THE INFLUENCE OF PERCEIVED ORGANIZATIONAL JUSTICE IN SCHOOL MANAGEMENT ON TEACHER WORK ENGAGEMENT IN PRIMARY AND SECONDARY SCHOOLS IN LINYI CITY, CHINA

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ABSTRACT
Based on Adams' equity theory and Colquitt's four-dimensional justice framework, this study examines how organizational fairness affects the work engagement of primary and secondary school teachers in Linyi City, using stratified random sampling by region, school type, and teaching stage. Questionnaires were distributed to primary and secondary school teachers from urban, suburban, and rural schools in Linyi City, and 444 valid responses were finally obtained. Descriptive statistics showed that the mean score of overall organizational justice was 3.06 (SD = 0.55), and the mean score of overall teacher work engagement was 3.06 (SD = 0.58). Correlation analysis revealed that all four dimensions of organizational justice were significantly positively correlated with teacher work engagement ($p < 0.01$): distributive justice ($r = 0.39$), procedural justice ($r = 0.44$), interpersonal justice ($r = 0.41$), and informational justice ($r = 0.46$). Simple linear regression demonstrated that overall organizational justice significantly positively predicted teachers' work engagement ($\beta = 0.482$, $p < 0.001$), accounting for 23.2 % of the variance in work engagement, $F(1, 442) = 202.58$, $p < 0.001$. Multiple regression further indicated that distributive justice ($\beta = 0.158$, $p < 0.001$), procedural justice ($\beta = 0.204$, $p < 0.001$), interpersonal justice ($\beta = 0.181$, $p < 0.001$), and informational justice ($\beta = 0.192$, $p < 0.001$) all exerted significant positive predictive effects, together explaining 25.1 % of the variance in work engagement, $F(4, 439) = 36.72$, $p < 0.001$. Among them, procedural justice and informational justice showed relatively stronger predictive power. This study enriches the empirical application of equity theory in basic education management, provides data support for fair management in Linyi's primary and secondary schools, and offers a reference for local education authorities.
Keywords: School Management Systems, System Fairness, Teacher Work Engagement

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INTRODUCTION

With the continuous advancement of basic education reform in China, high-quality, balanced and human-centered education has become a core development orientation for primary and secondary education in the new era. National policy documents such as China Education Modernization 2035 emphasize the construction of high-quality teaching staff and the modernization of school governance systems, which puts forward higher requirements for internal school management and the psychological working environment of teachers (State Council of the People's Republic of China, 2019). Teacher work engagement reflects teachers' positive psychological condition at work, manifested in vigor, dedication and absorption (Schaufeli et al., 2006). It directly influences teaching quality, student development and the stable operation of schools, and has become a key indicator for evaluating the effectiveness of teacher team construction.

School management covers teacher performance appraisal, title promotion, workload arrangement, training opportunities and incentive implementation, forming the core institutional environment for teachers' professional survival and growth. From the perspective of organizational justice theory, fairness is not merely equal resource distribution, but a multi-dimensional construct including distributive, procedural, interpersonal and informational justice (Colquitt, 2001). Distributive justice concerns the fairness of outcome allocation; procedural justice focuses on standardized and consistent decision-making processes; interpersonal justice reflects respectful interpersonal treatment from administrators; informational justice requires adequate, transparent explanations for institutional decisions. All these dimensions jointly shape teachers' perceived organizational justice in daily school governance.

Teachers' fairness perception significantly predicts their work attitudes and behaviors. Existing international and domestic empirical studies show that when employees perceive high organizational justice, they tend to generate positive work emotions, higher organizational commitment and better job performance (Colquitt et al., 2001). In educational contexts, teachers who experience fair school management are more likely to maintain high work engagement (Lyu, 2016). On the contrary, unfair institutional design, inconsistent policy execution, opaque information and insufficient humanistic communication will consume teachers' psychological resources, trigger job burnout and reduce their willingness to devote energy to teaching practice (Bakker & Demerouti, 2007).

