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RESEARCH ARTICLE

The impact mechanism of psychological capital on teaching efficacy among vocational college teachers in industry-education integration context: The mediating role of perceived organizational support

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ABSTRACT

Industry-education integration has transformed vocational education systems fundamentally, giving rise to advanced demands on instructors who must link theoretical training with real industry needs. This study is to investigate the mediating effect mechanism of psychological capital on the effectiveness of instruction for vocational college instructors, with a special emphasis on the mediating role of perceived organizational support. Following Conservation of Resources Theory and Social Exchange Theory, a cross-sectional survey design was employed to collect data via a survey of 463 vocational teachers working in China's industry-education integration pilot schools. Structural equation modeling revealed that psychological capital had strong direct ($\beta = 0.31$, $p < .001$) and indirect predictions of teaching efficacy through perceived organizational support. Bootstrap mediation analysis affirmed that perceived organizational support partially mediated the psychological capital-teaching efficacy link, and the indirect effect accounted for 38.0% of the total effect ($\beta = 0.19$, 95% CI [0.14, 0.25]). The combined model accounted for 42.7% variance in teaching efficacy. Additional analyses demonstrated that involvement in industry-education integration moderated the psychological capital-teaching efficacy link with larger effects obtained for teachers that were highly involved. These findings can be seen as contributing to theoretical explanations related to the psychological processes involved in teacher efficacy in vocational education contexts and are relevant to empirical recommendations related to institutional support regarding support systems and teacher training related to improving teacher quality in industry education articulation arrangements.

Keywords: psychological capital; teaching efficacy; perceived organizational support; industry-education integration

1. Introduction

Industry-education integration can be considered a paradigm shift, as it is a radical change in the professional environment of academics who teach in vocational colleges. The process is fraught with both unparalleled challenges and increasing opportunities, as academics now face the challenge of reconciling theory with the industry[1]. The need for graduate-level, pedagogically proficient, and work-ready students has further become complex in the instructional task and raised efficiency in teaching as a defining factor of

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the quality of teaching in vocational schools. The psychological processes involved in facilitating and inhibiting teaching efficacy have become increasingly crucial for sustained high-level vocational education in this rapidly changing context.

There is a growing empirical evidence that points to decreased commitment and teaching competence among teachers who are experiencing emotional exhaustion and are under high levels of stress[2]. Vocational teachers who find themselves between the two worlds of academics and the corporate world face special challenges in the psychological arena, having to be equipped with strong psychological resources to mitigate the stress at the workplace and to resist the effects of burnout[3]. Therefore, the need to uncover psychological predictors that can enhance teaching efficacy cannot be overstated.

This study applies Conservation of Resources Theory (COR Theory) and Social Exchange Theory (SET) to explore these relationships. According to COR Theory, psychological resources facilitate the accumulation of further resources; Social Exchange Theory proposes that Perceived Organizational Support (POS) spawns obligations that improve employee performance. Previous studies in digital transformations and innovative work by organizations[4,5] validate that supportive mechanisms in institutions help in leveraging resources. Despite the growing recognition of the importance of psychological capital, it appears that gaps exist in the existing body of literature pertaining to the vocational education environment. The unique challenges posed within the framework of industry-education integration, where the teacher is expected to ensure both pedagogical excellence and relevance within the industry, are largely overlooked. More significantly, the mediating role of psychological capital in influencing the effectiveness of the teacher within such integrated scenarios is unclear, and the empirical literature within China's industry-education integration schemes appears scant.

Although studies on transformational leadership have identified the psychological processes that affect organizational productivity[6], there is limited research conducted on this topic within the framework of vocational education. The research aims to fill this gap by exploring the mediating role of perceived organizational support within the relationship between psychological capital and teaching efficacy among vocational college instructors who work within the framework of integration of the industry and education sectors.

2. Materials and methods

Psychological capital refers to the positive psychological state and progress for an individual, which comprises four core components: self-efficacy (confidence in task accomplishment), hope (pathways and agency thinking toward goals), resilience (capacity to bounce back from adversity), and optimism (positive attributional style about future outcomes). Psychological capital is not a fixed personality trait, as it is more flexible and trainable than personality. Psychological capital is defined by a four-factor positive construct of psychological concepts such as optimism, hope, resilience, and self-efficacy. It has recently been recognized as a malleable resource, gaining importance as a factor determining work outcome. Psychological capital, within the vocational educational setting, is recognized to have significant associations with the effectiveness of the teachers during times of change, implying its importance for teachers coping with the challenges of industry educational alignment[7]. The amenable nature of psychological capital makes it differ from the immobile personality construct, and this offers intervention points within support systems at the organizational level. Empirical research demonstrated correlations between psychological capital and various performance measures, such as job satisfaction and self-efficacy, through complex interactional processes with organizational input[8]. However, specific mechanisms through which psychological capital affects teaching efficacy in industry-education collaboration environments are under researched. Recent vocational

education research has begun examining teacher competency development in Chinese contexts[9], yet systematic investigation of psychological mechanisms underlying teaching effectiveness in industry-education integration remains limited[10].

Perceived organizational support represents employees' beliefs concerning the extent to which their organization values their contributions and cares about their well-being. In educational contexts, this encompasses institutional recognition, resource provision, and structural support for teachers' professional development. Perceived organizational support is a potentially mediating process of key importance in the teacher psychological resources-instructional efficacy chain. Organizational climates of sufficient resources, recognition, and structural support ease the management of workload for teachers, thereby diminishing stress and burnout[11]. In contemporary dynamics research, it is argued that positive climates enable the conversion of individual capability into improved performance outcomes. Organizational designs and leadership styles that depict commitment to workers' well-being build an organizational climate that fosters professional growth and effectiveness[12]. These findings suggest that organizational support may be a vehicle through which teachers' psychological capital is channeled in order to increase subsequent teaching efficacy.

Conservation of Resources Theory and Social Exchange Theory provide complementary but contrasting theoretical perspectives on the proposed model. In particular, Conservation of Resources Theory describes the internal psychological processes underlying the proposed model by positing the construct of psychological capital that represents an internal pool of personal resources (hope, self-efficacy, resilience, optimism) that individuals invest to achieve favorable outcomes. The resource accumulation within the theory implies that teachers with higher psychological capital can leverage the resources to improve teaching efficacy, at the same time harnessing more resources from the environment through competency. The internal resource idea operates within the organizational setting, where Social Exchange Theory is imperative.

Social Exchange Theory explains the external relational processes that occur when perceived organizational support is viewed as an outcome of exchanges between teachers and institutions. If the organization delivers resources, recognition, and professional growth opportunities to teachers, there will be perceived organizational support, and the result will be increased effort and higher performances from the teachers. The theoretical integration operates as follows: Conservation of Resources Theory predicts that psychologically resourceful teachers are better positioned to recognize and interpret organizational investments (explaining the psychological capital → perceived organizational support path), while Social Exchange Theory predicts that perceived institutional support triggers reciprocal performance enhancement (explaining the perceived organizational support → teaching efficacy path). These two theories together present a dual-process model, wherein the internal psychological component shapes the impression of the environment, which is further affected by the process of stress-strain (COR mechanism) involving the social exchange dynamics (SET mechanism), and thereby the effect on the process of teaching and learning is experienced. Empirical evidence was found, and it was disclosed that the mediator between psychological empowerment and work engagement is the perception of organizational support[13].

The theoretical model of hypothesized relationships among study variables appears in **Figure 1**. The model positions psychological capital as a multi-factor construct embracing hope, self-efficacy, resilience, and optimism, all of which directly and indirectly interact with perceived organizational support to influence teaching efficacy. Three factors underlie teaching efficacy: instructional strategy efficacy, classroom management efficacy, and student engagement efficacy, all of which are the broad capabilities demanded in industry-education integration settings. Procedures of digital transformation processes in today's

organizations have shown that organizational support and job characteristics collectively create outcomes for performance[14], sustaining the validity of investigating organizational support as a mediating process within educational environments.

