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Principal Support on Teacher Professional Development and Mediating Role of Career Calling: Higher Education Vocational College Teachers Perceptions

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Abstract. China's higher vocational education is undergoing significant transformations. Initiatives such as upgrading vocational colleges to higher levels, elevating secondary vocational schools, and merging these institutions have driven the rapid development of vocational education. However, challenges in Teacher Professional Development persist, impacting teachers' growth directly. This study investigates the influence of Principal Support on Teacher Professional Development and the mediating role of career calling. Using a quantitative approach and convenience sampling, a survey was conducted among 559 teachers from higher vocational colleges in Guangdong Province, China. The data were analyzed using structural equation modeling with AMOS software. The findings indicate that teachers' perception of principal support significantly boosts their professional development and career calling. Career calling also positively impacts Teacher Professional Development and partially mediates the relationship between Principal Support and Teacher Professional Development. Based on these findings, it is suggested that principals in Guangdong's higher vocational colleges adopt supportive policies and measures to enhance teachers' Career Calling, thereby improving their professional development.

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1. Introduction

This study aims to examine how principal support perceived by teachers affects teacher professional development and to explore the mediating role of teachers' career calling in this relationship. Teacher professional development is crucial for enhancing educational quality and students' vocational skills in higher vocational colleges (Yang et al., 2023). By staying updated with the latest industry trends, teachers can improve their teaching effectiveness and ensure that course content meets market demands (Luo, 2023). Moreover, Teacher professional development not only boosts teaching skills but also aids personal career growth and increases job satisfaction (Hulme & Wood, 2022). It also fosters a positive school culture, which in turn enhances the overall quality of education (Finley, 2016). Therefore, teacher professional development is essential for higher vocational colleges to improve educational quality and meet industry needs (Peng, 2022).

However, teachers in higher vocational colleges face numerous challenges in their professional development. Adamson and Darling-Hammond (2011) argue that unequal access to resources and opportunities can result in inadequate training, affecting teachers' professional skills and teaching abilities. Furthermore, Willis et al. (2019) highlight that resource allocation strategies directly impact both educational quality and teacher professional development. Darling-Hammond et al. (2017) point out that the heavy workload of daily teaching and administrative tasks leaves teachers with insufficient time for training and self-improvement, thereby affecting teaching quality. Principals, as school leaders and decision-makers, play a crucial role in resource allocation and promoting teacher professional development (Chen, 2018). Research by Haroon et al. (2023) indicates that effective school leadership can enhance teachers' motivation for professional growth by fostering a supportive work environment and culture.

Fessler (1985) introduced the theory of factors influencing teacher career development, categorizing these factors into two main areas: personal environmental factors and organizational environmental factors. Personal factors include individual personality and career aspirations, while organizational factors encompass elements such as school regulations and management styles. Schools, being the primary venues for teachers' educational activities, significantly influence their professional development through their institutional and cultural environments (Tang, 2023). Finberg (2013) emphasized the crucial role of principals as decision-makers, leaders, and organizers within schools. Principals play a pivotal role in teacher professional development. When principals proactively create a supportive, trusting, and harmonious environment and provide ample opportunities for professional growth, teachers are more inclined to pursue their own development actively (Ren, 2010). The principal's management style has a considerable impact on the career trajectory of individual teachers (Zhu, 2014). A principal who fosters an atmosphere of

trust and support, grants teachers autonomy and corresponding responsibilities and provides opportunities for professional growth, is likely to elicit positive responses from teachers. Even those experiencing career setbacks can find the support and encouragement needed to overcome challenges and continue their professional development (Ren & Gao, 2012).

In addition, as teachers gain life experience, their values and career goals evolve, leading to shifts in their careers (Geoghegan, 2023). Krulj et al. (2023) highlighted the crucial role of career calling in a teacher's willingness and effort towards professional development. Teachers with a strong sense of calling tend to be more invested in their students' growth and are more likely to go the extra mile to enhance their teaching skills and professional expertise. This intrinsic motivation is essential for sustained professional development (Fuller et al., 2013). Sundari et al. (2023) suggest that when principals provide opportunities and resources for professional development, it further strengthens teachers' sense of career calling. Moreover, experiencing support and recognition from their principals can boost teachers' motivation, enthusiasm, and confidence in pursuing professional growth. A strong career calling also enables principals to better understand teachers' needs and expectations, allowing them to provide more tailored support (Resnick, 2023).

In summary, principal support can inspire teachers' career calling, which in turn drives their professional development. This interaction improves teachers' professional skills and ultimately enhances the school's teaching quality. Drawing upon Fessler's (1985) theory of factors influencing teacher career development, this study explores how teachers' perception of principal support fosters their professional development by enhancing career calling.

2. Literature Review

This study delves into the relationship between teachers' perceptions of principal support, career calling and teacher professional development by reviewing relevant literature. Based on this review, the study proposes the following four hypotheses: Teachers' perceptions of principal support have a significant positive impact on teacher professional development; teachers' perceptions of principal support have a significant positive impact on career calling; teachers' career calling has a significant positive impact on teacher professional development; and teachers' career calling mediates the relationship between perceived principal support and teacher professional development.

2.1 The Relationship between Perceived Principal Support and Teacher Professional Development

Principal support plays a crucial role in the professional development of teachers (Blase, 1987). Karacabey (2021) found a significant relationship between principal support and the level of teacher professional development. Specifically, principal support has a positive impact on the development of teachers' professional knowledge, skills, and career calling. Kumar (2023) pointed out that the principal's positive attitude, clear work expectations, and motivational behavior can effectively promote teacher professional development. Moreover,

Aliska et al. (2023) found that the principal's support behavior can positively influence teachers' work motivation. Teachers who feel the principal's care and support have higher psychological satisfaction, which helps build a positive working relationship.

Principals can create opportunities for teachers to participate in professional exchanges and cooperation within the school, promoting teacher professional development and the sharing of learning experiences. Ren (2010) believes that the principal can create a positive and supportive working environment, encouraging teachers to express their professional development needs. The principal's support and open communication can make teachers feel respected and recognized, encouraging teachers to actively participate in professional development activities. Principals can also formulate career development plans with teachers, help teachers set personal career goals, and provide support and resources to achieve these goals (Park & Byun, 2021). Therefore, the research hypothesis H1 is proposed: principal support has a significant positive impact on the professional development of teachers in higher vocational colleges in Guangdong Province, China.