Linyi City is a major prefecture-level city for basic education in Shandong Province, owning a large number of compulsory-education schools and massive teacher groups (Linyi Municipal Bureau of Education, 2024). Affected by urban-rural gaps and differences between public and private schools, practical gaps still exist in internal governance across local schools. Some grassroots schools face challenges including imbalanced resource distribution, inconsistent assessment standards and inadequate information disclosure. These practical conditions may weaken teachers' perceived organizational justice and further affect their work engagement. Although previous scholars have explored the correlation between organizational justice and teacher work engagement, most researches focus on general samples of teachers; few empirical studies target municipal-level primary and secondary teachers in Linyi, especially adopting the four-dimensional organizational justice framework to explore its influence mechanism on teacher work engagement under real school-management scenarios.

Against this background, this study takes in-service teachers from public and private primary and secondary schools in Linyi City as participants. Based on organizational justice theory, job-demands-resources model (Bakker & Demerouti, 2007) and conservation of resources theory (Hobfoll, 1989), it investigates the current status of teachers' perceived organizational justice (distributive, procedural, interpersonal, informational justice) and their work engagement (vigor, dedication, absorption). This paper further explores how perceived

organizational justice in school management influences teacher work engagement, and identifies which justice dimensions exert prominent predictive effects.

This research possesses both theoretical and practical value. Theoretically, it supplements localized empirical evidence for school organizational-justice research in prefecture-level basic-education contexts. Practically, according to statistical results, targeted suggestions will be put forward for local education authorities and school administrators to optimize institutional construction, improve management practices, enhance teachers' sense of fairness, stimulate internal work motivation and stabilize grassroots teaching teams. It hopes to provide references for promoting high-quality and balanced development of basic education in Linyi City.

LITERATURE REVIEWS

Perceived organizational justice in school management influences teacher work engagement in primary and secondary schools in Linyi City, China.

A collectivistic, relationship-oriented cultural context is critical for understanding school organizational justice in China, especially within basic education settings (Hsu & Lee, 2012; Mujtaba et al., 2021). Geert Hofstede coined the term "relationship-oriented culture", defining it as a culture that attaches great importance to interpersonal connections within organizations (Hofstede, 1984). Individuals within relationship-centered organizations value hierarchical norms and interpersonal harmony (Hofstede & Bond, 1988). Chandler & Graham (2010) argued that relationship-oriented cultures are characteristic of high-context and collectivistic societies, where interpersonal interactions are emphasized. In school management within such cultural contexts, transparent communication serves as a core managerial tool to share institutional rules, evaluation standards and decision-making information with teachers. It mitigates misunderstandings in organizational interactions and enhances mutual trust between school administrators and teaching staff (Weinzierl, 2021). Marschan-Piekkari et al. (1999) noted that transparent information exchange is essential for effective human resource management within organizations. Similarly, Sørensen (2005) stated that internal communication mechanisms function as a tool for organizations to coordinate information flow across different departments. In school contexts, transparent communication may include releasing assessment policies, workload arrangements, promotion criteria and institutional notifications via official announcements, meetings and internal platforms (Lionbridge, 2019). Therefore, schools embedded in relationship-oriented cultural environments need to maintain open and transparent internal communication to foster teachers' perceived organizational justice. It can be inferred that recognition of local relationship-oriented cultural features is positively associated with teachers' perceived organizational justice. Accordingly, the following two hypotheses derived for this study:

H1: Perceived organizational justice in school management influences teacher work engagement in primary and secondary schools in Linyi City, China.

The components of perceived organizational justice in school management, including distributive justice, procedural justice, interpersonal justice, and informational justice, influence teacher work engagement in primary and secondary schools in Linyi City, China.