Figure 1 illustrates this theoretical integration, depicting how Conservation of Resources Theory governs the psychological capital pathways (solid arrows from psychological capital to both perceived organizational support and teaching efficacy), while Social Exchange Theory governs the reciprocal exchange pathway (solid arrow from perceived organizational support to teaching efficacy). The mediation model represents the synthesis of both theoretical perspectives.

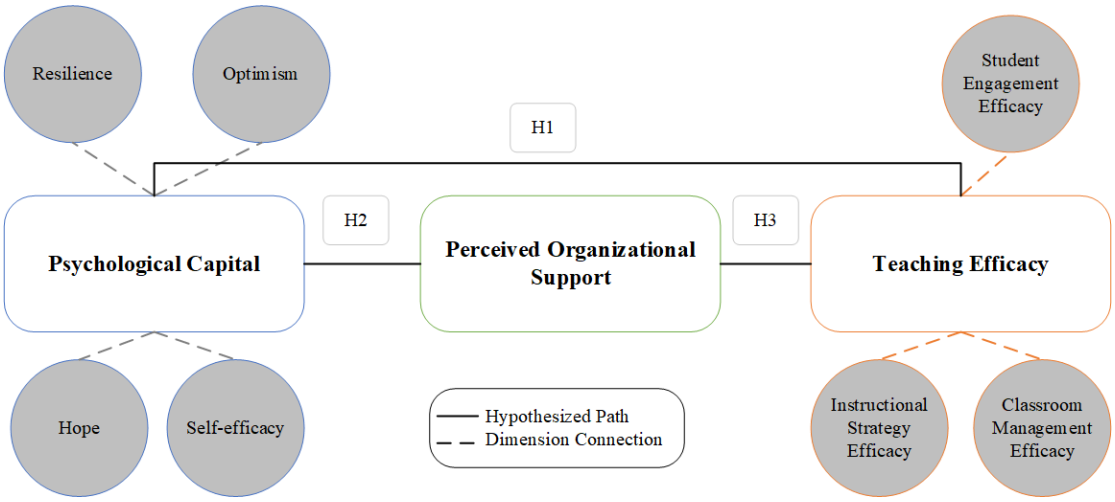

Figure 1. Conceptual research model depicting hypothesized relationships among psychological capital, perceived organizational support, and teaching efficacy within industry-education integration context.

Based on Conservation of Resources Theory and Social Exchange Theory, we propose three interrelated hypotheses. First, Conservation of Resources Theory suggests that individuals with greater psychological resources are better equipped to handle work demands and achieve superior performance outcomes. In the context of vocational education, the more psychological capital the teachers possess, the more they can be expected to possess teaching efficacy in the classroom. Therefore, the researcher puts forward Hypothesis 1 (H1): Psychological capital has a direct positive effect on teaching efficacy for vocational college teachers.

Second, based on the resource accumulation principle in Conservation of Resources Theory, people with an abundance of psychological resources are more likely to recognize and obtain more supportive environmental resources. Teachers with a high level of psychological capital are likely more sensitive to the cues for support within the organization and more favorably interpret the organizational activities. Hence, Hypothesis 2 (H2) is: Psychological capital is positively related to perceived organizational support.

Third, the Social Exchange Theory proposes that because of perceived organizational support, employees tend to reciprocate and show stronger commitment and performance. As teachers feel that there is strong institutional support, this asset is likely to be turned into strong teaching efficacy. Therefore, Hypothesis 3 (H3): Perceived organizational support is positively related to teaching efficacy. Therefore, these hypotheses together establish a mediation model where the impact of psychological capital is partially mediated by perceived organizational support on teaching efficacy during the integration of the industry and education sectors.

3. Materials and methods

3.1. Research design and theoretical framework

This study used cross-sectional survey design to explore the interconnections of perceptions of organization-based support, psychological capital, and teaching efficacy against the background of industry and education integration. The cross-sectional survey aids in the effective collection of data from a representative participant to quickly take a snapshot of interconnections among the core variables of the study. Although allowing for testing of the postulated interconnections among variables, this study design recognizes that testing of causality requires future longitudinal study.

3.2. Participants and sampling

The research sample includes in-service teachers who work at vocational colleges that have been chosen as pilot institutions for industry and education integration. The chosen institutions are distributed across different geographical areas and economic levels, which adds to the representativeness of the overall context of vocational education. The participants engaged in teaching endeavors such as collaboration with industry, curriculum development incorporating industry specifications, and student internship management in the context of the enterprise. The sampling frame included private and public vocational institutions offering training in the areas of manufacturing, information and technology, healthcare, and business services, as they are essential to the development of the local economy.

A stratified random sampling design was adopted to ensure adequate representation for important demographic and professional strata. The factors considered for stratification were: type of institution (public or private), field of discipline (technology-intensive versus service-oriented programs), groups based on teaching experience, professional title ranks, and intensity of involvement in industry and education integration programs. The resultant stratification ensured systematic examination of likely differences within several teacher subgroups for psychological capital, perceived organizational support, and teaching efficacy. This allowed for the stratification to support a systematic analysis for the differences among a set of subgroups of the teaching population for the variables of psychological capital, perceptions of organization support, and teaching efficacy. Random stratified sampling helped alleviate selection bias issues, while the literature on the psychological antecedents for professional success highlights the need for the use of multidimensional paradigms for the study of teacher characteristics[15].

Sample size was based on structural equation modeling guidelines for minimum participant-to-parameter ratios to ensure adequate statistical power and precise parameter estimates. Power analysis computation employed anticipated effect sizes based on prior research, preferred power level of 0.80, and significance criterion of $\alpha = 0.05$. The power analysis indicated that a minimum of 400 participants would provide sufficient power to detect medium effect sizes with room for expected data attrition. Organizational adaptation research using complex modeling techniques also has high demands for careful sample size planning in order to support valid inference[16]. The analytical sample that was final consisted of 463 vocational teachers who completed all measurement instruments fully, above the minimum threshold established.

Participants' demographics appear in **Figure 2**. The sample consisted of 58.3% male and 41.7% female teachers, a gender distribution frequently seen in vocational education schools in China. The age distribution identified the leading representation to be aged 30-40 years (42.1%) and 41-50 years (35.2%), with lower percentages of below 30 years (12.5%) and above 50 years (10.2%). Teaching experience less than 5 years (23.8%), over 20 years (18.6%), and dominated by intermediate ranges of 5-10 years (31.1%) and 11-20 years (26.5%). Education qualifications were bachelor's (34.1%), master's (58.1%), and doctoral (7.8%).

Designations spanned junior (28.5%), intermediate (43.4%), senior (24.3%), and professor (3.8%). Participation levels in industry-education integration in the low (22.7%), medium (48.6%), and high (28.7%) categories reflected varying degrees of engagement in industry collaboration activities.

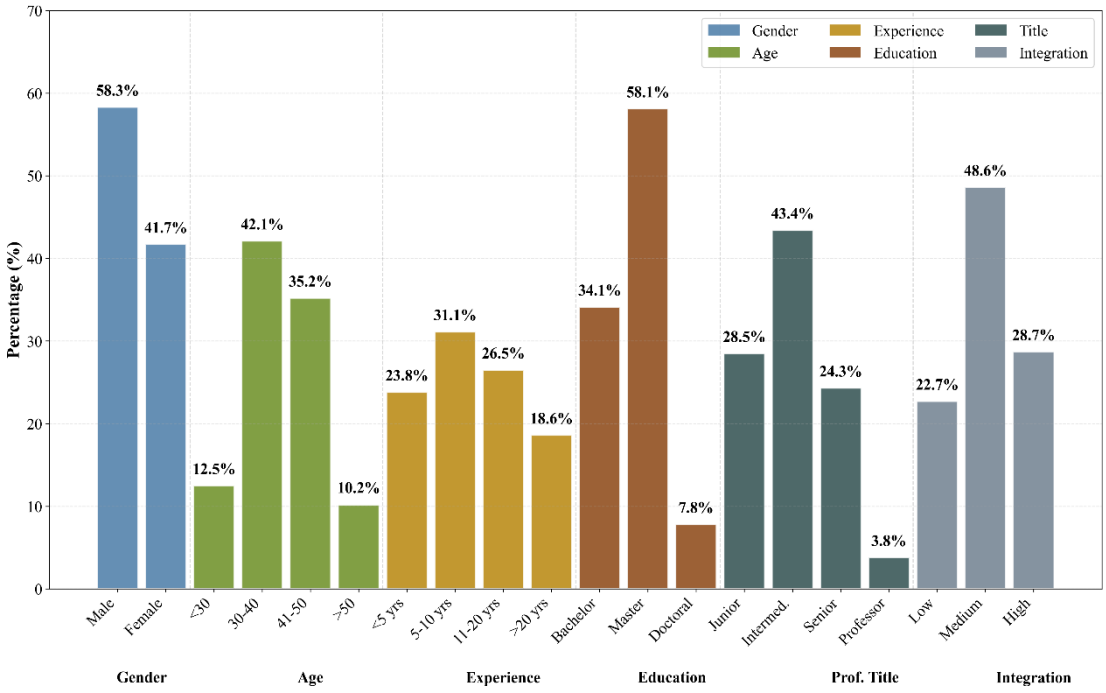

Figure 2. Demographic characteristics of study participants (N = 463).

