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Influence of kindergarten principals' contingent rewards on teachers' creative teaching performance: Testing a moderated–mediated model

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Abstract.
BACKGROUND: Although research has increased the current understanding of creative teaching, evidence on the factors that influence this behavior and the underlying mechanisms remains limited.
OBJECTIVE: This study, grounded in conservation of resources theory, proposed and empirically examined the relation between contingent reward leadership (CRL) among Chinese kindergarten principals and teachers' creative teaching performance (CTP). In addition, the study assessed the mediating effect of organizational innovation support (OIS), bureaucratic organizational culture (BOC), and innovative organizational culture (IOC), as well as the moderating effect of ideological psychological contracts (IPCs), to provide robust insights into how CRL can motivate kindergarten teachers' CTP.
METHODS: A total of 518 kindergarten teachers aged 20–55 years participated in the study. Structural equation model analysis was conducted to examine the multiple mediating effects of OIS, BOC, and IOC, as well as the moderating effect of IPC in the relation between CRL and CTP.
RESULTS: OIS served as a mediator in the relation between CRL and CTP. OIS and BOC played a chain mediating role in the relation between CRL and CTP. OIS and BOC played a chain mediating role in the relation between CRL and CTP. Additionally, IPC positively moderated the indirect relation of CRL on CTP via OIS.
CONCLUSIONS: Kindergarten principals should pay attention to the positive impact of leadership style and organizational culture on teachers' innovative behavior. Moreover, prioritizing the improvement of IPCs would benefit the development of innovative behavior.

Keywords: Contingent reward leadership, creative teaching performance, organizational innovation support, organizational culture, ideological psychological contract, kindergarten principal, kindergarten teacher

1. Introduction

Among teachers, creative teaching performance (CTP) refers to behaviors that aim to cultivate students' innovative qualities. These behaviors involve the exploration and transformation of teaching philosophies, instructional organizational models, curriculum content, and teaching methods during the teaching process and entail the creative fulfillment of teaching responsibilities [1]. The improvement of teachers' innovation ability is required to promote the sustainable and high-quality development of education. Specifically, the innovative teaching behavior of preschool teachers plays an extremely important role in developing the creativity of preschool children [2]. The CTP of early childhood educators not only aids

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in discovering children's interests and potential but also fosters children's innovative personalities [3]. Compared with traditional rote learning approaches, creative teaching by educators encourages students to think independently, engage actively, and express themselves freely. Under the guidance of creative teaching, students are likely to evolve into creative professionals [4]. Furthermore, the CTP of kindergarten teachers serves as an effective avenue for personal professional development. Teaching is a highly creative profession, and educators can only realize their intrinsic professional value and progress toward advanced professional development by continually updating their knowledge base, breaking through cognitive constraints, and embracing new educational concepts and methods during their professional development.

However, the current state of innovative teaching performance among early childhood educators is far from rosy. Owing to institutional and historical factors, most preschool teachers in China suffer from a low wage level and severe working conditions. Preschool teachers have an annual average income that is significantly lower than the average annual nonproductive expenditure per capita [5] and often face shortages in work resources and relatively poor working conditions [6]. The "high demand but low support" working conditions has severely restricted the CTP of kindergarten teachers. As implied by survey data from China, even some early childhood educators between the ages of 25 and 45 years, a period considered to be the prime of their creative potential, have entered a phase of professional burnout. This is evident not only in their lack of initiative and openness to new concepts but, more importantly, in a deficiency of innovative spirit [7]. This deficiency may reflect the quality of the attention given to the innovation quality of teachers by previous kindergarten leaders, organizational innovation support, and organizational culture. This problem of stimulating preschool teachers' innovation is a global phenomenon. Research has paid little attention to how preschool teachers develop their innovative work ability under the influence of principal's leadership, organizational support, and cultural atmosphere. Therefore, we recognized the importance of identifying the incentive factors that encourage preschool teachers to innovate their teaching performance.

Some researchers have investigated the antecedents of CTP from the perspective of teachers' personal characteristics, such as educational background [8], years of teaching, personality, positive emotion [9, 10], and job satisfaction [11], and external factors, such as the leadership style of principals [12, 13], organizational climate [14], and knowledge-sharing climate [15]. Leadership styles can affect the innovation behavior of employees [16]. Research has explored the impact of principals' leadership styles on teachers' innovative teaching performance. However, no research has focused on a common leadership behavior within management: contingent reward leadership (CRL). The principal with CRL assesses employees primarily based on their job performance, job content, and job objectives, and offer material or psychological contingent rewards based on employees' daily work performance, organizational or team tasks, and completion of performance- and innovation-related metrics [17]. By focusing on extrinsic rewards, CRL could provide the external conditions for the development of the organizational climate and work-related resources. Therefore, from a resource perspective, we examined how CRL by kindergarten principals influences CTP of teachers through various organizational factors.

We drew on conservation of resources (COR) [18, 19] theory to conceptualize how CRL might predict teachers' innovative teaching performance through organizational support and culture. According to COR theory, CRL can serve as an ecological condition for nurturing various work-related resources, such as organizational innovation support (OIS) and innovative organizational culture. These nurtured resources help individuals accumulate the resources required for CTP. COR theory also posits that the self-belief system help determine resource trajectory in the loss or gain cycle [20]. The ideological psychological contract (IPC), representing a set of commitments or beliefs about the mutual obligations between individuals and their organization [21], can accelerate the transition process from resource accumulation to resource investment for individuals. Psychological contracts have a positive moderating effect on the relation between teachers' competency and job performance, psychological capital, and individual performance [22], as well as achievement motivation and adaptive performance. Thus, we employed a moderated mediation model in which the IPC moderated the relation between OIS generated under kindergarten principals' CRL and early childhood educators' CTP.