The present study adopts Colquitt's (2001) four-dimensional organizational justice framework, comprising distributive justice (fairness of outcome allocation), procedural justice (consistency and transparency of decision-making procedures), interpersonal justice (respectful and dignified treatment by school administrators), and informational justice (adequate, transparent explanations for institutional decisions). In educational settings, teachers who perceive their school management as fair across these dimensions are more likely to sustain positive work attitudes and to invest greater vigor, dedication, and absorption in teaching (Colquitt et al.,

2001; Lyu, 2016). Conversely, perceived unfairness in resource allocation, decision-making procedures, interpersonal treatment, or information disclosure can deplete teachers' psychological resources and weaken their willingness to devote energy to teaching practice (Bakker & Demerouti, 2007). Accordingly, the following two hypotheses are derived for this study:

H2: The components of perceived organizational justice in school management, including distributive justice, procedural justice, interpersonal justice, and informational justice, have significant positive influences on teacher work engagement in primary and secondary schools in Linyi City, China.

From the literature review, the conceptual framework can be drawn as shown in Figure 1.

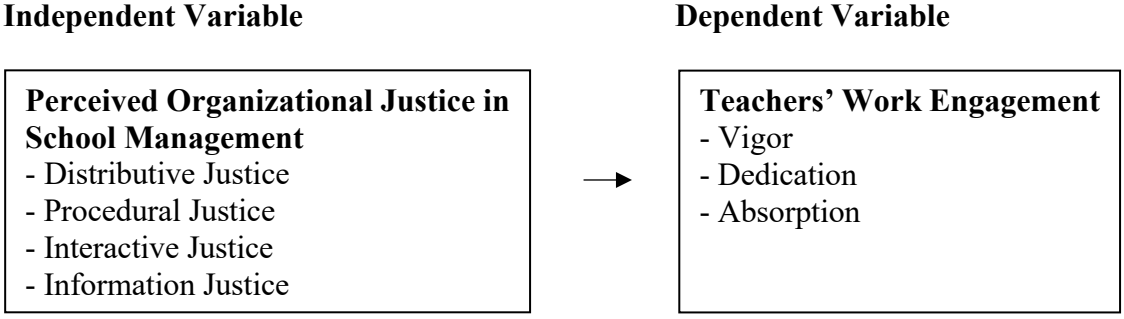

Figure 1 Conceptual framework adapted from (Hobfoll, 1989; Colquitt, 2001).

RESEARCH METHODOLOGY

This paper, entitled "The Influence of Perceived Organizational Justice in School Management on Teacher Work Engagement in Primary and Secondary Schools in Linyi City, China," adopts a quantitative research paradigm. It adopts questionnaire surveys to gather empirical data and applies statistical software for data processing and analysis, with the research methods elaborated from research design and sample, research instruments, data collection and quality control, as well as data analysis methods.

In terms of research approach, this study chooses quantitative research, which fits its research objective: to measure teachers' perceptions of organizational justice and their work-engagement levels and to statistically verify the causal-like influences among these variables. This method enables researchers to acquire standardized numerical data from a large group of teachers, which can be further processed by descriptive and inferential statistics. The study adopts a cross-sectional survey design. Rather than carrying out long-term repeated data collection, it collects information within a fixed time window. This design is suitable for exploring the present status of teachers' perceived organizational justice and work engagement as well as their correlational relationships. The researcher does not artificially manipulate the two core variables; instead, teachers self-report their real-world perceptions and experiences via structured questionnaires.

The research population covers 124,600 primary and secondary school teachers in Linyi City, Shandong Province (Linyi Municipal Bureau of Education, 2024). Teachers are selected as research subjects because they are directly impacted by school-level management practices, including workload allocation, performance assessment, reward mechanisms, career promotion, decision-making participation, communication and administrative support. Covering both primary and secondary school teachers helps the research gain a comprehensive picture of organizational justice and teacher work engagement under local school-management circumstances.