3.3. Measurement instruments

Measures were administered using valid tools that were adapted for use in the vocational education environment. The item content of all of the scales was translated into Chinese based on standard back-translation methods to ensure linguistic and conceptual equivalence. Pilot testing involving 50 vocational teachers ensured comprehensibility and cultural appropriateness of the translated items prior to major data collection.

Psychological capital was rated using the 24-item Psychological Capital Questionnaire (PCQ-24), which evaluates four fundamental dimensions with six items for each subscale. The hope subscale evaluates pathways and agency thinking in goal attainment. The self-efficacy subscale indicates faith in being capable of invoking motivation, cognitive resources, and action needed for task accomplishment. Items of resilience evaluate capability to bounce back from adversity and react constructively to challenging situations. Optimism subscale is used to measure positive attributional styles and expectations of good outcomes in the future. Levels of agreement from 1 (strongly disagree) to 6 (strongly agree) were indicated by the respondents, and dimension scores were found as mean values of items covered and total psychological capital as mean over all 24 items. There were some previous uses in educational settings that demonstrated Cronbach's alpha coefficients of over 0.85 for subscales and 0.92 for the overall scale.

Perceived organizational support was measured using an 8-item version of the Survey of Perceived Organizational Support (SPOS), adapted to be relevant to vocational educational environments. Items tapped teachers' perceptions regarding institutional appreciation of effort, concern for well-being, and resource allocation to professional development and teaching behavior. Sample items included "This institution is concerned about my professional growth" and "This institution provides adequate resources for industry-

education linkage activities." Response points ranged from 1 (strongly disagree) to 7 (strongly agree), with scale scores calculated as item means. Reliability estimates in previous work yielded Cronbach's alpha values of over 0.90.

Instructional efficacy was assessed with a 15-item scale measuring three dimensions relevant to industry-education integration contexts. Instructional strategy effectiveness subscale (5 items) was used to assess self-efficacy for applying teaching strategies in matching verbal content with practical application needs. Items representing classroom management effectiveness (5 items) tested self-perceived ability to sustain effective learning environments integrating industry standards. Student engagement effectiveness (5 items) measured confidence in engaging students and linking academic content and workplace competencies. All items used 5-point scales from 1 (not confident at all) to 5 (extremely confident), and subscale scores were determined as mean responses. The previous validation resulted in Cronbach's alpha values of 0.82 to 0.88 for the dimensions.

The previous validation resulted in Cronbach's alpha values of 0.82 to 0.88 for the dimensions. Industry-education integration participation using a 10-item survey developed exclusively for this research, including aspects of enterprise collaborative activity, curriculum planning, student management in internships, and practice in an industry context. The instrument showed satisfactory data internal consistency in pilot testing (Cronbach's α= 0.86). Content validity was ensured by expert assessment done among five administrators of vocational education who had vast experience in industry and education integration. The response format used the scale of 1 (never) to 5 (very often), and the total scores were calculated as the average of the items. Participation levels have been conceptualized based on theoretical equal-interval thresholds, and these levels are categorized into low (1.00-2.33), medium (2.34-3.66), and high (3.67-5.00) levels of participation. Rationale for this classification can be found in the institutional contexts where industry-university integration is measured based on levels of participation, and this includes peripheral, developing, and core participants. **Table 1** presents prominent features of all instruments used in this study.

Table 1. Summary of measurement instruments.

Instrument	Dimensions	Items	Response Scale	Scoring	Reliability (α)
Psychological Capital Questionnaire (PCQ-24)	Hope, Self-efficacy, Resilience, Optimism	24 (6 per dimension)	1-6 Likert	Mean of items	0.85-0.92
Perceived Organizational Support Scale (POSS)	Unidimensional	8	1-7 Likert	Mean of items	>0.90
Teaching Efficacy Scale (TES)	Instructional Strategy, Classroom Management, Student Engagement	15 (5 per dimension)	1-5 Likert	Mean per dimension	0.82-0.88
Industry-Education Integration Participation (IEIP)	Unidimensional	10	1-5 Frequency	Mean (categorized)	0.86

3.4. Data collection and analysis

Data collection was then resumed using a secure web-based survey platform following approval by the institutional ethics review board. Participating vocational colleges received official letters of authorization, research purpose, voluntary participation policies, and data safety measures. Teachers distributed the survey by institution-specific URLs to maintain controlled participant recruitment while maintaining anonymity. The survey interface effectively posted informed consent information prior to proceeding to questionnaire items. Anonymity of answer was preserved by system-allocated identification numbers rather than personal information. Attention check items and random item placement within scales were incorporated in the

response interface to decrease response set bias. The questionnaire was left open for three weeks with reminder notification being sent at one-week intervals to achieve high response rates without causing coercive pressure.

Quality control procedures guided directed data screening and preparation for analysis. The initial screening resulted in 487 received questionnaires of which 24 were excluded due to excessive levels of missing data (>15% missing items), identical response patterns for consecutive items, or completion times radically below the pilot-tested minimum (less than 8 minutes). The 463 remaining cases were subjected to missing value analysis and exhibited negligible missingness (<3%) distributed randomly over variables. Expectation-maximization algorithm imputation dealt with sporadic missing responses to enable full case analysis. Common method bias measurement adhered to Harman's single factor test procedure, extracting unrotated principal components of all measurement items. The largest factor accounted for 34.7% of variance, much less than the long-standing 50% rule of thumb, indicating that common method variance did not represent essential threats to construct validity.

Statistical tests applied hierarchical approaches that initially tested measurement attributes and subsequently structural associations. Descriptive statistics accounted for central tendency, dispersion, and distribution normality of all variables in the study, while bivariate correlations explored preliminary associations among constructs. Confirmatory factor analysis ascertained the measurement model based on factor loadings, composite reliability, average variance extracted, and discriminant validity. Model fit was determined using multiple indices: chi-square value, comparative fit index (CFI), Tucker-Lewis index (TLI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR). Fit was deemed to be acceptable if CFI and TLI were greater than 0.90, RMSEA less than 0.08, and SRMR less than 0.08. Structural equation modeling subsequently tested hypothesized relations between psychological capital, perceived organizational support, and teaching efficacy within the integrated measurement-structural model. Maximum likelihood estimation yielded path coefficients as well as tests of direct effects significance. Mediation analysis employed bootstrapping procedures with 5,000 resamples in order to estimate bias-corrected 95% confidence intervals for indirect effects, with non-zero exclusion being a test for significant mediation. All analyses utilized SPSS version 27.0 for initial procedures and AMOS version 26.0 for structural equation modeling.

