variable, the correlation coefficient between perceived organisational support and organisational commitment is $c = 0.262$ ($p < 0.001$), which reaches the level of significant influence. This indicates that the degree of perceived organisational support significantly influences the level of organisational commitment. Hypothesis H1 is verified and also provides a prerequisite for testing the mediation effects in subsequent models. In the relationships between the independent variable and each mediator variable, the correlation coefficients between perceived organisational support and advantages analysis, disadvantage analysis, focusing on scientific research, focusing on teaching, communication and cooperation, teacher skills improving, and multiple

occupational skills expanding in career-related continuous learning are $a_1 = 0.370$ ($p < 0.001$), $a_2 = 0.391$ ($p < 0.001$), $a_3 = 0.385$ ($p < 0.001$), $a_4 = 0.399$ ($p < 0.001$), $a_5 = 1.116$ ($p < 0.001$), $a_6 = 1.062$ ($p < 0.001$), and $a_7 = 1.446$ ($p < 0.001$), respectively. All of them are significant. This indicates that perceived organisational support has a significant positive influence on each dimension of career-related continuous learning. Hypotheses H2, H3, H4, H5, H6, H7, and H8 are all verified.

Table 3   Regression equation parameters of independent variables on the dependent variable and mediator variables

	X		
	Coefficient	*SE*	*t*
Y	0.262	0.048	5.498***
M_1	0.370	0.060	6.193***
M_2	0.391	0.055	7.115***
M_3	0.385	0.059	6.539***
M_4	0.399	0.056	7.148***
M_5	1.116	0.167	6.682***
M_6	1.062	0.161	6.592***
M_7	1.446	0.165	8.793***

Note: *$P < 0.05$, **$P < 0.01$, ***$P < 0.001$.

According to Table 4, after the independent variable and the mediating variable simultaneously enter the regression equation model, the correlation coefficient $c = 0.130$ ($p < 0.05$) between the independent variable perceived organisation support and the dependent variable organisational commitment still has a significant impact level. In the relationship between the mediating variable and the dependent variable, the correlation coefficients between the dimensions of career-related continuous learning and organisational commitment, including advantage analysis, disadvantage analysis, focusing on scientific research, focusing on teaching, communication and cooperation, teacher skills improving, and multiple occupational skills expanding, are respectively: $b_1 = 0.164$ ($p < 0.05$), $b_2 = -0.064$ ($p > 0.05$), $b_3 = 0.117$ ($p > 0.05$), $b_4 = 0.036$ ($p > 0.05$), $b_5 = -0.054$ ($p > 0.05$), $b_6 = 0.051$ ($p > 0.05$), $b_7 = 0.030$ ($p > 0.05$). This suggests that only advantage analysis in the dimensions of career-related continuous learning has a significant positive impact on organisational commitment, while the impact of the other six dimensions on organisational commitment is not significant. Hypothesis H9 is verified, and hypotheses H10, H11, H12, H13, H14 and H15 are rejected.

In the overall model indicators, $F = 8.151$, $p = 0.000$, which indicates that the impact of the independent variable perceived organisation support on the dependent variable organisational commitment through the mediating variable career-related continuous learning dimensions has reached a significant level. Moreover, the explanatory level of the model, $R^2 = 0.242$, suggests that there is still a possibility to include other variables in the research model for further analysis.

According to Table 5, in terms of mediation analysis, the indirect effect of perceived organisational support on organisational commitment is as follows:

$$0.061(a_1b_1) - 0.025(a_2b_2) + 0.045(a_3b_3) + 0.014(a_4b_4)$$
$$- 0.060(a_5b_5) + 0.055(a_6b_6) + 0.043(a_7b_7) = 0.133$$

Table 4 Regression equation parameters of independent variables, mediating variables, and dependent variables

	Y		
	Coefficient	*SE*	*t*
X	0.130	0.055	2.378*
M_1	0.164	0.070	2.348*
M_2	−0.064	0.072	−0.884
M_3	0.117	0.074	1.568
M_4	0.036	0.084	0.429
M_5	−0.054	0.033	−1.655
M_6	0.051	0.035	1.470
M_7	0.030	0.029	1.034
Overall model indicators: $R^2 = 0.242$, F = 8.151, df1 = 8, df2 = 204, $p = 0.000$			

Note: df1 represents the variable degrees of freedom, and df2 represents the sample degrees of freedom; *$P < 0.05$, **$P < 0.01$, ***$P < 0.001$.

The corresponding standard error is 0.037, and the confidence interval at the 95% level is [0.059, 0.206], which does not include 0. This result indicates that the total indirect effect in the research model is significant.