2.2 The Relationship between Perceived Principal Support and Career Calling

Dobrow and Tosti-Kharas (2011) define career calling as having a strong passion for a particular profession and finding deep meaning in it. Gkolia et al. (2021) indicate that a principal's support—whether in resources, emotional, or professional aspects—can enhance teachers' self-efficacy, thereby strengthening their sense of career calling. When teachers perceive support from their principals, they are more likely to develop a strong career calling, which in turn motivates and energizes them to engage actively in professional development activities. Engels et al. (2008) found that principal backing nurtures a positive school culture. By encouraging teachers to collaborate, share experiences, and support one another, principals instill a sense of community cohesion and mutual support. This positive environment promotes teachers' career calling and fosters a sense of belonging within the school. Concurring, Diggs (2020) assert that principal support affirms and recognizes teachers' efforts, expressing appreciation for their dedication and educational services. When principals publicly and privately acknowledge teachers' contributions, educators feel valued and inspired, fueling their career calling. Principal support conveys and reinforces the educational values and sense of calling embedded within the school culture (Peterson & Deal, 1998). In summary, principal support significantly impacts teachers' career calling. Therefore, we propose the research hypothesis H2: Perceived principal support has a significant positive effect on career calling for teachers in higher vocational colleges in Guangdong Province, China.

2.3 The Relationship between Teachers' Career Calling and Professional Development

Research by Jia-Jun and Hua-Ming (2022) suggests that a strong sense of career calling positively impacts individuals' career development trajectories. Liu and Liao (2019) assert a positive correlation between career calling and teacher growth, with those possessing a profound calling exhibiting higher levels of

personal and professional advancement. Hall and Chandler (2005) highlight that teachers' career calling can ignite their motivation and commitment. When educators deeply comprehend their pivotal role in student development and the educational process, coupled with passion and a sense of responsibility, they become more driven to continuously enhance their teaching capabilities through ongoing learning. Keller-Schneider et al. (2020) suggest that teachers' career calling prompts them to actively pursue professional development opportunities, as they are invested in student success and their own impact, yearning to provide superior educational services. Wrzesniewski et al. (1997) revealed that individuals with a stronger sense of calling in their work experience greater job and life satisfaction, thus possessing heightened cognitive and mental resources to dedicate to their professional growth. In summary, teachers' career calling is inextricably linked to their professional development. Therefore, we propose the research hypothesis H3: Career calling has a significant positive effect on professional development for teachers in higher vocational colleges in Guangdong Province, China.

2.4 The Interplay among Perceived Principal Support, Career Calling, and Teacher Professional Development

Zhao and Wang (2016) highlighted that career calling is a manifestation of one's values. Qi (2020) believes teachers' career trajectories are shaped by their experiences, values and aspirations. Moreover, Yu (2015) suggested that as individuals mature and accumulate experience, their career choices and growth are no longer solely driven by economic rewards and promotions but by intrinsic motivations, including personal core values, a sense of purpose, and a desire for societal contribution. Wrzesniewski et al. (1997) found that those with a strong career calling place greater emphasis on their work's role in fostering self-worth and societal significance. Huang et al.'s (2019) research indicated that organizational support positively influences career calling. Li (2015) highlighted that as professional organizations, schools' principals as organizational leaders, play a pivotal role in supporting teachers' professional growth. Therefore, principal support also positively impacts teachers' career calling.

Hallam et al. (2015) noted that by providing resources, encouragement, and recognition, principals cultivate a supportive work environment where teachers feel valued. Ma (2022) views career calling as an intrinsic motivation that drives teachers' engagement and pursuit of meaningful careers, thus fostering professional development. Wang et al.'s (2023) research revealed that when teachers perceive principal support, they are more likely to cultivate a profound sense of calling, gaining motivation and enthusiasm to participate in professional development activities. Chen (2018) also mentioned that when teachers find their work meaningful and valuable, they seek principal support to achieve personal professional growth. According to Fessler's (1985) theory on factors influencing teacher career development, personal factors play a crucial role in teachers' professional development. This theory views principal support as a critical environmental factor, providing necessary resources and fostering a conducive growth environment (Ren & Gao, 2012). Principal support can directly promote teacher professional development and may enhance teachers' career calling, thus fostering their growth (Singh & Billingsley, 1998). In summary,

based on Fessler's (1985) theory and related research, we propose the research hypothesis H4: For teachers in higher vocational colleges in Guangdong Province, China, career calling mediates the relationship between perceived principal support and teacher professional development.

3. Methodology

3.1 Hypothesis Model

Building on Fessler's (1985) theory of teacher career development influencing factors, this study examines the related factors influencing teacher professional development. Focusing on teachers in vocational colleges in Guangdong Province, China, we constructed a research hypothesis model, which includes perceived principal support, career calling, and teacher professional development, as illustrated in Figure 1.

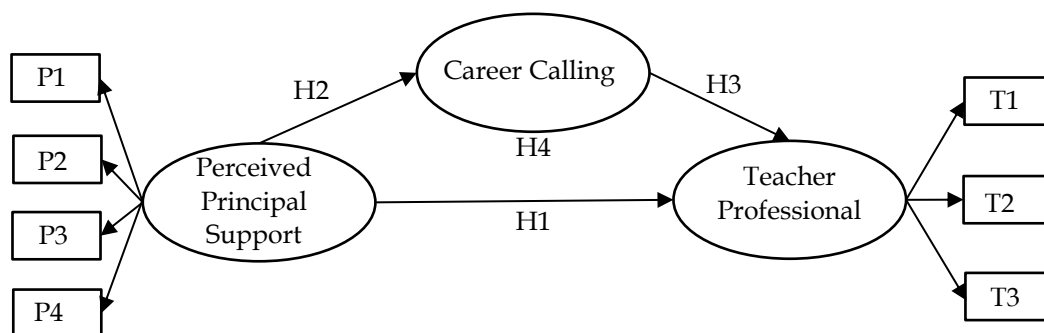


Figure 1: Hypothesis Model Diagram

Note: P1: Emotional Support, P2: Professional Support, P3: Instrumental Support, P4: Evaluation Support, T1: Professional Knowledge, T2: Professional Ability, T3: Professional Emotion

3.2 Research Subjects

According to Gorsuch (1983), a sample size of at least 10 times the number of questionnaire items is recommended. With 56 items in our questionnaire, we selected a convenient sample of 600 teachers from higher vocational education institutions in Guangdong Province, China, covering various disciplines such as science, engineering and literature. Using the method proposed by Meade and Craig (2012) to handle missing questionnaire data, invalid questionnaires were excluded. These invalid responses included incomplete answers, identical answer choices and questionnaires completed in an implausibly short time. This process resulted in 559 valid questionnaires, yielding an effective response rate of 93.160%. This study adhered strictly to the ethical requirements of the Thai National Research Council. Before participating, teachers were fully informed about the research purpose. Furthermore, we assured them that their responses would only be used for this research purpose, and their privacy would be protected.