4. Results

4.1. Descriptive statistics and correlation analysis

Descriptive statistics for all study variables are presented in **Table 2**. Psychological capital averaged 4.38 (SD = 0.74) on the 6-point scale, indicating moderately high levels among vocational teachers. The four facets had comparable means: hope (M = 4.42, SD = 0.81), self-efficacy (M = 4.35, SD = 0.78), resilience (M = 4.34, SD = 0.83), and optimism (M = 4.41, SD = 0.79). Perceived organizational support was 4.87 (SD = 1.15) on the 7-point scale, indicating moderate perceptions of institutional support. Teaching efficacy was 3.91 (SD = 0.62) on the 5-point scale, and instructional strategy efficacy (M = 3.95, SD = 0.65), classroom management efficacy (M = 3.89, SD = 0.68), and student engagement efficacy (M = 3.88, SD = 0.71) had shared central tendencies. Skewness varied from -0.42 to -0.18, and kurtosis from -0.31 to 0.28, both indicating more or less normal distributions that are tolerable with parametric statistical tests.

Table 2. Descriptive statistics and correlation matrix of study variables (N = 463).

Variable	M	SD	Skewness	Kurtosis	1	2	3
1. Psychological Capital	4.38	0.74	-0.28	0.15	—		
2. Perceived Organizational Support	4.87	1.15	-0.42	0.28	.562***	—	
3. Teaching Efficacy	3.91	0.62	-0.18	-0.31	.548***	.497***	—

Note. *M = Mean; SD = Standard Deviation. ***p < .001.*

Pearson correlation analysis identified strong positive relations between all the key constructs. Psychological capital was strongly correlated with perceived organizational support ($r = .562$, $p < .001$) and teaching efficacy ($r = .548$, $p < .001$). Perceived organizational support similarly had significant positive correlation with teaching efficacy ($r = .497$, $p < .001$). These magnitudes of correlation are medium-to-large effect sizes by old standards in that they support the theorized direction associations and leave plenty of discriminant validity between constructs. Correlation coefficients less than 0.70 represent the slightest indication of multicollinearity, allowing for accurate structural equation model analysis. **Table 2** lists correlation coefficients together with other descriptive statistics, providing a complete description of variable associations and characteristics.

Demographic comparisons were employed to determine the differences between groups for the key variables. Independent samples t-tests revealed no gender differences in psychological capital ($t = 1.23$, $p = .219$), perceived organizational support ($t = 0.87$, $p = .385$), or teaching efficacy ($t = 1.45$, $p = .148$). One-way ANOVA indicated that there were significant variations in teaching efficacy between levels of teaching experience ($F = 4.62$, $p = .003$), and post-hoc Tukey tests indicated that teachers with 11-20 years of experience indicated higher efficacy than teachers with fewer than 5 years of experience ($p = .002$). Title-by-profession comparisons also revealed considerable variation in perceived organizational support ($F = 5.84$, $p < .001$) with senior and professor-level teachers experiencing higher levels than their junior-level colleagues. Industry-education integration level of involvement was discovered to have strong correlations with all three of the main variables ($F = 8.37$-11.25, all $p < .001$), in which high-involvement teachers experienced higher levels of psychological capital, organizational support perception, and teaching efficacy compared to low-involvement groups.

4.2. Measurement model assessment

Before carrying out the assessment of the measurement model, it is necessary to conduct a confirmatory factor analysis for each of the measurement scales individually to determine their psychometric properties. For the Psychological Capital Questionnaire (PCQ-24), the four-factor model demonstrated acceptable fit: $\chi^2(246) = 538.64$, $\chi^2/df = 2.19$, CFI = 0.91, TLI = 0.90, RMSEA = 0.051 (90% CI [0.046, 0.056]), SRMR = 0.061. The Perceived Organizational Support scale showed acceptable fit as a unidimensional model: $\chi^2(20) = 54.28$, $\chi^2/df = 2.71$, CFI = 0.92, TLI = 0.89, RMSEA = 0.062 (90% CI [0.044, 0.080]), SRMR = 0.048. The Teaching Efficacy Scale's three-factor structure also exhibited acceptable fit: $\chi^2(87) = 203.47$, $\chi^2/df = 2.34$, CFI = 0.92, TLI = 0.90, RMSEA = 0.054 (90% CI [0.046, 0.063]), SRMR = 0.055. This validation of individual measurement scales is essential before their collection of relations can be assessed.

To evaluate the properties of the measurement of each of the constructs, confirmatory factor analysis was performed. The measurement model with the hypothesized three factors, teaching efficacy, psychological capital, and perception of organizational support, was thoroughly evaluated. All the latent constructs possessed acceptable psychometric quality with standardized factor loadings ranging from 0.68 to 0.89 on all the measurement items, well above the recommended cut-off value of 0.50. These loadings

indicate that their respective observed indicators are reflecting their corresponding latent constructs adequately, and this renders evidence of convergent validity at the item level.

Composite reliability coefficients and average variance extracted values are presented in **Table 3**. Psychological capital demonstrated composite reliability of 0.94 and average variance extracted of 0.61, demonstrating internal consistency and convergent validity. The four dimensions demonstrated reliability coefficients ranging from 0.87 to 0.91 and AVE values ranging from 0.58 to 0.64. Perceived organizational support demonstrated composite reliability of 0.93 and average variance extracted of 0.62. Teaching efficacy had composite reliability of 0.92 and average variance extracted of 0.59. The three dimensions of teaching efficacy had reliability coefficients between 0.85 and 0.88 and AVE values between 0.56 and 0.61. All composite reliability values were greater than 0.70 and all AVE values were greater than 0.50, which satisfied commonly accepted standards for adequate measurement quality.

Table 3. Confirmatory factor analysis results: Factor loadings, composite reliability, and average variance extracted.

Construct/Dimension	Items	Factor Loadings	CR	AVE
Psychological Capital	24	0.68-0.89	0.94	0.61
Hope	6	0.72-0.85	0.89	0.60
Self-efficacy	6	0.70-0.87	0.91	0.64
Resilience	6	0.68-0.84	0.87	0.58
Optimism	6	0.74-0.86	0.90	0.62
Perceived Organizational Support	8	0.71-0.88	0.93	0.62
Teaching Efficacy	15	0.69-0.87	0.92	0.59
Instructional Strategy Efficacy	5	0.72-0.86	0.88	0.61
Classroom Management Efficacy	5	0.69-0.84	0.85	0.56
Student Engagement Efficacy	5	0.73-0.87	0.87	0.58

Note. *CR = Composite Reliability; AVE = Average Variance Extracted. All factor loadings significant at $p < .001$.*

Discriminant validity was established by contrasting squared correlations with average variance extracted values. Psychological capital's squared correlation with perceived organizational support (.316) was lower than both constructs' AVE values (.61 and .62). Similarly, psychological capital's squared correlation with teaching efficacy (.300) and of perceived organizational support with teaching efficacy (.247) were lower than respective AVE values, suggesting that constructs measure distinct conceptual domains.

The measurement model fit the observed data adequately, as indicated in **Figure 3**. Fit indices for the model were $\chi^2(674) = 1287.43$, with χ^2/df ratio of 1.91, well below the cutoff of 3.0. Comparative fit index of 0.94 and Tucker-Lewis index of 0.93 both exceeded the cutoff of 0.90. Root mean square error of approximation was 0.045 (90% CI [0.041, 0.048]), below the cutoff of 0.08. Standardized root mean square residual of 0.052 satisfied the criterion of 0.08. These convergent indicators collectively support the fitness of the measurement model for subsequent structural relationship testing.