After retrieving questionnaires and screening valid samples, the study organizes survey data and carries out quantitative analysis with statistical software. Following research hypotheses and research design, a series of statistical examinations are implemented step-by-step to

guarantee standardized analytical procedures and dependable research outcomes. First, descriptive statistics are applied to depict demographic features of respondents. It also computes total scores, means and distribution of each sub-dimension concerning school management fairness and teacher engagement, so as to demonstrate the current status of local school management fairness, overall teacher work-engagement level and dimensional characteristics, and to clarify the real-world situation of key variables. Second, reliability and validity tests are performed to guarantee the scientificity of measurement instruments. Cronbach's alpha coefficient is calculated to assess internal-consistency reliability of the two scales and verify questionnaire stability. For hypothesis verification, Pearson correlation analysis is used to identify the direction and intensity of links between perceived organizational justice and teacher work engagement. Multiple regression analysis is further applied to examine the combined and individual predictive effects of the four justice dimensions (distributive, procedural, interpersonal, and informational justice) on teacher work engagement. All statistical tests adopt a significance threshold of 0.05.

RESEARCH RESULTS

The independent research titled "The Influence of Perceived Organizational Justice in School Management on Teacher Work Engagement in Primary and Secondary Schools in Linyi City, China" collected data from 444 teaching staff in Linyi City's primary and secondary schools. The analysis results are divided into the following themes:

4.1 Results of the general information analysis of respondents

A total of 444 valid questionnaires were collected from in-service primary and secondary school teachers in Linyi City. Table 4.1 presents the demographic and professional profile of the respondents.

Table 4.1 shows the number and percentage of respondents' general information.

Variable	Category	Frequency	Percentage
Gender	Male	230	51.80%
	Female	213	48.00%
	Prefer not to say	1	0.20%
Age	Below 30 years	98	22.10%
	30-39 years	141	31.80%
	40-49 years	127	28.60%
	50 years or above	78	17.60%
Educational Qualification	Bachelor's Degree	130	29.30%
	Master's Degree	260	58.60%
	Doctoral Degree	54	12.20%
Type of School	Primary School	260	58.60%
	Secondary School	184	41.40%
Years of Teaching Experience	Less than 5 years	119	26.80%
	5-10 years	165	37.20%
	11-15 years	70	15.80%
	16-20 years	66	14.90%
	More than 20 years	24	5.40%
Professional Rank	Junior Level	141	31.80%
	Intermediate Level	151	34.00%
	Senior Level	152	34.20%

As shown in Table 4.1, male and female teachers were almost evenly distributed (51.8% vs. 48.0%). The majority of respondents were aged between 30 and 49 years (60.4%), representing

the backbone teaching force in Linyi's basic education system. More than half of the respondents held a Master's degree (58.6%), followed by Bachelor's degree holders (29.3%), indicating a generally well-educated teaching workforce. Primary school teachers accounted for 58.6% of the sample and secondary school teachers 41.4%. In terms of teaching experience, teachers with 5-10 years of service formed the largest group (37.2%), and the sample covered both novice and senior teachers across all experience bands. Professional ranks were fairly balanced among Junior (31.8%), Intermediate (34.0%), and Senior (34.2%) levels. Overall, the sample demonstrated reasonable diversity across all demographic variables, supporting the representativeness of the survey.

4.2 Results of data analysis on organizational fairness in school management

Descriptive statistics, including means and standard deviations, were computed for the overall perceived organizational justice scale and its four sub-dimensions: **distributive** justice, procedural justice, interpersonal justice, and informational justice. All items were measured on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

Table 4.2 Descriptive Statistics of Perceived Organizational Justice

Dimension	Mean	S.D.	Level
Distributive Justice	3.02	0.61	Moderate
Procedural Justice	3.1	0.59	Moderate
Interpersonal Justice	3.15	0.62	Moderate
Informational Justice	2.98	0.6	Moderate
Overall Perceived Organizational Justice	3.06	0.55	Moderate