Considering the significant role of early childhood educators' innovative teaching performance in the cultivation of innovative talent and the current

suboptimal innovative teaching performance of early childhood educators [23], exploring the antecedent and the underlying mechanism of innovative teaching performance in kindergarten has become an urgent priority. Therefore, we formulated the following objectives. First, building upon COR theory and grounded in the context of Chinese early childhood education, we aimed to investigate the potential positive relation between CRL by kindergarten principals and early childhood educators' innovative teaching performance to identify the factors that stimulate innovative teaching performance among early childhood educators. Second, within the framework of COR theory, we introduced mediating variables, such as innovation support and organizational culture, as well as the moderating role of IPCs, to reveal the underlying mechanism between the relation of CRL and CTP. We expected to provide targeted recommendations to enhance leadership skills for the promotion of innovative teaching among early childhood educators. Third, to our knowledge, COR theory has not been applied in the context of early childhood education. We aimed to expand the application of COR theory by introducing it to the context of early childhood education to explore the work-related resources that effectively motivate the innovative teaching performance of early childhood educators.

2. Theoretical background and hypotheses

2.1. Theoretical framework

We referred to COR theory [24] to investigate the impact of CRL on CTP. The resource caravan passageway of COR proposes that "people's resources exist in ecological conditions that foster and nurture resource creation and sustenance" [19], and leaders in organizations represent important ecological conditions for creating resources. Moreover, the nurtured work-related resources not only energize employees but also make them feel supported by the organization, thereby fostering positive work outcomes [25]. Valuable organizational and personal work resources can facilitate the achievement of work goals, reduce physiological and psychological costs, and motivate growth and development in employees [25].

COR theory can be applied to explain the influence of CRL on CTP and its mechanism. Specifically, CRL is concerned with establishing and enforcing transactional rules and agreements [26] and emphasizing the practice of rewarding based on performance. By utilizing reward incentives for followers, contingent reward leaders can provide material, psychological, and organizational resources to employees. In turn, employees perceive that they are receiving necessary support in their work, which improves their personal development and performance [27]. For early childhood educators who often face resource scarcity and high work-related stress [28], the CRL of kindergarten principals can provide material rewards and extrinsic motivation and serve as an important ecological condition for motivating their CTP.

2.2. Contingent reward leadership and teachers' creative teaching performance

Based on COR theory, CRL is regarded as a composite of various resource types, collectively referred to as resource caravans [29]. The CRL of kindergarten principals should nurture a variety of work-related resources, motivating teachers to engage in positive work behavior, such as CTP. Contingent reward leaders should promptly provide corresponding rewards upon teachers' completion of expected tasks. This positive interactive process, whether in the form of psychological recognition from the principal or material external rewards, can serve as a benign work-related resource for teachers. Teachers who have access to more resources are better positioned to integrate resources to augment their resource pool. Therefore, our study posited that the CRL by kindergarten principals exerts a positive influence on the CTP of teachers. However, studies have demonstrated that while CRL can have a significant positive effect on the creativity of organization members through variables, such as material rewards, spiritual support, and knowledge management, it does not directly drive employees to innovate [30]. Since resources can flow among different individuals within the same environment [31], kindergarten principals, who possess and control more resources than resource-scarce teachers, can not only serve as vital resource providers by offering teachers compensation, tangible rewards, and other work-related resources [32] but also create the organizational climate and conditions that can shape teachers' work behavior. In this sense, CRL may not directly promote the CTP of preschool teachers but rather indirectly, through other variables.

2.3. Mediating effect of organizational innovation support

Within the framework of COR theory, we considered CRL as the ecological condition for nurturing

OIS. Individuals who perceive a higher level of OIC can accumulate more resources to invest in creative teaching behavior [18]. CRL involves the leader providing rewards and recognition when employees meet or exceed their performance expectations. When employees are innovative and generate new ideas, a contingent reward leader can offer tangible rewards, praise, or recognition to acknowledge and motivate further innovative behavior [33]. The more resources the organization allocates to innovation activities, the stronger the level of organizational innovation support employees perceive [34]. Perceived organizational support can positively predict the innovative work ability of organization members [35]. Because of the elevated level of organizational support, employees are more likely to perceive recognition from the organization, enhance their professional self-identity, strengthen their organizational commitment, and, consequently, make greater contributions toward achieving organizational goals [36]. This, in turn, leads to increased innovation in their work performance. Meanwhile, insufficient support will reduce employees' innovation because the employees would lack the resources to participate in or sustain their innovative behaviors [37]. Therefore, when a principal's CRL actively encourages organizational innovation, the contingent rewards offered in this process, along with the resource support provided, can enhance teachers' perception of acquiring individual resources and increase individual resources. This contributes to the formation of a resource-enhancing spiral for teachers' CTP. Therefore, kindergarten principals' CRL can promote teachers' CTP by providing teachers with a higher level of OIS, including material rewards and spiritual incentives. OIS may have a mediating effect on the relation between CRL and CTP. Thus, we formulated the following hypotheses:

H1-1: CRL has a positive direct effect on OIS.

H1-2: OIS has a positive direct effect on CTP.

H1-3: OIS mediates the relation between CRL and CTP.

2.4. Mediating effect of organizational culture

As an important organizational environment, kindergartens' organizational culture involves common ideas, styles, values, beliefs, and living criteria developed in the environment of kindergartens over a long period. This organization culture drives organizational development and plays a decisive role in organizational success. According to the values, beliefs, and norms of members within an organization, Wallach divided organizational culture into three types: bureaucratic organizational culture (BOC), innovative organizational culture (IOC), and supportive organizational culture [38]. Wallach's classification of culture according to values coincides with the characteristics of kindergarten organizational culture in China. Therefore, we adopted Wallach's research tool. Organizational culture is a collective phenomenon that affects the behavior of organization members and an important environmental factor that affects the innovation behavior of employees [39]. As demonstrated by empirical research, organizational culture is significantly correlated with the innovation behavior of employees. Different types of organizational culture have different effects on innovation behavior [40].