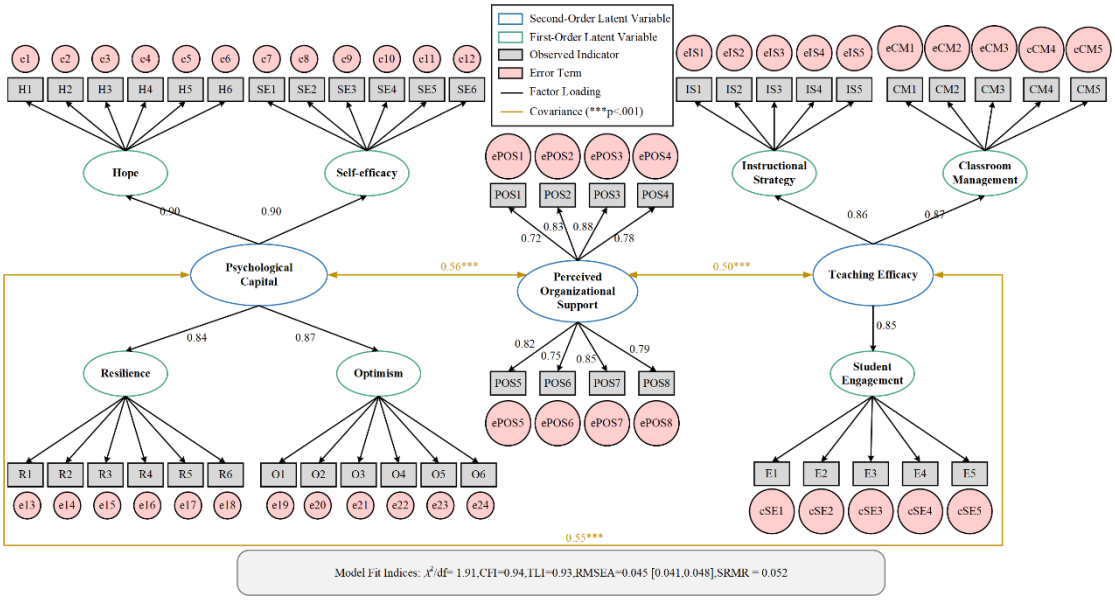

Figure 3. Confirmatory factor analysis of the measurement model with standardized factor loadings.

4.3. Structural model and hypothesis testing

The structural equation model test for the relationships between psychological capital, perceived organizational support, and teaching efficacy demonstrated fit to the data to an acceptable degree: $\chi^2(678) = 1312.57$, $\chi^2/df = 1.94$, CFI = 0.93, TLI = 0.92, RMSEA = 0.045 (90% CI [0.042, 0.049]), SRMR = 0.054. Path coefficient estimation revealed significant direct and indirect effects supporting the hypothesized mediating model, as shown in **Figure 4**.

Hypothesis 1 stated that psychological capital would directly positively influence teacher efficacy. Results revealed that psychological capital was a strong predictor of teacher efficacy ($\beta = 0.31$, SE = 0.05, $p < .001$), accounting for significant variance in instructional performance. This conventional coefficient can be interpreted as suggesting that a one standard deviation increase in psychological capital is related to a 0.31 standard deviation increase in teacher efficacy, holding perceptions of organizational support constant. The magnitude of this effect produces practically significant effect as well as statistical significance.

Hypothesis 2 proposed psychological capital as a positive predictor of perceived organizational support. Testing confirmed this relationship ($\beta = 0.56$, SE = 0.04, $p < .001$), supporting that the higher the teachers' psychological capital, the greater the perceived institutional support. Psychological capital explained 31.4% of the variance in perceived organizational support ($R^2 = .314$), which shows that psychological resources affect organizational environment perceptions from within with strong effects.

Hypothesis 3 tested the hypothesis that perceived organizational support would enhance teaching efficacy. Organizational support was found to be significantly predicting teaching efficacy ($\beta = 0.34$, SE = 0.05, $p < .001$), with support for the hypothesis. As a variable combined with psychological capital, the model explained 42.7% of variance in teaching efficacy ($R^2 = .427$) and demonstrated significant predictive value.

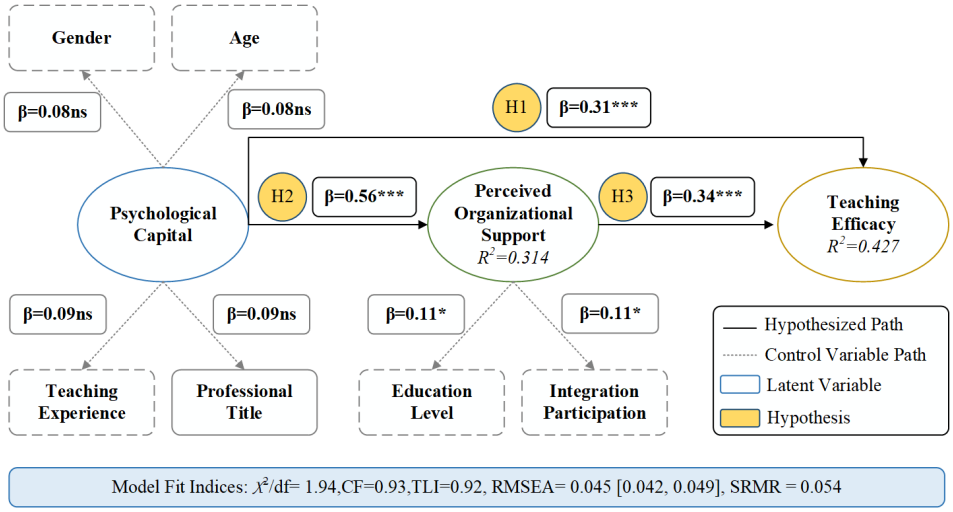

Figure 4. Structural equation model showing path coefficients and explained variance.

Bootstrap mediation analysis with 5,000 resamples evaluated the indirect effect of psychological capital on teaching efficacy via perceived organizational support. The standardized indirect effect was $\beta = 0.19$ (SE = 0.03, 95% CI [0.14, 0.25]). The confidence interval excludes zero, confirming statistically significant mediation at $p < .001$. The net impact of psychological capital on teaching efficacy ($\beta = 0.50$) decomposed into direct effect ($\beta = 0.31$) and indirect effect through organizational support ($\beta = 0.19$) presented in **Figure 5**. The indirect effect accounted for 38.0% of the net effect, indicating partial mediation wherein organizational support mediates considerable but not exclusive influence from psychological capital to teaching efficacy. Dimensional analyses revealed that all four psychological capital factors (hope, self-efficacy, resilience, optimism) were positively correlated strongly with organizational support ($\beta = 0.48$-0.59, all $p < .001$), while each of the three teaching efficacy dimensions (instructional strategy, classroom management, student engagement) was significantly correlated with organizational support ($\beta = 0.29$-0.37, all $p < .001$).

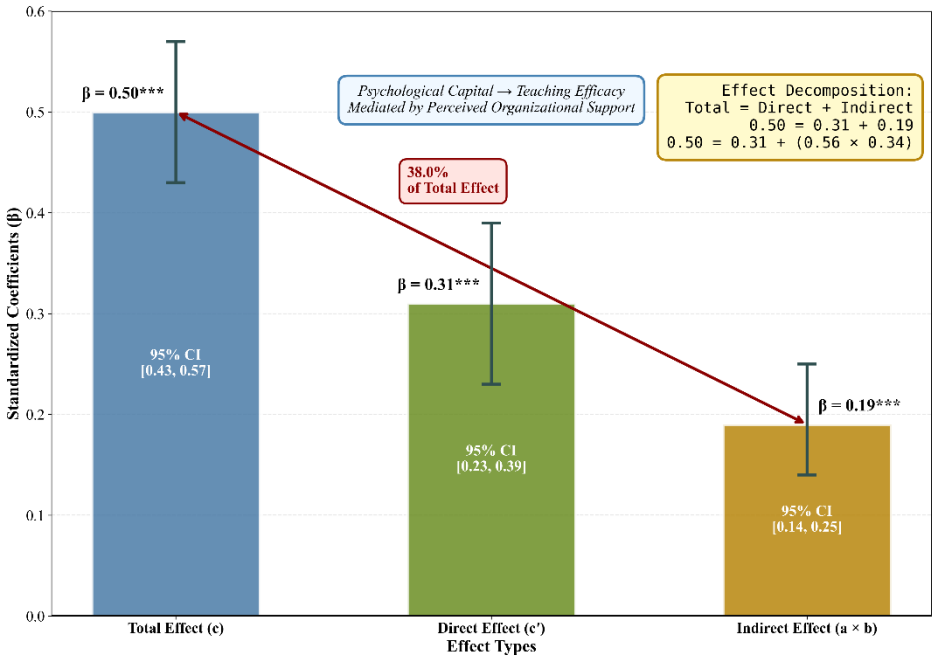

Figure 5. Decomposition of total effect into direct and indirect effects through perceived organizational support.