3.3 Research Tools

Perceived Principal Support Scale: Perceived principal support was assessed using the Principal Support Scale developed by DiPaola (2012). This 5-point

Likert scale comprises four dimensions: emotional support, professional support, instrumental support, and appraisal support, each with four items. The confirmatory factor analysis reveals a good fit between the model and the data, as indicated by the goodness-of-fit indices ($\chi^2/df = 3.217$). The fit indices, including the Goodness-of-Fit Index (GFI) (.930), Adjusted Goodness-of-Fit Index (AGFI) (.905), and Normed Fit Index (NFI) (.936), all exceed .900. Additionally, the Standardized Root Mean Square Residual (SRMR) (.037) and Root Mean Square Error of Approximation (RMSEA) (.063) are both below .080. Furthermore, the Relative Fit Index (RFI) (.924), Comparative Fit Index (CFI) (.955), and Incremental Fit Index (IFI) (.955) all surpass .900, while the Parsimonious Normed Fit Index (PNFI) (.788) and Parsimonious Goodness-of-Fit Index (PGFI) (.804) both exceed .500. The composite reliability (CR) values for the latent variables were .807 for emotional support, .804 for professional support, .875 for instrumental support, and .867 for appraisal support, all exceeding the .700 threshold, indicating high composite reliability for each dimension (Hair et al., 1998). Furthermore, all factor loadings exceeded .500, and the average variance extracted (AVE) for each construct surpassed .500, meeting the criteria proposed by Anderson and Gerbing (1988), reflecting good CR and convergent validity.

Teacher Professional Development Scale: Teacher professional development was assessed using the Higher Vocational Teacher Professional Development Scale developed by Gao (2018). This 5-point Likert scale comprises three dimensions: professional knowledge, professional ability, and professional affect, each with four items. The confirmatory factor analysis reveals a good fit between the model and the data, as indicated by the goodness-of-fit indices ($\chi^2/df = 4.207$). The fit indices, including the Goodness-of-Fit Index (GFI) (.941), Adjusted Goodness-of-Fit Index (AGFI) (.907), and Normed Fit Index (NFI) (.951), all exceed .900. Additionally, the Standardized Root Mean Square Residual (SRMR) (.033) and Root Mean Square Error of Approximation (RMSEA) (.076) are both below .080. Furthermore, the Relative Fit Index (RFI) (.934), Comparative Fit Index (CFI) (.962), and Incremental Fit Index (IFI) (.962) all surpass .900, while the Parsimonious Normed Fit Index (PNFI) (.706) and Parsimonious Goodness-of-Fit Index (PGFI) (.714) both exceed .500. The CR values for the latent variables were .854 for professional knowledge, .882 for professional ability, and .826 for professional affect, all exceeding the .700 threshold (Hair et al., 1998). Furthermore, all factor loadings exceeded .500, and the average variance extracted (AVE) for each construct surpassed .500, meeting the criteria proposed by Anderson and Gerbing (1988), reflecting good composite reliability and convergent validity.

Career Calling Scale: Career calling was measured using the Career Calling Scale developed by Dobrow and Tosti-Kharas (2011). This 5-point Likert scale is single-dimensional, comprising 12 items. The confirmatory factor analysis reveals a good fit between the model and the data, as indicated by the goodness-of-fit indices ($\chi^2/df = 4.465$). The fit indices, including the Goodness-of-Fit Index (GFI) (.936), Adjusted Goodness-of-Fit Index (AGFI) (.902), and Normed Fit Index (NFI) (.943), all surpass .900, indicating a good model fit. Additionally, the

Standardized Root Mean Square Residual (SRMR) (.037) and Root Mean Square Error of Approximation (RMSEA) (.079) are both below .080, further supporting the model's goodness-of-fit. Furthermore, the Relative Fit Index (RFI) (.926), Comparative Fit Index (CFI) (.955), and Incremental Fit Index (IFI) (.955) all exceed .900, while the Parsimonious Normed Fit Index (PNFI) (.729) and Parsimonious Goodness-of-Fit Index (PGFI) (.738) both exceed .500. The CR value of the latent variable was .926, exceeding the .700 threshold (Hair et al., 1998). All factor loadings exceeded .500, and the average variance extracted (AVE) for the construct surpassed .500, meeting the criteria proposed by Anderson and Gerbing (1988), indicating good composite reliability and convergent validity.

4. Results

4.1 Sample Distribution

This study collected 559 valid questionnaires. Among the respondents, 177 were male teachers, and 382 were female teachers. Regarding age distribution, 217 teachers were under 35 years old, 291 were between 36 and 49, and 51 were between 50 and 60 years old. The survey data revealed that the number of female teachers exceeded that of male teachers, accounting for 68.30%, and the proportion of young and middle-aged teachers under 49 years old was 90.90%.

As shown in Table 1, the mean value of perceived principal support was 3.417, with a standard deviation of .482, skewness of .018, and kurtosis of .299. The mean value of teacher professional development was 3.984, with a standard deviation of .463, skewness of .252, and kurtosis of .516. The mean value of career calling was 3.884, with a standard deviation of .509, skewness of .385, and kurtosis of .027. The average scores of all variables were higher than the midpoint of 3, and the standard deviations were relatively small, indicating a relatively concentrated sample data distribution without significant differences. The results showed that the absolute values of skewness for all variables were less than 3, and the absolute values of kurtosis were less than 10, satisfying the criteria for a normal distribution.

Table 1: Descriptive Analysis of Sample Data

Variable	Mean	Standard Deviation	Skewness	Kurtosis
Perceived Principal Support	3.417	.482	.018	.299
Teacher Professional Development	3.984	.463	.252	.516
Career Calling	3.884	.509	.385	.027

4.2 Common Method Bias Test

This study employed exploratory factor analysis to perform Harman's single-factor test to detect common method bias. Factor analysis was conducted on all questionnaire items, and the number of factors with eigenvalues greater than 1 was observed to be more than 1. Additionally, the variance explained by the maximum factor should be less than 40%, the KMO value should exceed .800, and Bartlett's test of sphericity should be significant ($p < .001$) (Zhou & Long, 2004). From the test results shown in Table 2, six factors were extracted with eigenvalues greater than 1, and the variance explained by the first factor was

17.729%, lower than the reference threshold of 40%. The KMO value was .950, greater than the reference value of .800, and Bartlett's test of sphericity was significant ($p < .001$), meeting the judgment criteria. Therefore, the data from this study's questionnaire did not exhibit common method bias, and data analysis could proceed.