In addition to providing teachers with targeted and effective material rewards and emotional support, CRL by kindergarten principals can also promote innovation by actively fostering an IOC that encourages the positive flow of resources among teachers. Specifically, when the principal cultivates an innovative cultural atmosphere in the kindergarten, teachers will pursue innovative changes in their teaching behavior [41]. Meanwhile, in a top-down hierarchical bureaucratic culture, the independent personality of organization members may be limited, thereby impeding the internal initiative and enthusiasm of employees and frustrating organizational creativity [42]. Organizational culture has a mediating effect on the relation between leadership style and innovation behavior [43, 44]. Thus, an IOC and a BOC may have different mediating effects on the relation between the CRL of kindergarten principals and CTP of teachers. We thus developed the following hypotheses:

H2-1: IOC has a positive direct effect on CTP.

H2-2: BOC has a negative direct effect on CTP.

2.5. Chain mediating effect of OIS and organizational culture

OIS has a significant positive correlation with and can predict IOC [45]. A climate of innovative culture involves the endogenous power to stimulate and maintain the creative behavior of individuals [46]. A high level of support (e.g., human resource, material, and financial support) provided by kindergarten principals to teachers can help improve the IOC in the

kindergarten [47]. This can lead individuals to show stronger intention to seek new ideas and methods and to achieve specific teaching goals. In this sense, sufficient innovation support is an important prerequisite to building the organizational structure and promoting organizational innovation. Some research has compared the effect of OIS on employee performance and behavior through IOC and BOC [48]. The IOC produced by OIS has a long-term stable effect on the innovation behavior of teachers [49]. BOC is a type of culture characterized by clear rights and responsibilities, strict hierarchical rank, stability, and control. It calls for obedience, stability, and prudence but reduces individuals' enthusiasm to participate and restricts employees' innovation [50]. Based on the above, we inferred that CRL would not directly affect CTP; instead, it would provide teachers with OIS and then create different types of organizational culture to affect CTP. We therefore proposed the following hypotheses:

H3-1: OIS and IOC have a chain mediating effect on the relationship between CRL and CTP.

H3-2: OIS and BOC have a chain mediating effect on the relationship between CRL and CTP.

2.6. *Moderating effect of ideological psychological contracts*

COR also posits that one's beliefs system (e.g., self-regulation) is important in determining the resource trajectory in the loss or gain cycle [20]. IPCs are mental models that capture individuals' beliefs about the mutual obligations between themselves and their organization [21]. A high level of IPCs, characterized by a strong aspiration to contribute to the organization, can accelerate individuals with more OIS in investing their resources in creative teaching behavior [51]. Employees with a higher level of IPC are more likely to establish a stable employment relationship and express higher job satisfaction and stronger innovation intention [52].

Therefore, we posited that teachers with high-level IPC may endorse the motivational approach of CRL, perceive strong organizational support, and thereby strengthen the impact of CRL by kindergarten principals on their own innovative teaching. Conversely, regardless of the rewards or punitive measures adopted by the leadership, teachers with low-level IPC will not endorse such measures, thereby weakening the influence of CRL on their CTP. Therefore, we proposed the following hypothesis:

H4: IPC has a moderating effect on the relationship between OIS and CTP.

3. Research methods

We selected preschool education in China as the field of research for the following reasons. First, China's Ministry of Education attaches great importance to teaching innovation and mentions it numerous times in relevant policy documents. The current CTP of kindergarten teachers is generally subpar. Second, most research on this issue has been conducted in developed countries. Third, research has been lacking on the leadership style of principals of kindergartens compared with other teaching stages. We recognized the importance of examining the CRL style in the field of preschool education, discuss its relation with the innovative teaching behavior of preschool teachers, and ultimately help preschool teachers achieve CTP. We collected data using a two-part questionnaire. The first part collected demographic information, such as sex, age, and teaching age. The second part included the measures of the related research variables.

This study constructed a moderated mediation model based on COR theory to explore the influence of CRL by kindergarten principals on the CPL of kindergarten teachers. In the field of early childhood education, empirical studies are scarce, and the theoretical model proposed in our study has not been explored. The partial least squares structural equation modeling (PLS-SEM) analysis method is suitable for developing new theoretical models and expanding existing ones, especially for complex models. It has strong explanatory power and is more appropriate for the development of new theories compared with covariance-based structural equation modeling. Given these considerations, we chose the PLS-SEM analysis method for its appropriateness in analyzing our theoretical model.

3.1. *Measures*

All English-language items in the questionnaire were translated into Chinese using translation/back-translation to minimize translation errors. A Likert-type scale was used for the response options on all items, ranging from 1 (*totally disagree*) to 5 (*totally agree*).

3.1.1. Contingent reward leadership

We referred to a previous three-item scale [53] with the example item, "He will praise me when I do better than others." We calculated the average score of each item. The internal consistency coefficient of this scale was 0.874 in our study, indicating that the scale had high reliability for the survey of preschool teachers and could be used as a research tool.

3.1.2. Organizational innovation support

We referred to Eisenberger's four-item scale of perceived organizational support [54]. A sample item is "Kindergarten principals expect colleagues to work creatively." We calculated the total or average score of these items. A higher score indicated better organizational support from kindergarten principals. The internal consistency coefficient of the questionnaire was 0.812 in our study, indicating that the scale had high reliability and could be used as a research tool.