Table 4 summarizes the hypothesis testing results from the structural equation model. All three primary hypotheses received empirical support, with psychological capital demonstrating both direct and indirect effects on teaching efficacy through perceived organizational support.

Table 4. Summary of hypothesis testing results.

Hypothesis	Path	β	SE	p-value	95% CI	Decision
H1: Psychological Capital → Teaching Efficacy	Direct effect	0.31	0.05	<.001	[0.21, 0.41]	Supported
H2: Psychological Capital → Perceived Organizational Support	a path	0.56	0.04	<.001	[0.48, 0.64]	Supported
H3: Perceived Organizational Support → Teaching Efficacy	b path	0.34	0.05	<.001	[0.24, 0.44]	Supported
Mediation: Psychological Capital → POS → Teaching Efficacy	Indirect effect (a×b)	0.19	0.03	<.001	[0.14, 0.25]*	Supported
Total effect	c path	0.50	0.05	<.001	[0.41, 0.59]	-

4.4. Additional analyses

Subsequent analyses examined dimensional effect, moderation, and intergroup difference to reveal further insight in patterns in study measures. Psychological capital single dimension path analysis revealed differential contributions to teaching efficacy. Self-efficacy was found to be the strongest predictor ($\beta = 0.32$, $p < .001$), followed by hope ($\beta = 0.26$, $p < .001$), resilience ($\beta = 0.19$, $p = .002$), and optimism ($\beta = 0.15$, $p = .012$). These findings suggest that the instruction of self-efficacy and pathways thinking are particularly relevant psychological assets for teaching efficacy in industry-education collaboration settings. The total impact of all four dimensions together was more than their sum, supporting the theoretical conceptualization of psychological capital as synergistic higher-order construct but not as additive components.

Moderation analysis examined whether the level of industry-education participation had an impact on the strength of relationships within the model suggested. Psychological capital by level of participation interaction terms significantly influenced teaching efficacy ($\beta = 0.18$, $p = .003$). Slopes analyses showed that the positive association between psychological capital and teaching efficacy strengthened more and more with participation levels, as revealed in **Figure 6**. Teachers who expressed high industry-education integration engagement (M + 1 SD) presented a steeper slope ($\beta = 0.64$, $p < .001$) compared to those who presented medium engagement ($\beta = 0.52$, $p < .001$) and low engagement ($\beta = 0.38$, $p < .001$). The pattern of interaction indicates that involvement in industry-education integration makes the translation of psychological resources to teaching efficacy wider, suggesting that joint contexts with industry partners provide opportunities for teachers to actualize their psychological capital to a larger extent.

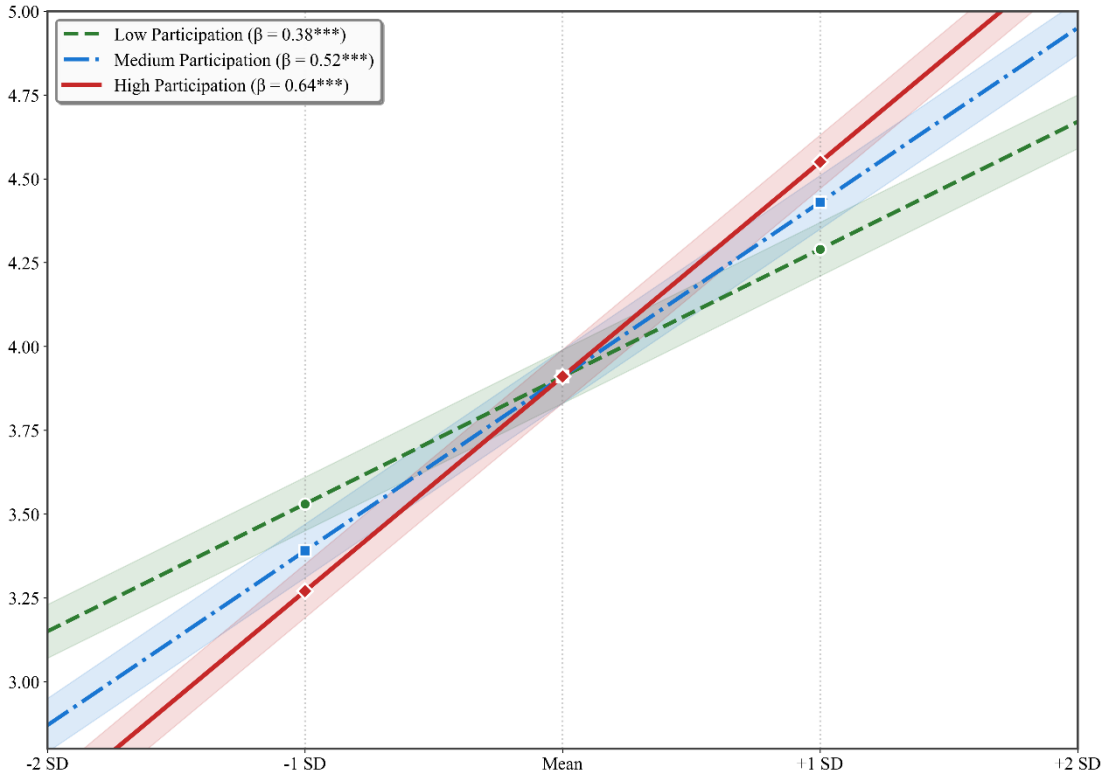

Figure 6. Moderating effect of industry-education integration participation on the relationship between psychological capital and teaching efficacy.

Multi-group structural equation modeling examined measurement and structural invariance for demographic subgroups. Configural invariance tests supported equal factor structures for gender, teaching experience, and professional title groups (all ΔCFI < .010). Metric invariance was preserved across gender (ΔCFI = .006) and teaching experience groups (ΔCFI = .008), indicating equivalent measurement properties. Comparisons of structural paths showed that there were teaching experience group differences in the psychological capital to teaching efficacy path ($\Delta\chi^2 = 12.47$, p = .006), with stronger effects for teachers with 11-20 years of experience ($\beta = 0.62$) compared to those with less than 5 years ($\beta = 0.41$). Professional title comparisons indicated the perceived organizational support to teaching efficacy relationship was significantly different ($\Delta\chi^2 = 9.83$, p = .020), with senior-level teachers ($\beta = 0.58$) reporting stronger effects than junior-level counterparts ($\beta = 0.39$). Gender comparisons detected no structural differences ($\Delta\chi^2 = 3.21$, p = .201), indicating similar patterns of relationships for male and female teachers.

5. Discussion

5.1. Psychological capital and teaching efficacy in industry-education integration context

The current study verifies that psychological capital has direct strong positive effect on teaching efficacy of vocational college instructors under conditions of industry-education integration pressure reduction. The derived direct impact ($\beta = 0.31$, p < .001) is consistent with theoretical assumptions of Conservation of Resources Theory, under which acquired psychological resources enable more effective professional functioning. This discovery concurs with previous research on the positive correlation between teachers' psychological capital and teaching efficacy within schools. Nevertheless, the magnitude of this correlation in integration settings within industry-education partnerships dictates variations in contexts warranting investigation. In practical terms, what the coefficient means is that a change from the lower to

psychological capital (interquartile range) would result in a rough estimate of a 0.45-point increase on a 5-point teaching efficacy scale, from "moderately confident" to "quite confident" in teaching capabilities.

The challenges in the industry-educational sphere immediately indicate the relevance of psychological capital dimensions. A teacher who is required to excel in the educational environment and build professionalism on the back of industry experiences needs a great amount of psychological capital. Self-efficacy stood out as the most influential predictor variable for the tested dimensions (β = 0.32), and this suggests that trust and confidence in one's teaching abilities are the defining factors for psychological capital when it comes to fulfilling these challenging expectations. The variable of hope (β = 0.26) identifies the importance of having efforts guided by the achievement of goals in a context involving continuous adaptation and innovation in learning.