In addition to the total indirect effect, further analysis is needed on the individual mediation effects between variables in the multiple mediation analysis (see results in Table 5). The mediation effect of perceived organisational support on organisational commitment through advantage analysis is 0.061, with a 95% confidence interval of [0.059, 0.206], which does not include 0. The mediation effect of perceived organisational support on organisational commitment through disadvantage analysis is −0.025, with a 95% confidence interval of [−0.098, 0.040], which includes 0. The mediation effect of perceived organisational support on organisational commitment through focusing on scientific research analysis is 0.045, with a 95% confidence interval of [−0.029, 0.116], which includes 0. The mediation effect of perceived organisational support on organisational commitment through focusing on teaching analysis is 0.014, with a 95% confidence interval of [−0.071, 0.092], which includes 0. The mediation effect of perceived organisational support on organisational commitment through communication and cooperation analysis is −0.060, with a 95% confidence interval of [−0.134, 0.012], which includes 0. The mediation effect of perceived organisational support on organisational commitment through teacher skills improving analysis is 0.055, with a 95% confidence interval of [−0.044, 0.157], which includes 0. The mediation effect of perceived organisational support on organisational commitment through multiple occupational skills expanding analysis is 0.043, with a 95% confidence interval of [−0.038, 0.138], which includes 0.

Therefore, advantage analysis has a significant mediating effect on the relationship between perceived organisational support and organisational commitment, while disadvantage analysis, focusing on scientific research, focusing on teaching,

communication and cooperation, teacher skills improving, and multiple occupational skills expanding all do not have a significant mediation effect on organisational commitment. Thus, Hypothesis H16 is verified, and hypotheses H17, H18, H19, H20, H21, and H22 are rejected.

Table 5   Presents the results of the analysis of mediation effects

	Bootstrap method (5,000 bootstrap samples)			
	Point estimate	*SE*	*LLCI*	*ULCI*
Indirect effect				
M_1	0.061	0.029	0.011	0.126
M_2	−0.025	0.035	−0.098	0.040
M_3	0.045	0.036	−0.029	0.116
M_4	0.014	0.041	−0.071	0.092
M_5	−0.060	0.037	−0.134	0.012
M_6	0.055	0.051	−0.044	0.157
M_7	0.043	0.044	−0.038	0.138
Total	0.133	0.037	0.059	0.206

The results of hypothesis testing in this study are shown in Figure 2. From Figure 2, it can be observed that perceived organisational support is significantly and positively correlated with both organisational commitment and the seven dimensions of career-related continuous learning. Additionally, advantage analysis shows a significant positive correlation with organisational commitment and acts as a partial mediator in the relationship between perceived organisational support and organisational commitment.

Figure 2   Shows the results of hypothesis testing (see online version for colours)
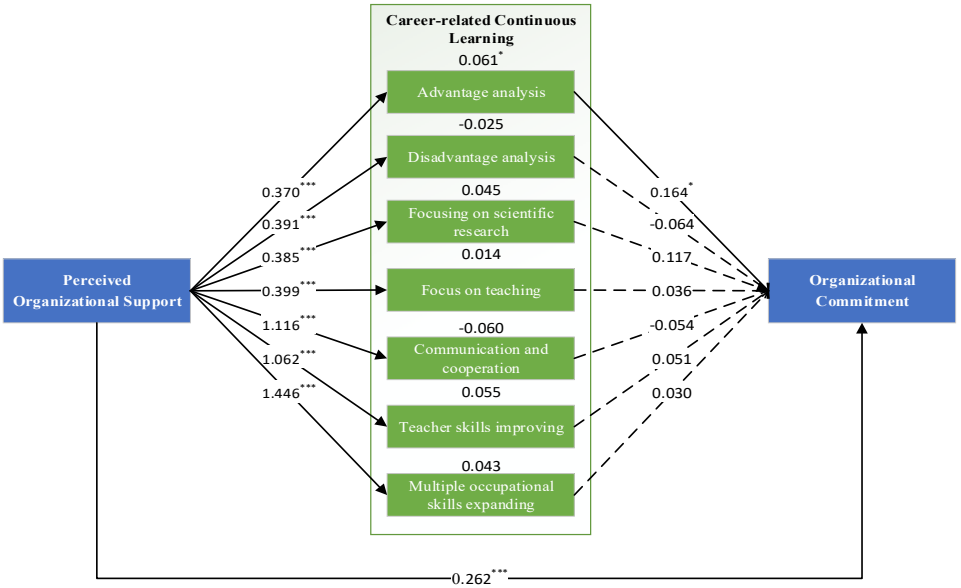
Note: *$P < 0.05$, **$P < 0.01$, ***$P < 0.001$.

4.5 Discussion of results

Perceived organisational support has a significant positive impact on organisational commitment (H1). This research finding is consistent with previous studies based on social exchange theory, which also demonstrated the positive effect of perceived organisational support on teachers' organisational commitment (Xiong and Luo, 2008). According to the results of this study, firstly, the support provided by higher vocational colleges to meet teachers' continuous learning needs can be seen as a 'reciprocal' positive behaviour. When teachers perceive that the school cares about their interests and fulfils their needs, they develop a strong sense of organisational commitment to the school, which serves as a positive return for the support received. Secondly, like other teacher groups such as university teachers and high school teachers, the support behaviours provided by higher vocational colleges can effectively enhance teachers' organisational commitment and reduce their turnover intention, which is beneficial for the sustainable development of higher vocational colleges.