3.1.3. Organizational culture

We also referred to a previous organizational culture measurement scale [55] that divides organizational culture into two dimensions: BOC and IOC. BOC had three items and IOC had five items. A sample item is "Kindergarten teachers and employees work according to specified procedures and regulations." The internal consistency coefficient of this scale was 0.841 for the BOC and 0.896 for the IOC dimensions, indicating that the scale had acceptable reliability in measuring the CTP of kindergarten teachers.

3.1.4. Ideological psychological contract

The research referred to a previous six-item ideological psychological contract scale [56] that includes the item "I strive to contribute to the realization of the vision of kindergarten." We calculated the average score of each item. The internal consistency coefficient of this scale was 0.887 in our study, indicating a high reliability and applicability to measure the IPCs of kindergarten teachers.

3.1.5. Creative teaching performance

We used a scale developed [57] according to the creative expression concept [58]. The scale has six items, such as "I often use new methods to improve teaching quality." The internal consistency coefficient of the questionnaire was 0.927 in the study, indicating a high reliability and usability as a research tool.

3.2. Participants and procedure

To test the hypothesized model, we collected data from frontline staff in kindergarten settings across six cities in China: Guangzhou, Shenzhen, Foshan, Dongguan, Zhuhai, and Zhengzhou. We employed a stratified random sampling method that observed the following sample selection criteria. First, we selected 30 kindergartens based on their attributes, including 18 public kindergartens and 12 private kindergartens. Second, within these selected kindergartens, participants were sampled based on factors such as sex, age, years of teaching experience, and job position. All participants in the sample were full-time teaching staff to ensure the representativeness of the sample. We distributed over 600 questionnaires and collected 536 questionnaires. After excluding questionnaires with large amounts of missing data and incomplete contents, we ultimately obtained 518 questionnaires, with an effective collection rate of 96.64%.

3.3. Data analysis procedures

We employed PLS-SEM to validate the hypothesized model. Data analysis was conducted using SmartPLS 4.0. We used the PLS method to estimate the reliability and validity of the measurement model and the path coefficients of the structural model. We ran 50,000 bootstrap replications to determine the significance of all estimated parameters [59].

PLS-SEM offers advantages when dealing with complex research models. It not only accurately estimates relations between multiple independent and dependent variables but also mitigates multicollinearity issues. It is also robust in handling missing values and, importantly, requires a lower sample size while maintaining high statistical power and robustness. PLS-SEM has been widely applied in early childhood education research. The first part assesses the reliability and validity of the measurement model, including examining factor loadings, Cronbach's alpha, rho_A, and measurements of composite reliability, convergent validity, and discriminant validity [60]. The second part evaluates the explanatory power and goodness of fit of the structural model, including metrics such as the coefficient of determination (R^2), goodness of fit (GoF), predictive relevance (Q2), standardized root mean square residual (SRMR), normed fit index (NFI), and rms_theta [61]. The third part assesses the significance and predictive power of the path coefficients in the structural model. The fourth

part examines the significance and path coefficients of the moderating variables.

We conducted confirmatory factor analysis (CFA) using SmartPLS (version 4.0) to measure the reliability and validity of the scales. For this significantly exploratory quantitative research, a PLS-SEM is recommended for data processing and analysis [62]. The research aimed to determine the causal relations between the exogenous construction of CRL and CTP. Furthermore, we introduced a complex multivariate analysis with OIS and two types of organizational culture as the chain mediator and the IPC as the moderator. PLS-SEM was regarded as the best choice for data analysis in our research.

We also measured the indirect relation between CRL and CTP, the mediating effect of OIS and organizational culture (BOC and IOC) on the relation between CRL and CTP, and the moderating effect of IPCs on the relation between OIS and CTP. Prior to data analysis, we adopted the method of measurement modeling and the indicators of factor loading, Cronbach's alpha, rho_A, composite reliability (CR), and average variance extracted (AVE) to ensure the validity and reliability of each construct. The factor loading of each item was 0.710 to 0.918, higher than the threshold of 0.7, indicating that our measurement indicators had high reliability. According to Bagozzi's recommendation, a model has good internal consistency and convergent validity when the α coefficient, CR value, and AVE value meet specific criteria and are higher than 0.8, 0.7, and 0.5, respectively [63]. For each latent variable in our research, the α coefficient was higher than 0.815, the CR value was higher than 0.878, and the AVE value was higher than 0.643. As all of these exceeded their respective expected thresholds, we deemed our measurement model to have high internal quality (Table 1).

Table 1
Measurement Model Results (Factor Loads, Cronbach's Alpha, rho_A, Composite Reliability, and Average Variance Extracted Values of the Model)

Dimension of Constructs	Loading	α	rho_A	CR	AVE
Creative Teaching Performance (CTP)					
CTP1	0.823	0.927	0.928	0.943	0.734
CTP2	0.885				
CTP3	0.849				
CTP4	0.871				
CTP5	0.839				
CTP6	0.872				
Innovative Organizational Culture (IOC)					
IOC1	0.844	0.898	0.902	0.924	0.710
IOC2	0.844				
IOC3	0.809				
IOC4	0.860				
IOC5	0.854				
Contingent Reward Leadership (CRL)					
CRL1	0.881	0.875	0.878	0.923	0.799
CRL2	0.918				
CRL3	0.883				
Ideological Psychological Contract (IPC)					
IPC1	0.796	0.890	0.894	0.916	0.646
IPC2	0.710				
IPC3	0.853				
IPC4	0.848				
IPC5	0.805				
IPC6	0.802				
Bureaucratic Organizational Culture (BOC)					
BOC1	0.877	0.844	0.845	0.906	0.763
BOC2	0.884				
BOC3	0.859				
Organizational Innovation Support (OIS)					
OIS1	0.805	0.815	0.826	0.878	0.643
OIS2	0.822				
OIS3	0.733				
OIS4	0.843				

Note. $N = 518$.