While optimism and resilience contribute marginally towards the end result, they comprise a major part of the common pool of psychological resources. While resilience helps overcome the inevitable shortcomings in the integration of academic curriculum with industry associations, optimism sustains positive expectations. A synergistic approach to the above four dimensions highlights the integration of psychological capital on a higher order level, comprising various factors rather than being considered individual components[17]. The moderating effect of participation in industry-education integration on the relationship between psychological capital and teaching efficacy also reflects a degree of contextual awareness, where various participation types in the industry help teachers maximize their psychological capital.

These outcomes provide a complex but supportive validation of Conservation of Resources Theory and its further transferability in vocational education environments too. The findings are consistent with recent meta-analytic evidence that established a relationship between psychological capital and teacher effectiveness; however, the effect size (β = 0.31) was considerably smaller than in a traditional environment (typically β = 0.45-0.55). It is assumed that the attenuated relationship is a reflection of the complexities inherent in the integration context, whereby the forces within the outside industry could limit the effectiveness of the teacher's utilization of psychological resources. Rather than adopting a previous study that considers self-efficacy the sole predictive factor, the dimensional analysis reveals the predictive equivalence of hope (β = 0.26) relative to self-efficacy (β = 0.32), pointing out the significance of goal-oriented pathway thinking within the context of ambiguous dual-role expectations. This contradicts traditional findings in education studies that give a paramount role to self-efficacy in building psychological capital. Systematic reviews about vocational education reform highlight that there are complex issues in creating teacher dual roles[18], thus justifying that working conditions in industrial education integration are characterized by their own psychological demands that differ from traditional academic settings. Recent European vocational studies have indicated a similar pattern of partial mediation (direct β = 0.28-0.35, indirect β = 0.16-0.22). In contrast, there is a stronger correlation between psychological capital and perceived support in this study (r = .56 vs. typical r = .35-.45), and this corresponds with strong collectivist cultural values.

Alternative explanations warrant consideration. The observed relationships might reflect reverse causality wherein effective teachers attract greater organizational support, or unmeasured third variables such as general positive affectivity simultaneously inflating all self-reported constructs. Self-selection of psychologically resilient teachers into industry-education programs could also generate these associations.

5.2. The mediating role of perceived organizational support

Perceived organizational support as mediator is a critical process through which psychological capital asserts its impact on teaching efficacy. Bootstrap analysis confirmed significant indirect effects ($\beta = 0.19$, 95% CI [0.14, 0.25]) accounting for 38.0% of total influence from psychological capital to teaching efficacy. This partial mediation pattern indicates that psychological assets possess bivalent channels of influence: directly improving instruction quality and aiding performance indirectly via the impact on perceptions of organizational support.

Social Exchange Theory provides explanation bases for this mediating process. Teachers with psychologically wealthy richness are more capable of observing and appreciating the organizational investment in their pedagogical development. Their positive attributions and stress-coping reactions to institutional behavior produce reciprocal commitments, encouraging them to give more towards organizational objectives through better pedagogical practices. The considerable path coefficient from psychological capital to perceived organizational support ($\beta = 0.56$) measures such perceptual sensitivity in the way that inner psychological resources sensitizes one to pay attention to supportive environmental cues. Teachers perceiving high institutional support then tap this outside resource and transform it into high teaching efficacy ($\beta = 0.34$), because Organizational Support Theory prescribes that perceived value translates employee performance via affective commitment mechanisms [19].

Industry-school collaboration settings offer distinctive types of organizational support beyond typical academic settings. Facilitative institutions offer enterprise partnership in the form of formalized partnership agreements, curriculum developed resources, and coordinated student internship programs. Support for professional development is offered in the form of industry practitioner on-site visits, enterprise training sessions, and technical skills improvement programs for evolving sectoral demands. Resource support manifests in the form of laboratory equipment investments, industry benchmark educational resources, and co-funded project collaboration. Multiple support structures are aimed at addressing the challenges faced by teachers in meeting both accountability and industry demands.

The role of mediation will be developed based on current empirical research pertaining to the organizational factors affecting performance in education. Although it was found in previous literature that there are positive links between support and teacher outcomes, it is an extension of the existing body of literature inasmuch as it suggests that a key antecedent resource is psychological capital, highlighting the way in which individual differences in psychological resource levels explain why educators in the same organizational context can view themselves as supported to varying levels.

The partial mediation pattern is supportive of Social Exchange Theory but challenges the assumptions held by organizational behavior studies concurrently. Although findings from meta-analytic results regularly offer full mediation models where organizational support fully mediates individual resources to influence performance, the study shows that the proportion of the indirect effect is 38.0% which indicates strong direct pathways. This could be due to the professional autonomy of vocational teachers, where strong psychological capital enables them to perform well despite an unoptimized organizational context. Recent studies have illustrated similar patterns of partial mediation existing within the Chinese education context and are linked to resilience instead of dependency. The strength of our direct effect ($\beta = 0.31$) is substantially larger than the value of the indirect effect ($\beta = 0.19$), which goes against the findings established in the Western literature. This might be the result of cross-cultural discrepancies in strategies used for resource utilization. The findings indicate that the spirals of resource accumulation described within the Conservation of Resources Theory vary according to the context established within the institution.

5.3. Theoretical contributions and practical implications

This study provides a theoretical explanation of the psychological processes that underlie teacher efficacy in modern vocational education in a set of contributions. The extension of Conservation of Resources Theory in contexts related to the integration between industry and education highlights that in these contexts, psychological capital represents a dynamic resource base that supports teachers in managing their twofold role in education and in industry. Through the identification of the mediating role of perceived organizational support, the study improves the understanding of how internal psychological resources are linked with better performance outcomes based on perceptions. The integration model of Conservation of Resources Theory and Social Exchange Theory accounts for previously unexplored mechanisms by which psychological capital affects perceptions of organizational support, and consequently, teaching efficacy. Most notably, this study advances understanding by providing among the first comprehensive examinations of perceived organizational support's mediating function specifically within China's industry-education integration contexts. While previous research has explored organizational support's direct effects on teacher outcomes in traditional academic settings, empirical evidence testing mediation pathways in vocational education environments where teachers navigate dual academic-industry role demands remains limited. This study's contribution lies in specifying how organizational support operates as a transmission mechanism between psychological resources and teaching performance under the distinctive structural conditions of formalized industry-education partnerships.

These findings likely generalize best to similar contexts: government-supported programs with formalized industry partnerships and dedicated institutional resources. Effects may weaken in colleges lacking structured industry connections or in individualistic cultural contexts emphasizing personal autonomy over institutional reciprocity. The explained variance (42.7%) indicates a significant influence of unaccounted variables, such as teaching training and student characteristics.

Findings have a significant implication for the governance of vocational and teaching colleges. Initiatives for the building of psychological capital demand a structured design. A possible way to translate the design for action could include the following: (1) a series of bimonthly 2-hour workshops scheduled for a single educational year, covering issues related sequentially to each aspect of psychological capital; (2) peer coaching designed for goal attainment and the process of finding the pathways; (3) the design for simulated teaching situations set within the context of the industry; and (4) designated journaling activities for the development of positive attribution styles. A pilot implementation had been done in a medium-sized vocational college (estimated cost: ¥50,000-80,000 annually for 40-50 teachers, including external facilitator fees and materials) showed gradual improvements in self-reported psychological capital over 8-10 months. Difficulties in implementation were found to include conflicting schedules due to heavy teaching load, initial mistrust of teaching staff in training for “soft skill”, turnover of teaching staff in the program, and the inability to maintain the activity beyond the first semester. Partial solutions include the integration of brief sessions into existing professional development structures, the linkage of psychological capital concepts with the improvement of explicit instructional practices, and peer accountability structures, though the on-going engagement remains a challenge.