Table 2: Common Method Bias Test

Factor	Eigenvalue (greater than 1)	Variance Explained	Cumulative Variance Explained
1	13.774	7.729	17.729
2	4.676	15.886	33.614
3	2.915	15.518	49.133
4	1.379	5.792	54.925
5	1.211	4.144	59.069
6	1.001	3.321	62.39

KMO Measure of Sampling Adequacy: .950
Bartlett's Test of Sphericity: Significant at $p < .001$

4.3 Correlation Analysis

To explore the mediating effect of career calling on the relationship between perceived principal support and teacher professional development, a correlation analysis was conducted. As shown in Table 3, the results reveal significant positive correlations: perceived principal support is associated with teacher professional development ($r = .419, p < .001$), perceived principal support is linked to career calling ($r = .404, p < .001$), and career calling is correlated with teacher professional development ($r = .582, p < .001$).

Table 3: Correlation Analysis of Variables

Variable	M	SD	Perceived Principal Support	Teacher Professional Development	Career Calling
Perceived Principal Support	3.417	.482	1		
Teacher Professional Development	3.984	.463	.419***	1	
Career Calling	3.884	.509	.404***	.582***	1

Note: *** $p < .001$

4.4 Structural Equation Modeling Analysis

Following Hair et al. (1998), path analysis was conducted on the overall model of the research framework, first by examining the overall model fit. The test results were as follows: $\chi^2/df = 4.46$; GFI = .884, AGFI = .851, NFI = .896, all exceeding .800; SRMR = .051, RMSEA = .073, both less than .080; RFI = .901, CFI = .915, and IFI = .917, all exceeding .900; PNFI = .781, PGFI = .799, both exceeding .500. Thus, the model fit of this study was deemed good.

The Bootstrap method, proposed by Efron (1979), is a technique that increases the existing sample size through repeated sampling. Since Mackinnon et al. (2004) found that the bias-corrected non-parametric percentile Bootstrap method can provide more accurate estimates of the mediating effect and provides

confidence intervals more likely to include the true mediating effect value compared to other methods. This study employed the Bootstrap method to test the mediating effects in the model. Following Efron and Tibshirani's (1997) recommendation, the number of repeated samples was set to 2,000, and the confidence interval was set to 95%. If the 95% confidence interval for the indirect effect did not include 0 and was significant, it indicated a mediating effect. If the 95% confidence interval for the direct effect did not include 0 and was significant, it indicated a direct effect. If the 95% confidence interval for the direct effect included 0, it indicated an insignificant direct effect and a complete mediating effect. If the 95% confidence interval for the total effect did not include 0 and was significant, it was considered a partial mediating effect.

The results presented in Table 4 and Figure 2 indicate that perceived principal support has a significant positive effect on teacher professional development, with a path coefficient of .252 ($p < .001$), thus supporting research hypothesis H1. Perceived principal support also has a significant positive effect on career calling, with a path coefficient of .463 ($p < .001$), supporting H2. Furthermore, teachers' career calling has a significant positive effect on teacher professional development, with a path coefficient of .523 ($p < .001$), supporting H3. The results show that principal support can foster a sense of career calling among teachers. This sense of calling, in turn, drives and enhances their professional development. This interplay ultimately elevates the quality of teaching within the school.

The mediating path test results, shown in Table 4, reveal that the mediating effect of perceived principal support on teacher professional development through career calling is .415, with a 95% confidence interval of [.218, .614], which does not include 0, indicating a significant mediating path. Thus, research hypothesis H4 is supported. Furthermore, regarding direct effects, the direct effect of perceived principal support on teacher professional development is .252, with a 95% confidence interval of [.144, .373], which does not include 0, indicating a significant direct effect. The total effect is .494, with a 95% confidence interval of [.385, .590], which does not include 0, indicating a significant total effect. Therefore, it can be determined that teachers' career calling partially mediates the relationship between perceived principal support and teacher professional development. The results indicate that perceived principal support can significantly influence teachers' professional development by fostering their sense of career calling. This finding reveals how principal support, by igniting teachers' passion for their profession, can facilitate their professional growth and offers valuable insights for educational management and policy-making.

Table 4: Bootstrap Mediation Effect Analysis

Effect	Estimate	p value	Confidence Interval
Direct effect			
Perceived Principal Support → Teacher Professional Development	.252	<.001	[.144, .373]

Effect	Estimate	p value	Confidence Interval
Perceived Principal Support→Career Calling	.463	<.001	[.354, .560]
Career Calling→Teacher Professional Development	.523	<.001	[.406, .663]
Indirect effect			
Perceived Principal Support→Teacher Professional Development	.242	<.001	[.174, .330]
Perceived Principal Support→Career Calling→Teacher Professional Development	.415	<.001	[.281, .614]
Total effect			
Perceived Principal Support→Teacher Professional Development	.494	<.001	[.385, .590]

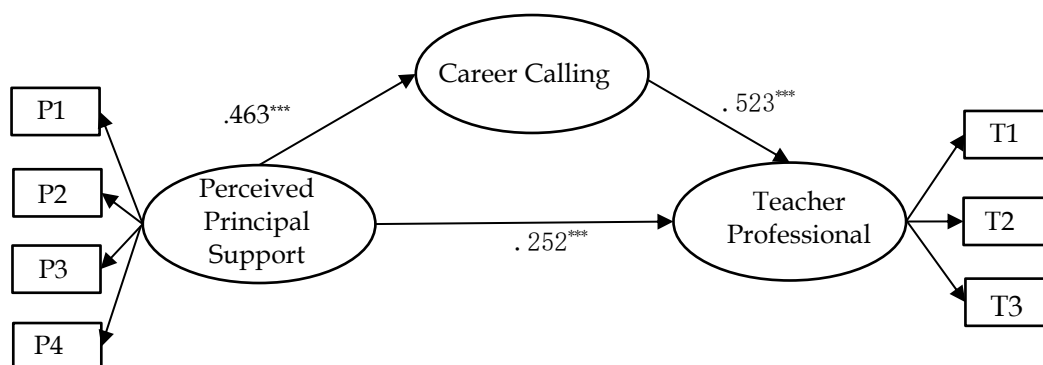


Figure 2: Mediation Path Diagram

Note:***p<.001; P1: Emotional Support, P2: Professional Support, P3: Instrumental Support, P4: Evaluation Support, T1: Professional Knowledge, T2: Professional Ability, T3: Professional Emotion