4. Results

4.1. Measurement model

Table 2 presents the results of our measurement model's discriminant validity test. A measurement model has high discriminant validity if the square root of the AVE for each latent variable is greater than the Pearson correlation coefficient among these latent variables. As shown in Table 2, the AVE square root of all the variables exceeded the coefficient of correlation between latent variables, indicating that the measurement model had high discriminant validity.

4.2. Demographic analysis

We analyzed participants' demographic information through descriptive analysis. Table 3 provides the demographic information of the participants.

The variance inflation factor (VIF) was selected as the SEM technique to eliminate collinearity among variables. A VIF that is greater than the threshold of < 5 indicates collinearity among the variables [64]. In our research, the VIF value was in the range of 2.433–4.190, indicating that collinearity did not occur among the variables. To judge the model fit, we used the SmartPLS indicators of SRMR and NFI. The SRMR threshold is in the range of 0–1, and a value less than 0.80 indicates an excellent model fit. For NFI, the range is 0–1, and a value greater than 0.90 indicates suitability for the overall model [65]. In our study, the SRMR and NFI values of 0.048 and 0.881 indicated that the model fit was reasonable. Table 4 shows the values for the analysis of collinearity and model fit.

In the SEM analysis, we evaluated the explanatory power of the output model. R^2 must be in the range of 0–1. A larger R^2 value of the determination coefficient indicates a stronger explanatory power for the model. R^2 values of 0.25, 0.50, and 0.75 represent "low," "medium," and "high" levels of explanatory power, respectively [64]. The explanatory powers of BOC, CTP, IOC and OIS were 0.517, 0.571, 0.590, and 0.334, respectively. These four

Table 2
Discriminant validity of the model

Constructs	Mean	SD	BOC	CRL	CTP	IOC	IPC	OIS
Bureaucratic Organizational Culture (BOC)	3.987	0.692	**0.873**					
Contingent Reward Leadership (CRL))	3.860	0.709	0.572	**0.894**				
Creative Teaching Performance (CTP)	3.950	0.604	0.475	0.452	**0.857**			
Innovative Organizational Culture (IOC)	3.889	0.667	0.751	0.608	0.634	**0.842**		
Ideological Psychological Contract (IPC)	4.070	0.581	0.642	0.546	0.733	0.738	**0.804**	
Organizational Innovation Support (OIS)	3.750	0.718	0.720	0.579	0.576	0.768	0.670	**0.802**

Note. $N = 518$. Values in the diagonal and bold are square root of average variance extracted values.

Table 3
Demographic profile of the participants

Measure	Items	Frequency (n)	Percentage (%)
Sex	Female	512	98.8
	Male	6	1.2
Age (years)	< 23	97	18.7
	23–30	194	37.5
	31–40	128	24.7
	41–50	93	18.0
	More than 50	6	1.2
Teaching years	Less than 6	271	52.3
	6–10	107	20.7
	11–15	47	9.1
	16–20	37	7.1
	More than 20	56	10.8
Identity	Main class teacher	225	43.4
	Vice class teacher	168	32.4
	Nursery governess	83	16.0
	Other	42	8.1
Attributes of kindergarten	Public	299	57.7
	Private	219	42.3

Note. $N = 518$.

Table 4
Collinearity and model fit

Variables	Creative teaching performance	Model fit
Bureaucratic Organizational Culture	2.645	
Contingent Reward Leadership		
Creative Teaching Performance		SRMR: 0.048
Innovative Organizational Culture	3.603	NFI: 0.881
Organizational Innovation Support	2.856	
Ideological Psychological Contract	2.371	

Note. $N = 518$.

aspects had medium and high levels of explanatory power. Therefore, in our research model, the latent variables were appropriate according to the level of explanatory power.

4.3. Descriptive analysis

Table 2 presents the means, standard deviations, and correlations of all studied variables. Descriptive statistics with mean values and standard deviations were performed on the 518 effective samples. According to the results, the mean value ranged from 3.860 to 4.070, and the standard deviation ranged from 0.581 to 0.709.

4.4. Structural equation modeling

We performed SEM using bootstrapping (5,000) and SmartPLS 4.0. We used this technique to estimate the measurement path coefficient, p value, t value, and confidence interval (CI) to measure the direct and indirect relations between the structures in the research model [66]. Figure 1 presents the results of the path model analysis. As shown in Table 5, CRL was positively associated with OIS ($\beta = 0.579$, $p < 0.001$), confirming Hypothesis 1-1. We found a positive effect ($\beta = 0.124$, $p < 0.05$) between OIS and CTP, confirming Hypothesis 1-2. We also measured the path by which CRL indirectly affected CTP based on the mediating effect of OIS and organizational culture. According to the results in Table 6, OIS had a mediating effect ($\beta = 0.072$, $p < 0.05$) on the relation between CRL and CTP with a 95% CI of [0.020, 0.139], confirming Hypothesis 1–3.

Moreover, IOC was positively associated with CTP ($\beta = 0.234$, $p < 0.001$), supporting Hypothesis 2-1. We noted a negative effect ($\beta = –0.171$, $p < 0.001$) between BOC and CTP, confirming Hypothesis 2-2. OIS and IOC had a positive chain mediating effect ($\beta = 0.104$, $p < 0.001$) on the relation between CRL and CTP with a 95% CI of [0.052, 0.167], supporting Hypothesis 3-1. OIS and BOC had a negative chain mediating effect ($\beta = –0.071$, $p < 0.01$) on the relation between CRL and CTP with a 95% CI of [–0.082, –0.021], confirming Hypothesis 3-2. In addition, the total indirect effect between CRL and CTP was confirmed with a significant positive effect ($\beta = 0.104$, $p < 0.001$).