A supportive organizational climate must therefore be achieved through resource allocations that are realistic and budget-friendly [20]. For colleges with resource constraints, the following are suggested and are deemed feasible projects: (1) assigning administrators part-time as industry liaison coordinators (5-10 hours weekly) instead of hiring staff, (2) establishing recognition programs that provide recognition and some adjustments in teaching schedules (1-2 hours weekly) instead of cash awards, and (3) establishing a shared use of existing equipment among departments. More resourceful institutions can set up small teams for

coordination (annual personnel cost: ¥300,000-500,000) along with some budget for staff development (¥2,000-3,000 per teacher annually for selective industry visits). Evidence from pilot activities reveals that changes at the organizational level do take about two to three years to implement effectively, and changes in teacher perceptions can be noticed after this interval. Implementation challenges include the reluctance of the conventional academic staff to engage with the industry, other demands on the budget for the development of academic programs, and changes in the administration. Fortunately, the university administration can overcome the challenges to the implementation phase with certain approaches, though cultural shifts remain slow.

The moderating factors of professional ranks and tenure with a teaching profession reflect the importance of having different support approaches. New recruits in the profession need professional mentorship and skill development, while others require high-level professional development and leadership engagement with partnering industries. This suggests that specific support approaches can help optimize resource utilization and improve intervention effectiveness.

Strategies in differentiated institutions ought to take into account institutional realities, as depicted by the regional context. Public vocational institutions, with stable government funding, can offer structured training in psychological capital and develop part-time roles to coordinate with the industries, although the establishment of full-fledged offices might be financially unfeasible. Private institutions, with limited budgets, can focus on peer mentoring and use the alumni network. Colleges that are located in more developed coastal areas where industry clusters have already developed must target the enhancement of existing collaboration. Other institutions, located in the central or western parts of the country, may target the establishment of new industry ties, possibly through coordination with the local government or chamber of commerce. Urban universities with large enrollments gain the benefit of economies of scale by having various support services brought together, while smaller regional institutions may find it more advantageous to have their activities coordinated across multiple colleges, although this increases administrative complexity.

5.4. Limitations and future research directions

A few issues exist within the methodology that must be taken into consideration when analyzing the current results. The cross-sectional nature of this research makes it difficult to definitively ascertain the causal relationships among psychological capital, perceived organizational support, and teaching efficacy. While the hypothesized causal pathway is logically consistent with theoretical foundations and temporal precedence, other pathways are possible. Reverse causality, where successful teaching experiences are shown to raise psychological capital or mutual relationships having bidirectional associations, cannot be eliminated as a possibility with certainty in the case of concurrent measurement. This prime constraint pervades the entire study, as the words “effect,” “influence,” and “predict” are to be conceptualized as having associational rather than strictly causal. The correlative nature of the current data suggests that the findings can be explained by the possibility of unknown third variables or complex bidirectional processes. Longitudinal studies examining the sequence of processes in time will be needed in future research before final conclusions should be made concerning the role of psychological capital in the development of teaching efficacy.

The over-reliance on self-reported data poses questions regarding the extent to which common method variance may have been introduced. Even with the result from Harman’s single factor test showing that the strongest factor explained only 34.7% of the variance, which is below the critical 50% level, the typical result from meta-analyses of self-reported organizational research has suggested that 24-27% of the data’s

variation is often due to common method variance [21]. It seems likely that our data is therefore subject to considerable shared variance, which may increase correlations by as much as 10-15%. Those measures related to the teacher's psychological states, perceptions of organizational support, and instructional efficacy are subject to the bias of social desirability or response tendencies [22]. The fact that it uses a single source of information at a single point in time exacerbates these concerns, as it is possible that teacher affect or response sets may affect all ratings. Moreover, the response rate attained in the study, with a result of 66.8% (463 valid responses from 693 distributed surveys), is acceptable for online methods but poses a threat concerning the possibility of response bias. The non-response group could be different from the respondents on variables like psychological capital and perceptions concerning support, and this could limit the possible range for the observed variable.

The distinct cultural and institutional features of the Chinese sample greatly limit the generalizability. The collectivist cultural paradigm of China, state control of the education system, as well as industry-education integration policies conducted by the Chinese government are all combined into a uniquely specific context that is considerably difficult to generalize for Western or other Asian educational systems. The Confucian values of hierarchy and institutional loyalty might strengthen the association between organizational support and performance more than in more individualistic societies, which value autonomy. In addition, the sample used here is based solely on the government-approved industry and education integration pilots, which have priority access to more favorable organizational conditions than would be expected in the typical vocational colleges. Cross-national replication studies are necessary prior to generalized findings across China's distinctive setting in vocational education. Cross-cultural findings in organizational studies have revealed that collectivistic values could enhance relationships based on reciprocal exchange between persons and organizations[22], potentially increasing the relationship between organizational support and performance in a manner that differs from individualistic contexts in which personal liberty takes precedence.

Despite the usage of stratified random sampling, various possible biases might be encountered. The collaborative nature required in the study implies that the study may end up with the overrepresentation of institutions with better administrative structure or approach to research, possibly excluding institutions with poorer organizational structure. The voluntary nature of teacher participation may have introduced self-selection bias, as teachers with higher psychological capital or stronger organizational commitment might be more willing to complete surveys. Geographic concentration in economically developed regions with mature industry partnerships may limit applicability to rural or less-developed vocational education contexts. These sampling constraints suggest our findings may represent an optimistic scenario rather than the full spectrum of industry-education integration experiences.

Longitudinal designs with teacher follow-up over multiple measurement occasions are needed in future work to establish temporal order and dynamic change in study measures. Three-wave panel data collection would allow for robust mediation testing along with tracing developmental trajectories of teaching efficacy and psychological capital over industry-education implementation phases. Multi-source ratings of performance improve validity by self-report teaching efficacy triangulation with student learning outcome ratings, peer ratings, and administrative ratings.

Cross-cultural comparative research on the nature of these relationships in various national settings would inform cultural boundary conditions and universal processes. Comparisons of various industry-education integration models from various nations could indicate the effect of partnership structures on psychological processes in teaching efficacy[23]. Investigations of other mediating variables such as work

engagement and professional identity would provide additional specific insight into transmission channels from psychological capital to performance outcomes. Potential moderating variables like transformational leadership styles, organizational climate of innovation, and intensity of enterprise collaboration need systematic investigation for the identification of conditions making existing relationships more or less robust.

6. Conclusion

The present study examined psychological processes responsible for the teaching efficacy of vocational college teachers who are operating in the framework of industry-education collaboration models. Empirical evidence confirms that psychological capital has positive significant effect on teaching efficacy, and perceived organizational support is a powerful intervening process. Structural equation modeling analysis revealed that psychological capital was positively predicting teaching efficacy and, simultaneously, operating through indirect channels through perceptions of organizational support. Partial mediation analysis shows that the indirect effects are responsible for 38.0% of the total effect, and direct psychological resources and the proximal context have significant effects in instructional efficacy.

These results have key implications for vocational-education colleges struggling with the challenge of industry integration. Teachers double-mandated, with both teaching excellence and industry relevance, need strong psychological resources such as hope, self-efficacy, and optimism. At the same time, positive organizational climates that value teachers' efforts, provide proper facilities for collaboration, and establish professional development are complementary to the highest degree for the transformation of psychological capital into better teaching performance. The combination of intrinsic psychological capital and extrinsic school support is the best possible environment for teaching efficacy in modern vocational education settings.

The present study can provide practice- and theory-informed guidelines to improve the quality of teaching for vocations education leaders. Psychological capital build interventions using training can offer an opportunity for teachers to build inner resources. Organizational support climate investments made by education institutions, including infrastructure supporting partnerships between enterprises and teacher development, help make way for an extensive utilization of a teacher's psychological resources. Applying a targeted support approach, taking into consideration the variability of teaching experience and development levels, as well as participation in integration between industries and education, increases the effectiveness of the intervention approach.

Industry-school integration remains the most widely practiced paradigm for the organization of vocational education globally. With the rising popularity of the collaborative paradigm, it has become imperative to emphasize the psychological processes involved for teachers to adjust and thrive under the new environment for teaching and learning. Continued concern with the psychological well-being and development as instructors in vocational colleges has retained its prime importance for ensuring excellence in education that sufficiently prepares the new generation to meet the shifting requirements of the job market. Developing teaching professionals with psychological hardness and embeddedness has retained its prime importance for excellence in alignment between industry and education.

Conflict of interest

The authors declare no conflicts of interest.

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