As presented in Table 4.2, the overall mean score of perceived organizational justice was 3.06 (SD = 0.55), indicating that teachers in Linyi's primary and secondary schools held a moderate level of perceived organizational fairness in school management. Among the four sub-dimensions, interpersonal justice received the highest mean score (M = 3.15, SD = 0.62), suggesting that teachers generally felt treated with respect and dignity by school administrators in daily interactions. Procedural justice ranked second (M = 3.10, SD = 0.59), reflecting relatively positive perceptions of the consistency and fairness of school decision-making procedures. Distributive justice yielded a moderate mean (M = 3.02, SD = 0.61), indicating that teachers held neutral attitudes toward the fairness of workload, rewards, and resource allocation. Informational justice scored the lowest (M = 2.98, SD = 0.60), implying that many teachers felt that school administrators did not always provide timely, sufficient, and transparent explanations for management decisions. This suggests that information disclosure and two-way communication in school management require further improvement.

4.3 Analysis Results of Teacher Work Engagement Data

Table 4.3 reports the descriptive statistics for teacher work engagement and its three dimensions: vigor, dedication, and absorption.

Dimension	Mean	S.D.	Level
Vigor	3.05	0.6	Moderate
Dedication	3.12	0.61	Moderate
Absorption	3	0.62	Moderate
Overall Teacher Work Engagement	3.06	0.58	Moderate

As shown in Table 4.3, the overall mean score of teacher work engagement was 3.06 (SD = 0.58), suggesting that Linyi's primary and secondary school teachers maintained a moderate level of work engagement. Among the three sub-dimensions, dedication scored the highest (M = 3.12, SD = 0.61), indicating that most teachers possessed a strong sense of professional

identity, enthusiasm, and perceived meaning in their teaching work. Vigor obtained a moderate mean (M = 3.05, SD = 0.60), suggesting that while teachers generally maintained energy and persistence at work, occupational pressure and heavy workload may have partially weakened their mental resilience. Absorption received the lowest mean (M = 3.00, SD = 0.62), implying that teachers often found it difficult to sustain deep, uninterrupted concentration on teaching and research tasks due to the interference of administrative duties and non-teaching affairs.

4.4 Hypothesis Testing Results

Pearson correlation analysis and multiple regression analysis were conducted to examine the proposed hypotheses, with a significance level set at $p < 0.05$.

4.4.1 Correlation Analysis

Table 4.4 Pearson Correlation Matrix

Variables	1	2	3	4	5	6
Distributive Justice						
Procedural Justice	.42					
Interpersonal Justice	.38	.45				
Informational Justice	.40	.48	.43			
Overall OJ	.72	.78	.74	.80		
Work Engagement	.39	.44	.41	.46	.48	

As shown in Table 4.4, perceived organizational justice and all four of its sub-dimensions were significantly and positively correlated with teacher work engagement ($r = .39$-$.48$, $p < 0.01$). Informational justice showed the strongest bivariate correlation with work engagement ($r = .46$, $p < 0.01$), followed by procedural justice ($r = .44$, $p < 0.01$), interpersonal justice ($r = .41$, $p < 0.01$), and distributive justice ($r = .39$, $p < 0.01$). These results provided preliminary support for the hypothesized relationships.

4.4.2 Regression Analysis

To test Hypothesis 1, a simple linear regression was performed with overall perceived organizational justice as the independent variable and teacher work engagement as the dependent variable.

Table 4.5. Regression of Work Engagement on Overall Organizational Justice

	B	S.E.	β	t	p
Constant	0.842	0.156	—	5.4	<.001
Overall OJ	0.726	0.051	0.482	14.23	<.001

The regression model was significant, $F(1, 442) = 202.58$, $p < .001$, with overall organizational justice explaining 23.2% of the variance in teacher work engagement ($R^2 = .232$). The standardized coefficient ($\beta = .482$, $p < .001$) indicated that higher perceived organizational justice was associated with higher work engagement. Hypothesis 1 was supported.

To test Hypothesis 2, a multiple regression analysis was conducted with the four justice dimensions entered simultaneously as predictors of teacher work engagement.