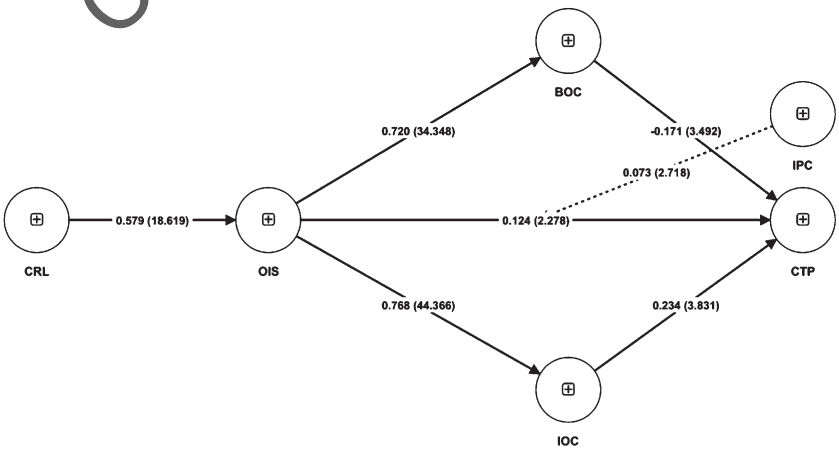

Fig. 1. Path model analysis results of influence mechanism of contingent reward leadership on creative teaching performance. Note: CRL = contingent reward leadership, OIS = organizational innovation support, IOC = innovative organizational culture, BOC = bureaucratic organizational culture, IPC = ideological psychological contract, CTP = creative teaching performance.

Table 5
Results of path analysis of the research model (Without Mediating Variable)

Direct effects	Coefficients	Mean	SD	T value	*p* values	Results
BOC –> CTP	–0.171	–0.156	0.049	3.180	0.001	Accepted
CRL –> OIS	0.579	0.579	0.031	18.579	0.000	Accepted
IOC –> CTP	0.234	0.254	0.065	3.949	0.000	Accepted
OIS –> BOC	0.720	0.720	0.021	34.193	0.000	Accepted
OIS –> CTP	0.124	0.140	0.055	2.523	0.012	Accepted
OIS –> IOC	0.768	0.770	0.018	43.805	0.000	Accepted
IPC –> CTP	0.591	0.596	0.050	12.018	0.000	Accepted
IPC×OIS –> CTP	0.073	0.069	0.027	2.617	0.009	Accepted

Note. $N = 518$. CTP, creative teaching performance; IOC, innovative organizational culture; BOC, bureaucratic organizational culture; IPC, ideological psychological contract; CRL, contingent reward leadership; OIS, organizational innovation support; SD, standard deviation.

Table 6
Results of mediating analysis of the research model

Indirect effects	Coefficients	T value	*p* values	95% CI		Results
				Lower	Upper	
CRL –> OIS –> CTP	0.072	2.504	0.012	0.020	0.139	Accepted
CRL –> OIS –> IOC –> CTP	0.104	3.715	0.000	0.052	0.167	Accepted
CRL –> OIS –> BOC –> CTP	–0.071	3.057	0.002	–0.082	–0.021	Accepted

Note. $N = 518$. CTP, creative teaching performance; IOC, innovative organizational culture; BOC, bureaucratic organizational culture; IPC, ideological psychological contract; CRL, contingent reward leadership; OIS, organizational innovation support, CI, confidence interval.

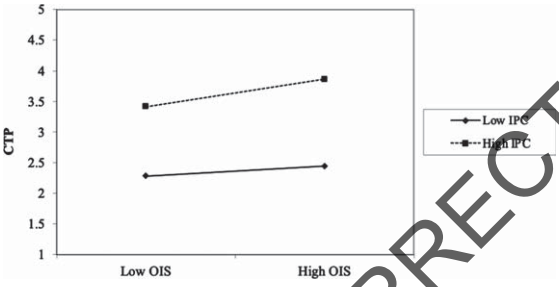

Fig. 2. Moderating effect of ideological psychological contract (IPC) on the relationship between organizational innovation support (OIS) and creative teaching performance (CTP).

We also confirmed the moderating effect of IPC on the relation between OIS and CTP. Prior to the analysis of the moderating effect, we standardized the terms to weaken the impact of multicollinearity. According to the analysis results in Table 7, the interaction between OIS and IPC had a significant effect ($\beta = 0.073$, $p < 0.01$) on CTP. Furthermore, the IPC moderating effect diagram was established as previously recommended [67]. As shown in Fig. 2, the dotted line slope representing a high IPC was lower than the solid line slope representing a low IPC. Thus, IPC had a positive moderating effect on the relation between OIS and CTP. It also positively moderated the second half of the mediating path of CTP affected by CRL through OIS.

5. Discussion

This research explored the indirect relation between CRL and CTP, verified the mediating effect of OIS and two types of organizational culture and the moderating effect of IPCs on the relation between OIS and CTP, established an integrated research model, and obtained significant survey results based on the research model. Researchers in a number of developed countries have conducted similar research on the relation between leadership style and teachers' innovative behavior [68]. However, limited similar research could be found in China. This kind of research is urgently needed in the field of primary education because the leadership of kindergarten principals plays a vital role in guiding teaching staff in innovative teaching and improving the quality of preschool education. Our study examined the internal mechanism through which the CRL of kindergarten principals promoted the innovative teaching behavior of preschool teachers as well as the mediating effect of OIS and organizational culture and the moderating effect of IPCs on this mechanism.