5. Discussion

5.1 Perceived Principal Support Significantly Impacts Teacher Professional Development in Higher Vocational Colleges in Guangdong Province, China

This study found that perceived principal support significantly and positively impacts teacher professional development in higher vocational colleges in Guangdong Province, China, supporting research hypothesis H1. Research by Karacabey (2021) and Kumar (2023) indicates that the more teachers feel supported by their principals, the higher their level of professional development. This suggests that to enhance the quality of vocational education, principals should actively provide the necessary emotional, professional, practical, and evaluative support for teachers' professional growth. In the principal support framework, House et al.(1988) emphasizes emotional support as the key element, highlighting the importance of understanding, encouragement, and care. When teachers feel supported by their principals, they are more likely to experience personal growth in their teaching practice and exhibit greater professional responsibility and job satisfaction. This positive dynamic can create a virtuous

cycle: principal support fosters professional development, which in turn enhances teachers' well-being and job satisfaction (Ren & Gao, 2012). Overall, these findings underscore the beneficial impact of principal support on teacher professional development.

5.2 Perceived Principal Support Significantly Impacts Career Calling Among Teachers in Higher Vocational Colleges in Guangdong Province, China

This study found that teachers in higher vocational schools in Guangdong Province, China, perceive principal support as having a significantly positive impact on their career calling. This supports the research hypothesis H2 and aligns with the findings of Diggs (2020) and Gkolia et al. (2021). When teachers feel more supported by their principals, their sense of mission and dedication to their careers increases. Hughes et al. (2015) noted that principal support not only shows care for individual teachers but also validates the entire educational profession. Teachers who perceive this support often feel recognized and trusted, which enhances their commitment to their educational mission. According to Krainer and Peter-Koop (2003), such support fosters a positive working environment. When teachers feel encouraged by their principals, they are more likely to recognize their value and significance in the educational field, maintaining a strong sense of responsibility (Vandenberghe, 1998). These studies indicate that principal support enhances teachers' professional identity and career calling, thereby promoting proactive professional development.

5.3 Career Calling Significantly Impacts Teacher Professional Development in Higher Vocational Colleges in Guangdong Province, China

This study found that career calling significantly and positively impacts teacher professional development in higher vocational colleges in Guangdong Province, China, supporting research hypothesis H3. This is consistent with the findings of Jia-Jun and Hua-Ming (2022) and Liu and Liao (2019), indicating that higher career calling corresponds to higher levels of teacher professional development. According to Zuoyu's (2002) perspective, teachers' career calling is closely linked to their dedication and responsibility to the educational endeavor, leading them to invest wholeheartedly in teaching and actively pursue professional growth and development. Robinson and Carrington's (2002) research found that reshaping school culture, collaboration among teaching professionals, and providing learning opportunities for teachers influence teachers' career calling and professional development. Teachers' career calling is inextricably tied to their dedication and responsibility to the educational endeavor, and when educators identify with and internalize their mission and value in the field of education, they are more likely to devote themselves wholeheartedly to teaching and actively pursue professional growth and development (Brown & Militello, 2016). Overall, teachers' career calling positively impacts their professional development.

5.4 Career Calling Partially Mediates the Relationship Between Perceived Principal Support and Teacher Professional Development in Higher Vocational Colleges in Guangdong Province, China

This study found that career calling partially mediates the relationship between perceived principal support and teacher professional development in higher

vocational colleges in Guangdong Province, China, supporting research hypothesis H4. Similar to previous findings by Wrzesniewski et al. (1997), principal support can influence teacher professional development through teachers' career calling. Some studies also suggest that career calling can be viewed as an intrinsic motivation, driving teachers to engage more deeply in their work, pursue excellence and meaningful careers in education, and thus achieve professional development (Ezer et al., 2010). Mushtaq et al. (2019) found that when teachers perceive principal support, they have a higher recognition of their career value, thereby enhancing their career calling. This intrinsic motivation drives teachers to engage more fully in their work, actively promoting their professional development. Self-determination theory (Deci & Ryan, 1985) posit that individuals' autonomous determination of behavior is influenced by external environmental support. Only when external support meets individuals' basic psychological needs will they internalize external rules and values, forming autonomous intrinsic motivation and exhibiting a higher degree of self-determination. Riani and Ain (2022) believe that when teachers perceive principals' recognition and support for their careers, it strengthens their perception of their importance in the educational endeavor, thereby enhancing their career calling, arousing higher intrinsic motivation, and increasing their investment in professional development.

6. Conclusion

This study examines the impact of principal support on teacher professional development and the mediating role of career calling. The findings reveal that teachers who perceive strong support from their principals experience significant improvements in their professional development. Principals enhance teachers' career calling through emotional support, professional guidance, providing necessary tools and constructive feedback, thereby promoting professional growth. The research highlights that principals who set clear objectives, offer motivational support, and provide personalized coaching significantly aid in the professional development of their teachers. Career calling acts as a crucial link between principal support and teacher professional development, showing that when principals stimulate teachers' sense of mission, it leads to greater professional growth. When teachers feel their career calling is recognized and supported, they are more likely to fully dedicate themselves to their work, increase their motivation, and actively pursue educational goals.

Therefore, higher education institutions should establish a clear and supportive principal management system to fully support the professional development of teachers. Additionally, mechanisms should be put in place to encourage teachers to actively participate in school development planning and teaching management decisions, thereby enhancing their sense of involvement and voice in school affairs. Psychological counseling and support should also be provided to help teachers effectively manage work pressure and career burnout, maintaining their enthusiasm and motivation. Principals should collaborate closely with teachers to set clear career development goals, develop detailed implementation plans, and establish evaluation standards to ensure the clarity and feasibility of development paths. Based on the career development stages

and individual needs of teachers, personalized professional development plans should be created, providing targeted support and resources to fully harness their professional development potential.

Additionally, principals should actively enhance teachers' career calling through emotional support and professional guidance. To achieve this, it is recommended to establish incentive and reward systems that fairly assess teachers' professional achievements and contributions. This approach can improve their job satisfaction and career calling, motivating teachers to seek out professional development opportunities. Principals should also regularly engage in meaningful conversations and provide constructive feedback, with an emphasis on teachers' personal growth and career goals. By inspiring teachers to invest more passion and energy into their work, principals can not only promote teachers' professional development but also their overall growth, which in turn enhances the school's teaching quality.

7. Declaration of Conflicting Interest

The authors declare that there is no conflict of interest in this work.