Perceived organisational support has a significant positive impact on advantages analysis, disadvantage analysis, focusing on scientific research, focusing on teaching, communication and cooperation, teacher skills improving, and multiple occupational skills expanding in career-related continuous learning (H2, H3, H4, H5, H6, H7 and H8). This is consistent with the conclusions drawn from previous relevant studies (Jiao et al., 2022; Heng and Chu, 2023; Dong, 2016; Hökkä and Eteläpelto, 2014; Bendermacher et al., 2021). This indicates that the support of higher vocational colleges for teachers' career-related continuous learning conveys the school's expectations and recognition of the value of teachers, enhances teachers' willingness to engage in continuous learning, and enables them to understand their advantages and disadvantage in professional knowledge, skills, and qualities through continuous learning. This helps them to clarify learning goals in research and teaching, actively engage in communication and collaboration at the organisational and individual levels, continuously improve existing functions and skills based on learning and communication and expand into more functions and skills. In summary, with the support of higher vocational colleges, teachers can continuously enhance their professional competence and meet the requirements of the school for the construction of the teacher team through continuous learning.

The dimension of advantages analysis of career-related continuous learning has a significant positive impact on organisational commitment (H9), and this dimension plays a significant mediating role in the relationship between perceived organisational support and organisational commitment (H16). This conclusion is consistent with the findings of related research that self-analysis has a significant positive impact on organisational commitment (Nie, 2014). This indicates that career-related continuous learning, as one of the main ways for vocational college teachers to enhance their professional competence, relies mainly on the comprehensive support from their school for their continuous learning behaviour, which can be seen as a positive 'reciprocal' behaviour between the school and the teachers. When vocational college teachers perceive that the support from the school is an important factor in promoting their overall growth (especially in gaining a deeper understanding of their own advantages), they, in return, further identify with the school's goals and policies, thereby strengthening organisational commitment.

The dimensions of disadvantage analysis, focusing on scientific research, focusing on teaching, communication and cooperation, teacher skills improving, and multiple occupational skills expanding in career-related continuous learning do not have a

significant positive impact on organisational commitment (H10, H11, H12, H13, H14 and H15). They also do not play a significant mediating role in the relationship between perceived organisational support and organisational commitment (H17, H18, H19, H20, H21 and H22). This indicates that the dimensions of disadvantage analysis, focusing on scientific research, focusing on teaching, communication and cooperation, teacher skills improving, and multiple occupational skills expanding in career-related continuous learning do not significantly promote organisational commitment, which deviates from the expected hypotheses in this study. This indicates that there are significant differences between the career-related continuous learning of vocational college teachers and university teachers, which may be related to the relatively late update of teacher training concepts, goals, and methods in higher vocational colleges compared to universities. Career-related continuous learning is a self-directed learning behaviour that requires a relatively long period of time. Except for the dimension of advantages analysis, the other six dimensions need to accumulate over time to take effect. Therefore, attention to career-related continuous learning still needs to be sustained, and further research and exploration should be conducted on a more detailed basis.

5   Conclusions

With the development of the country's emphasis on vocational education, the construction of the teacher team in higher vocational colleges has become one of the important influencing factors for cultivating high-skilled talents. Therefore, how to enhance the organisational commitment of vocational college teachers and stabilise the teacher team has become a hot issue in teacher management. This study focuses on vocational college teachers and explores the relationship between perceived organisational support, career-related continuous learning, and organisational commitment, with a particular focus on analysing the mediating role of career-related continuous learning. The study shows that perceived organisational support has a significant positive impact on organisational commitment. Perceived organisational support also has a significant positive impact on the advantages analysis, disadvantage analysis, focusing on scientific research, focusing on teaching, communication and cooperation, teacher skills improving, multiple occupational skills expanding in career-related continuous learning. The advantages analysis in career-related continuous learning has a significant positive impact on organisational commitment. Moreover, the advantages analysis in career-related continuous learning plays a mediating role in the relationship between perceived organisational support and organisational commitment.

The above research conclusions have the following two implications for teacher management in higher vocational colleges:

1   Increase organisational support for teachers. Higher vocational colleges can provide various resources and special funds to support teachers, establish a stable funding mechanism, strengthen support for teachers through internal and external training, work visits, cooperative research, pairing of new and senior teachers, and the construction of talent pools, thereby encouraging teachers to feedback the school through their actual performance.

2   Value teachers' career-related continuous learning. Higher vocational colleges should encourage teachers to pay attention to career-related continuous learning,

establish a systematic and phased growth and development system based on teachers' actual situations help teachers fully understand their knowledge system and technical advantages, tailor learning and development plans accordingly, and enhance their abilities and qualities through systematic learning in various ways, thus improving teachers' organisational commitment.

The limitations of this study mainly lie in two aspects: firstly, the sample coverage is limited, and the samples mainly come from higher vocational colleges in the same region, which may affect the generalisability of the research conclusions. In the future, the sample coverage can be expanded. Secondly, the data collected for the survey is cross-sectional, which may result in slightly insufficient interpretative power for the causal relationship between variables. In the future, longitudinal studies can be considered to further test the causal relationships identified in this study.

Acknowledgements

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