First, we measured the mediating effect of OIS on the relation between CRL and CTP, thus confirming Hypothesis 1-1, similar to previous findings [35]. OIS can promote employees' innovative work ability. Our results showed that teachers will be more creative in teaching if kindergarten principals offer them more OIS. Kindergarten teachers shoulder the

heavy task of teaching preschool children and the job stress of safeguarding them. In a work model with lower support, teachers tend to prefer routine teaching tasks [47] and a stable and safe working relation; they also feel nervous about the risks accompanied by innovations, which may frustrate CTP. High-level emotional support, innovation opportunities, and innovation resource availability enhance preschool teachers' sense of responsibility and commitment to their work. Preschool teachers can devote themselves to education and teaching and contribute new ideas and creative teaching behaviors.

Second, we measured how OIS and organizational culture mediated the relation between CRL and CTP. The results showed that OIS, IOC, and BOC had a mediating effect on this relation and that OIS had a chain mediating effect on organizational culture, thus confirming Hypotheses 4-1 and 4-2. CRL helps kindergartens develop an innovative organizational culture by providing OIS, thus improving the CTP of preschool teachers. If kindergarten principals who adopt CRL provide teachers with a higher level of innovation support in human resources, materials, and financial support, the school's climate of organizational innovation will improve [69]. A spirit of adventure, consciousness of innovation, clear goals, and other specific philosophies of IOC will create a relaxing, pleasant, and innovative climate. In such an organizational culture, teachers will actively think about new teaching methods and strategies and bring out more CTP. BOC had a negative mediating effect on the relation between CRL and CTP. The reason may be that BOC is dependent on top-down hierarchical management and control. This type of organizational culture may limit teachers' independence, which can then discourage teachers from actively engaging in innovative teaching. As such, their CTP is frustrated.

Third, we examined the moderating effect of IPCs on the relation between OIS and CTP. We found that IPCs positively moderated this relation, thus confirming Hypothesis 5. Thus, IPCs affected the role of OIS. Teachers with a high IPC perceive stronger organizational support, and can more easily transform OIS into their own innovative teaching behavior. Meanwhile, to teachers with a lower level IPC, the role of OIS is weak. Even if they are given a higher level of OIS, these teachers seldom transform OIS into innovative teaching owing to the negative state of their IPC. This conclusion is similar to that in existing research [70]. In the current situation of China, this finding is more obvious. This may be because teachers develop an IPC by recognizing the organizational ideology of kindergartens, and this IPC enhances preschool teachers' understanding and recognition of the CRL behavior of kindergarten principals. Therefore, teachers develop high perceived organizational support and start innovative teaching at the individual level, thereby creating greater value for the development of kindergartens.

5.1. Theoretical implications

The exploration of the mechanisms by which CRL by kindergarten principals influences the CTP of kindergarten teachers is in its early stages. Our study examined how CRL by principals can effectively enhance the CTP of kindergarten teachers by investigating the mediating variables and the contexts in which it occurs. Our theoretical hypotheses were supported by empirical data. Therefore, our study provided the following theoretical contributions.

First, our examination of the mediating effects of principals' CRL on kindergarten teachers' CTP provides comprehensive and in-depth evidence on motivating and managing kindergarten teachers. Previous research has focused on external factors, such as transformational leadership, organizational climate, and organizational culture, in promoting innovative work behavior among kindergarten teachers, while overlooking the impact of CRL by principals on the CTP of kindergarten teachers. Overall, research attention to the paradigm of CRL by principals has been limited in the field of early childhood education. Indeed, research in this area is in its early stages. There has also been limited exploration of mediating and moderating models regarding the influence of CRL on teachers' CTP. Our study contributes to filling this gap.

Second, our study expands the scope of COR theory. By using COR theory, we constructed a model that investigated the chain-mediated effects of CRL through OIS, BOC, and IOC on kindergarten teachers' CTP while also examining the moderating effect of IPC. This framework enriched the external application and extension of COR theory, effectively broadening its application in the field of early childhood education. Furthermore, our blended classical leadership behavior theories with contemporary kindergarten leadership themes, interpreting CRL by principals as an external resource that fosters innovation among kindergarten teachers. This approach contributes to a theoretical understanding of the core

factors that influence kindergarten teachers' CTP, thereby enriching the literature.

Third, we introduced IPC as a critical moderating variable and explored the boundary mechanisms of how CRL could influences CTP from the perspective of the self-beliefs system. We incorporated IPC in the study of the effectiveness of CRL and validated its moderating effect. Specifically, the influence of CRL on CTP through OIS depended on the level of IPC among kindergarten teachers. This finding further refines and advances the understanding of the variable perspective of CRL on kindergarten teachers' CTP. Our study highlighted that the impact of CRL on CTP may be highly contingent on individual circumstances.

In summary, our study offers valuable insights into the influence of CRL by kindergarten principals on the CTP of kindergarten teachers. It not only contributes to a deeper understanding of the complex relations in early childhood education but also extends the applicability of COR theory and provides a framework for future research in the nascent field.

5.2. Practical implications

The cultivation of highly professional and innovative teachers is a key task in the construction of teaching staff. The leadership style of kindergarten principals and the organizational culture of kindergartens are significant factors for the innovative teaching behavior of teachers. As significant contributions, our research explored the predictive factors associated with the innovative teaching behavior of teachers and broadened the research perspective in the field of preschool education. Currently, China is calling for innovative talent, and increasing attention will be given to teachers' innovation ability. Therefore, surveys and research with regard to China's preschool education hold great significance. Our research provides ideas and directions for exploring the factors that affect the innovative teaching behavior of preschool teachers and contributes literature references to related research in other fields.