8. References

- Adamson, F., & Darling-Hammond, L. (2011). *Speaking of salaries: What it will take to get qualified, effective teachers in all communities*. Center for American Progress. <https://eric.ed.gov/?id=Ed536080>
- Aliska, A., Ahyani, N., & Fitria, H. (2023). The effect of principal's academic supervision and work motivation on teacher's job satisfaction. *Journal of Social Work and Science Education*, 4(3), 1011-1022. <https://doi.org/10.52690/jswse.v4i3.512>
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103(3), 411. [https://doi.org/0033-2909/88/\\$00.75](https://doi.org/0033-2909/88/$00.75)
- Blase, J. (1987). Dimensions of effective school leadership: The teacher's perspective. *American Educational Research Journal*, 24(4), 589-610. <https://doi.org/10.3102/00028312024004589>
- Brown, C., & Militello, M. (2016). Principal's perceptions of effective professional development in schools. *Journal of Educational Administration*, 54(6), 703-726. <https://doi.org/10.1108/JEA-09-2014-0109>
- Chen, C. C. (2018). Facilitation of teachers' professional development through principals' instructional supervision and teachers' knowledge-management behaviors. In *Contemporary pedagogies in teacher education and development* (p. 51). IntechOpen. <https://doi.org/10.5772/intechopen.77978>
- Darling-Hammond, L., Hylar, M. E., & Gardner, M. (2017). *Effective teacher professional development*. Learning Policy Institute. <https://doi.org/10.54300/122.311>
- Deci, E. L., & Ryan, R. M. (1985). The general causality orientations scale: Self-determination in personality. *Journal of Research in Personality*, 19(2), 109-134. [https://doi.org/10.1016/0092-6566\(85\)90023-6](https://doi.org/10.1016/0092-6566(85)90023-6)
- Diggs, T. K. (2020). *Principal support: Its impact on job satisfaction and early career teachers' decisions to remain in teaching* [Doctoral dissertation, The College of William and Mary]. <https://doi.org/10.25774/w4-4qmt-ea52>
- DiPaola, M. (2012). *Contemporary challenges confronting school leaders*. Information Age Publishing.

- Dobrow, S. R., & Tosti-Kharas, J. (2011). Calling: The development of a scale measure. *Personnel Psychology*, 64(4), 1001-1049. <https://doi.org/10.1111/j.1744-6570.2011.01234.x>
- Efron, B. (1979). Computers and the theory of statistics: Thinking the unthinkable. *SIAM Review*, 21(4), 460-480. <https://doi.org/10.1137/1021092>
- Efron, B., & Tibshirani, R. (1997). Improvements on cross-validation: The 632+ bootstrap method. *Journal of the American Statistical Association*, 92(438), 548-560. <https://doi.org/10.1080/01621459.1997.10474007>
- Engels, N., Hotton, G., Devos, G., Bouckennooghe, D., & Aelterman, A. (2008). Principals in schools with a positive school culture. *Educational Studies*, 34(3), 159-174. <https://doi.org/10.1080/03055690701811263>
- Ezer, H., Gilat, I., & Sagee, R. (2010). Perception of teacher education and professional identity among novice teachers. *European Journal of Teacher Education*, 33(4), 391-404. <https://doi.org/10.1080/02619768.2010.504949>
- Fessler, R. (1985). A model for teacher professional growth and development. In P.J. Burke & R.G. Heideman (Eds.), *Career-long teacher education* (pp. 181-193). Springfield, IL: Charles C. Thomas.
- Finley, D. K. (2016). *What happens in the classroom? How school culture influences and impacts professional development and teacher practice* [Doctoral dissertation, University of Missouri-Saint Louis]. ProQuest Dissertations Publishing. <https://www.proquest.com/openview/c157c012993d71f498200a6febedcbe3/1?pq-origsite=gscholar&cbl=18750>
- Finberg, R. A. (2013). *The journey of becoming a distinguished elementary teacher leader* [Doctoral dissertation, The University of North Carolina at Greensboro]. ProQuest Dissertations Publishing. <https://www.proquest.com/openview/3292a630e5a9af81734e1c733ed04f43/1?pq-origsite=gscholar&cbl=18750>
- Fuller, C., Goodwyn, A., & Francis-Brophy, E. (2013). Advanced skills teachers: Professional identity and status. *Teachers and Teaching*, 19(4), 463-474. <https://doi.org/10.1080/13540602.2013.770228>
- Gao, Z. F. (2018). Correlation analysis of vocational college teachers' professional identity and professional development. *Education and Vocation*, (19), 87-92. <http://lib.cqvip.com/Qikan/Article/Detail?id=676310110>
- Geoghegan, A. (2023). Changing career to teaching? The influential factors which motivate Irish career change teachers to choose teaching as a new career. *Irish Educational Studies*, 42(4), 805-824. <https://doi.org/10.1080/03323315.2023.2260809>
- Gkolia, A. K., Charalampaki, C., & Belias, D. (2021). Principal's individualized support and teacher's self-efficacy: An empirical research. *Journal of Educational Research and Reviews*, 9(3), 53-60. https://doi.org/10.33495/jerr_v9i3.21.103
- Gorsuch, R. L. (1983). Three methods for analyzing limited time-series (N of 1) data. *Behavioral Assessment*, 5(2), 141-154. <https://psycnet.apa.org/record/1983-31741-001>.
- Haroon, H. M. A., Hassan, K. H. U., & Arif, M. (2023). Explore professional development barriers of teachers: A case study of high school Lahore. *Global Educational Studies Review*, 8(2), 214-223. [https://doi.org/10.31703/gesr.2023\(VIII-II\).20](https://doi.org/10.31703/gesr.2023(VIII-II).20)
- Hall, D. T., & Chandler, D. E. (2005). Psychological success: When the career is a calling. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, 26(2), 155-176. <https://doi.org/10.1002/job.301>
- Hallam, P. R., Smith, H. R., Hite, J. M., Hite, S. J., & Wilcox, B. R. (2015). Trust and collaboration in PLC teams: Teacher relationships, principal support, and

- collaborative benefits. *NASSP Bulletin*, 99(3), 193-216.
<https://doi.org/10.1177/0192636515602330>
- Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate data analysis* (5th ed). Prentice-Hall International.
- House, J. S., Umberson, D., & Landis, K. R. (1988). Structures and processes of social support. *Annual Review of Sociology*, 14(1), 293-318.
<https://doi.org/10.1146/annurev.so.14.080188.001453>
- Hughes, A. L., Matt, J. J., & O'Reilly, F. L. (2015). Principal support is imperative to the retention of teachers in hard-to-staff schools. *Journal of Education and Training Studies*, 3(1), 129-134. <https://doi.org/10.11114/jets.v3i1.622>
- Huang, L., Ding, S. Q., Xie, L. X., & Chen, W. Z. (2019). An empirical study on the impact of organizational support on professional mission. *Journal of Management Science*, 32(5), 48-59. <http://qikan.cqvip.com/Qikan/Article/Detail?id=7101000289>
- Hulme, M., & Wood, J. (2022). The importance of starting well: The influence of early career support on job satisfaction and career intentions in teaching. *Journal of Further and Higher Education*, 46(4), 504-521.
<https://doi.org/10.1080/0309877X.2021.1985981>
- Jia-Jun, Z., & Hua-Ming, S. (2022). The impact of career growth on knowledge-based employee engagement: The mediating role of affective commitment and the moderating role of perceived organizational support. *Frontiers in Psychology*, 13, 805208. <https://doi.org/10.3389/fpsyg.2022.805208>
- Karacabey, M. F. (2021). School principal support in teacher professional development. *International Journal of Educational Leadership and Management*, 9(1), 54-75.
<https://doi.org/10.17583/ijelm.2020.5158>
- Keller-Schneider, M., Zhong, H. F., & Yeung, A. S. (2020). Competence and challenge in professional development: Teacher perceptions at different stages of career. *Journal of Education for Teaching*, 46(1), 36-54.
<https://doi.org/10.1080/02607476.2019.1708626>
- Krainer, K., & Peter-Koop, A. (2003). The role of the principal in mathematics teacher development: Bridging the dichotomy between leadership and collaboration. In *Collaboration in teacher education: Examples from the context of mathematics education* (pp. 169-190). Springer Netherlands. https://doi.org/10.1007/978-94-017-1072-5_12
- Krulj, J., Marković, E., & Simijonović, I. (2023). Specijalne kompetencije u funkciji unapređenja profesionalnog rada nastavnika. *Društvene i Humanističke Studije*, 2(23), 655-666. <https://doi.org/10.51558/2490-3647.2023.8.2.655>
- Kumar, K. S. (2023). Teacher training and professional development in special education: Assessing the impact of professional development programs on teacher effectiveness and student outcomes. *Global International Research Thoughts*, 11(1), 47-52. <https://doi.org/10.36676/girt.2023-v11i1-010>
- Liu, Y., & Liao, W. (2019). Professional development and teacher efficacy: Evidence from the 2013 TALIS. *School Effectiveness and School Improvement*, 30(4), 487-509.
<https://doi.org/10.1080/09243453.2019.1612454>
- Li, Y. F. (2015). *Openness and improvement of principal leadership*. Educational Science Press.
- Luo, P. (2023). Evaluation of teachers' information technology teaching competencies in higher vocational college towards enhancement of their technological skills. *International Journal of New Developments in Education*, 5(23), 115-119.
<https://doi.org/10.25236/IJNDE.2023.052320>
- Ma, D. (2022). The role of motivation and commitment in teachers' professional identity. *Frontiers in Psychology*, 13, 910747. <https://doi.org/10.3389/fpsyg.2022.910747>
- MacKinnon, D. P., Lockwood, C. M., & Williams, J. (2004). Confidence limits for the indirect effect: Distribution of the product and resampling methods. *Multivariate Behavioral Research*, 39(1), 99. https://doi.org/10.1207/s15327906mbr3901_4

- Meade, A. W., & Craig, S. B. (2012). Identifying careless responses in survey data. *Psychological Methods, 17*(3), 437–455. <https://doi.org/10.1037/a0028085>
- Mushtaq, F., Baig, I. A., & Munir, N. (2019). A study of stimulating factors in self-motivated professional development among teachers at university level. *Global Social Sciences Review, 4*(2), 101-108. [http://dx.doi.org/10.31703/gssr.2019\(IV-II\).10](http://dx.doi.org/10.31703/gssr.2019(IV-II).10)
- Park, J. H., & Byun, S. Y. (2021). Principal support, professional learning community, and group-level teacher expectations. *School Effectiveness and School Improvement, 32*(1), 1-23. <https://doi.org/10.1080/09243453.2020.1764061>
- Peng, Y. (2022). Research on the construction of electronic intelligent manufacturing specialty group in higher vocational colleges under the background of "Double-High Plan". *International Journal of Education and Humanities, 2*(3), 79-84. <https://doi.org/10.54097/ijeh.v2i3.366>
- Peterson, K. D., & Deal, T. E. (1998). How leaders influence the culture of schools. *Educational Leadership, 56*, 28-31. https://larrycuban.wordpress.com/wp-content/uploads/2012/08/el199809_peterson-1.pdf
- Qi, Z. N. (2020). A study on the sense of influence of professional mission on the organizational commitment of teachers in higher vocational colleges. *Communication of Vocational Education, 6*(6), 94-100. <http://qikan.cqvip.com/Qikan/Article/Detail?id=7102467169>
- Ren, X. Y. (2010). *Teacher professional development and the role of principals*. Hebei Education Press.
- Ren, X. Y., & Gao, Y. F. (2012). *Principals and teacher professional development*. Hebei University Press.
- Resnick, A. F. (2023). Professional identity as an analytic lens for principal learning in contexts of transformation. *Educational Administration Quarterly, 59*(5), 1038-1072. <https://doi.org/10.1177/0013161X231204883>
- Riani, S. S., & Ain, S. Q. (2022). The role of school principal in implementing education quality management. *Jurnal Ilmiah Sekolah Dasar, 6*(2), 204-211. <https://doi.org/10.23887/jisd.v6i2.45216>
- Robinson, R., & Carrington, S. (2002). Professional development for inclusive schooling. *International Journal of Educational Management, 16*(5), 239-247. <https://doi.org/10.1108/09513540210434612>
- Singh, K., & Billingsley, B. S. (1998). Professional support and its effects on teachers' commitment. *The Journal of Educational Research, 91*(4), 229-239. <https://doi.org/10.1080/00220679809597548>
- Sundari, S., Suwito, S., & Wibowo, E. (2023). Analysis of school-based management and principal leadership in improving teacher performance. *Journal of Innovation in Teaching and Instructional Media, 3*(2), 68-78. <https://doi.org/10.52690/jitim.v3i2.708>
- Tang, Y. (2023). Impact of leadership practices of principals and teachers on classroom management and school environment towards an institutional leadership training program. *Journal of Education and Educational Research, 5*(3), 111-122. <https://dx.doi.org/10.54097/jeer.v5i3.13636>
- Vandenberghe, R. (1998). Thinking about principals: How they cope with external pressures and internal redefinition of their role. *International Journal of Educational Research, 29*(4), 371-380. [https://doi.org/10.1016/S0883-0355\(98\)00040-8](https://doi.org/10.1016/S0883-0355(98)00040-8)
- Wang, Y. F., Li, H. X., Han, M., & Huang, J. Y. (2023). The influence of paradoxical leader behaviors on employees' core self-evaluation: A conditional process analysis model. *Social Behavior and Personality: An International Journal, 51*(8), 1-15. <https://doi.org/10.2224/sbp.12128>