In their careers, kindergarten teachers have the closest relationship with kindergarten principals. Principals are the core leaders of kindergarten organization construction and the "key few" of teaching staff [71]. Their leadership style and behavior have a significant effect on the innovation behavior of teachers [8]. Based on the above results, we formulated the following recommendations for improving the CTP of preschool teachers.

First, given the indirect incentive effect of CRL on CTP, kindergarten principals should be aware of the importance of the timely application of CRL philosophy. When kindergarten principals perform management duties, they should provide teachers with effective emotional support and substantial material support and eliminate the negative effect of job stress, which causes emotional insecurity to teachers and frustrates higher CTP. In addition, the government should enhance the training of kindergarten principals, highlight the important status of leadership qualities and innovation philosophy in the relevant training, and help kindergarten principals improve their leadership to promote the CTP of teachers.

Second, the different mediating effects of OIS and two types of organizational culture highlighted in our findings can provide a new reflective perspective for the development of kindergartens. Schools should pay more attention to the differential effects caused by different types of organizational culture on innovative teaching behavior. On the one hand, kindergartens should be aware that OIS and IOC can positively mediate the relation between CRL and CTP. From this perspective, we recommend that kindergarten principals respect and care about the needs of teachers, use the CRL philosophy in a timely manner, improve the salary and welfare of kindergarten teachers, especially temporary teachers, provide teachers with diverse innovative teaching resources, and establish a social and emotional support network for teachers with their colleagues and superiors. OIS and BOC negatively mediated the relation between CRL and CTP. BOC could prevent the CRL of kindergarten principals and OIS from functioning as incentives for innovative teaching. Therefore, legacy BOC can no longer meet the actual development needs of kindergartens in the field of preschool education. We thus recommend that bold actions be taken to overcome the limitations of BOC by changing kindergarten leadership styles and developing an IOC that supports teachers in bold innovations and encourages them to take appropriate risks. These steps can make teachers more active in applying their own skills and experience and completing their work in innovative ways.

Finally, given that IPCs have a positive moderating effect, efforts should be made to improve the level of teachers' IPC to weaken the negative effect of the current "high demand but low support" model in China on the CTP of preschool teachers. According to social reciprocity theory, employees who are provided with a higher level of innovation support from their leaders tend to have a stronger sense of responsibility

to reciprocate with their organization. The motivation for employees to innovate is therefore stimulated to the highest level [51]. We found that a low support model would have a negative effect on teachers' CTP, but the IPC of teachers can weaken this negative effect. If the IPC of teachers is maintained at a high level, teachers will be understanding when they are provided with a high level of remuneration and welfare, which can minimize the negative effect of the low support model. Therefore, kindergartens are recommended to not only provide teachers with competitive salaries and welfare, stable job opportunities, and comfortable innovative working environments but also take measures to help teachers improve their level of IPC, such as giving them more freedom and assigning fulfilling tasks that allow them to use their creativity.

5.3. Limitations and future research directions

This research is innovative but it has some limitations in terms of the interpretation and generalizability of the results. First, the research was conducted among preschool teachers in China in the Chinese cultural environment. In this sense, this research may be influenced by local economic development and unique culture; therefore, the findings may not be typical or universal. As such, similar surveys and research should be conducted in other regions of China and other countries to verify the universality of the findings. Second, this research was a quantitative study based on questionnaire surveys. No semi-structured interviews were conducted to further explore the fundamental cause of the phenomenon. A combination of quantitative and qualitative methods would make the empirical research more precise. Third, we obtained background information on the respondents but only discussed the interrelations among the latent variables, making the research less inclusive. Background information should be used as control variables and integrated in future research to enrich the research results. Finally, future research can further expand our methodological approach by conducting comparative analyses of kindergarten teachers' CTP. In-depth investigations of the mechanisms underlying the transition from non-innovative to innovative teaching behaviors among teachers can be explored. Additionally, research can examine the relations between different leadership styles and the CTP of kindergarten teachers. Further exploration of variables, such as organizational climate, organizational culture, and internal perceived identity as both potential mediators and moderators can also be considered to enrich the theoretical framework of this study.

6. Conclusion

We constructed a moderated chain mediation model for kindergartens in China based on organizational leadership theory and previous research [72, 73], conducted a survey of China's preschool teachers, used PLS-SEM for data analysis, and verified our proposed model. We also discussed the effects of the CRL of kindergarten principals on the CTP of preschool teachers and elaborated on the mediating effect of OIS and two types of organizational culture and the moderating effect of IPCs. According to the experimental results, CRL had an indirect effect on CTP because it could affect the CTP of preschool teachers through the chain mediating effect of OIS and both IOC and BOC. OIS and IOC had a positive predictive effect on the relation between CRL and CTP, whereas BOC significantly inhibited the indirect effect of CRL on CTP. We also found that IPCs positively moderated the second half of the path of CTP, the one affected by CRL through OIS. For preschool teachers with a high IPC, CRL was more effective in stimulating perceived organizational support, which facilitated the transformation of OIS into a higher level of CTP. These preschool teachers had higher CTP than those with a lower IPC. Our findings highlight the importance of the CRL of kindergarten principals in improving the CTP of preschool teachers and enrich the literature associated with organizational support, organizational culture, and innovative teaching in the field of education management.

Ethics statement

Full ethical approval was granted by Guangdong Polytechnic Normal University's Ethics Review (Human Participants) Sub-Committee (Ref. 230507). All research activities adhered to the principles outlined in the Declaration of Helsinki of 1964 and its later amendments.

Informed consent

All participants were informed about the study and their consent to participate was obtained before the questionnaire application.

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Conflict of interest

The authors declare that they have no conflict of interest.

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