- Willis, J., Krausen, K., Caparas, R., & Taylor, T. (2019). Resource allocation strategies to support the four domains for rapid school improvement [the center on school turnaround at WestEd]. West Ed. <https://eric.ed.gov/?id=ED602981>
- Wrzesniewski, A., McCauley, C., Rozin, P., & Schwartz, B. (1997). Jobs, careers, and callings: People's relations to their work. *Journal of Research in Personality, 31*(1), 21-33. <https://doi.org/10.1006/jrpe.1997.2162>
- Yang, C., Guo, R., & Cui, Y. (2023). What affects vocational teachers' acceptance and use of ICT in teaching? A large-scale survey of higher vocational college teachers in China. *Behavioral Sciences, 13*(1), 77. <https://doi.org/10.3390/bs13010077>
- Yu, C. J. (2015). *The impact mechanism of professional mission on turnover intention and employee engagement*. Xi'an Jiaotong University Press.
- Zhao, X. Y., & Wang, J. (2016). The relationship between preschool teachers' sense of professional mission and job performance: The mediating role of organizational commitment. *Teacher Education Research, 28*(6), 59-64. <http://qikan.cqvip.com/Qikan/Article/Detail?id=670881421>
- Zhou, H., & Long, L. R. (2004). Statistical testing and control methods for common method bias. *Advances in Psychological Science, 12*(6), 942-950. <http://qikan.cqvip.com/Qikan/Article/Detail?id=10887471>
- Zhu, X. D. (2014). On the theoretical model construction of teacher professional development. *Educational Research, 35*(06), 81-86. <http://qikan.cqvip.com/Qikan/Article/Detail?id=50087740>
- Zuoyu, Z. (2002). The teaching profession: To be or to do? *Journal of Education for Teaching, 28*(3), 211-215. <https://doi.org/10.1080/0260747022000021322>

APPENDIX QUESTIONNAIRE (ENGLISH VERSION)

Dear teacher: Hello!

I am a doctoral candidate at Dhurakij Pundit University. Thank you very much for taking the time out of your busy schedule to fill in my questionnaire. The purpose of the questionnaire is to collect relevant information for graduation thesis research. I really need your support and help. This questionnaire is anonymous. There are no right or wrong options in the questionnaire, and this survey is anonymous and will not be disclosed to others. Please feel free to fill in the answers. I solemnly promise that the information obtained is strictly confidential and will be used for academic research only. Your answers are important to me. Research is very important, thank you for your support and wish you good luck in your work! If you have any questions related to this study, please send them to email 48934730@qq.com

Graduate student at Dhurakij Pundit University: Mr. Siyu Xu

Part One: Basic Information

1. Your gender: (1) Male, (2) Female
2. Your age: (1) Under 35 years old, (2) 36 to 49 years old, (3) 50 to 60 years old
3. Your professional title: (1) Junior, (2) Intermediate, (3) Associate Senior (4) Senior
4. Your academic qualifications: (1) Bachelor's degree, (2) Master's degree, (3) Doctoral degree

Part 2: Scale part

Please circle the appropriate number by simply circling a number from 1 to 5 based on the questions below.

Strongly disagree	Disagree	Generally	Agree	Agree very much
1	2	3	4	5

Serial number	Question content	1	2	3	4	5
1	My principal gives me a sense of importance that I make a difference.					
2	My principal supports my decisions.					
3	My principal trusts my judgment in making classroom decisions.					
4	My principal shows confidence in my actions.					
5	My principal gives me undivided attention when I am talking.					
6	My principal is honest and straightforward with the staff.					
7	My principal provides opportunities for me to grow professionally.					
8	My principal encourages professional growth.					

Serial number	Question content	1	2	3	4	5
9	My principal provides adequate planning time.					
10	My principal provides time for various nonteaching responsibilities.					
11	My principal provides extra assistance when I become overloaded.					
12	My principal equally distributes resources and unpopular chores.					
13	My principal offers constructive feedback after observing my teaching.					
14	My principal provides frequent feedback about my performance.					
15	My principal helps me evaluate my needs.					
16	My principal provides suggestions for me to improve instruction.					
17	I have extensive subject knowledge.					
18	I know vocational students very well.					
19	I have extensive teaching knowledge.					
20	I fully understand the function and value of higher vocational education.					
21	I can arrange the teaching design reasonably.					
22	I will actively carry out teaching reflection.					
23	I was able to successfully complete scientific research projects.					
24	I can reasonably evaluate students' learning results.					
25	I have clear goals for my professional development over the past five years.					
26	I have a strong sense of professional belonging.					
27	I can get a sense of accomplishment from my work.					
28	I can actively communicate with students and care about their situations.					
29	I'm passionate about what I do now.					
30	I prefer what I do now to anything else.					
31	The work I do now gives me tremendous personal satisfaction.					
32	I'm willing to make sacrifices to do the job I do.					
33	When I describe myself to others, I first think of what I do.					
34	Even if I encounter serious obstacles, I will continue to do my current job.					
35	I know that doing what I do now will be a part of my life.					
36	I feel like I was destined to do the job I do.					
37	The work I do now is always in the back of my mind in some form.					
38	Even when I'm not working at my current job, I					

Serial number	Question content	1	2	3	4	5
	think about work a lot.					
39	If I were not doing what I am doing now, my existence would not be as meaningful.					
40	For me, doing my current job is a deeply moving and satisfying experience.					
41	I believe I can achieve what I deserve in life.					
42	I've never felt depressed.					
43	As long as I work hard I usually succeed.					
44	I never felt like failure made me feel like I was worthless.					
45	I can complete the task successfully.					
46	I never felt like I had no control over my work.					
47	Overall, I'm satisfied with myself.					
48	I never doubted my ability.					
49	I can control my life.					
50	I feel very confident about being a good teacher.					
51	I can solve most of the problems I encounter.					
52	I never felt like everything was bleak or hopeless.					