Table 4.6. Multiple Regression of Work Engagement on Four Justice Dimensions

Predictor	B	S.E.	β	t	p
Constant	0.815	0.162	—	5.03	<.001
Distributive Justice	0.152	0.043	0.158	3.53	<.001
Procedural Justice	0.198	0.048	0.204	4.13	<.001
Interpersonal Justice	0.174	0.044	0.181	3.95	<.001
Informational Justice	0.186	0.046	0.192	4.04	<.001

$R^2 = .251$, Adj. $R^2 = .244$, $F(4, 439) = 36.72$, $p < .001$.

The overall model was significant, $F(4, 439) = 36.72$, $p < .001$, explaining 25.1% of the variance in teacher work engagement ($R^2 = .251$). All four justice dimensions made unique and significant positive contributions: procedural justice ($\beta = .204$, $p < .001$) and informational justice ($\beta = .192$, $p < .001$) emerged as the strongest predictors, followed by interpersonal justice ($\beta = .181$, $p < .001$) and distributive justice ($\beta = .158$, $p < .001$). Hypothesis 2 was supported.

4.5 Summary of the Data Analysis Results

This chapter reported the descriptive and inferential statistical results based on 444 valid questionnaires from primary and secondary school teachers in Linyi City. The demographic analysis revealed a diverse sample covering varied gender, age, educational background, school level, teaching experience, and professional rank groups, ensuring adequate representativeness.

Teachers' overall perceived organizational justice was at a moderate level (M = 3.06). Interpersonal justice scored highest, followed by procedural justice and distributive justice, while informational justice was the weakest dimension, highlighting the need for improved information transparency in school management. Teacher work engagement was also moderate overall (M = 3.06), with dedication as the strongest dimension and absorption as the lowest.

Correlation analysis showed that all four dimensions of organizational justice were significantly and positively correlated with teacher work engagement. Regression analysis confirmed that overall organizational justice significantly and positively predicted work engagement (H1 supported), and each of the four justice dimensions exerted a significant unique positive effect on work engagement (H2 supported), with procedural and informational justice demonstrating relatively stronger predictive power.

These empirical findings indicate that fair school management—particularly standardized decision-making procedures, transparent information disclosure, respectful interpersonal treatment, and equitable resource allocation—plays a significant role in promoting teachers' work engagement. The results provide a quantitative basis for the discussion and practical recommendations presented in the following chapter.

DISCUSSION & CONCLUSION

5.1 Conclusion

This study aimed to investigate the influence of perceived organizational justice in school management on teacher work engagement among primary and secondary-school teachers in Linyi City, China. Based on organizational justice theory, conservation-of-resources theory and social exchange theory, a questionnaire survey was conducted with 444 valid samples of in-service primary and secondary-school teachers from Linyi's public and private schools. Descriptive statistics, Pearson correlation analysis and multiple regression analysis were applied to test the research hypotheses. Several major conclusions are drawn from the empirical data.

First, Linyi primary and secondary-school teachers reported a **moderate overall level of perceived organizational justice** (M = 3.06). Among the four sub-dimensions, interpersonal justice obtained the highest score, followed by procedural justice and distributive justice; informational justice represented the weakest dimension. This finding indicates that teachers generally feel respected in daily administrator-teacher interactions, yet information transparency and adequate explanation for institutional decisions remain prominent weaknesses in local school management.

Second, teachers' overall work engagement was also at a **moderate level** (M = 3.06). Dedication achieved the highest mean value, demonstrating that most teachers possess

professional identity and recognize the value of teaching work. Comparatively, vigor and absorption scored relatively lower, suggesting that heavy workloads, non-teaching administrative tasks and occupational pressure interfere with teachers' energy reserves and deep concentration on instructional activities.

Third, Pearson correlation results showed that overall perceived organizational justice and its four sub-dimensions (distributive, procedural, interpersonal, informational justice) were significantly and positively correlated with teacher work engagement ($p < 0.01$). Fourth, multiple regression analysis verified that perceived organizational justice significantly positively predicted teacher work engagement, which supported Hypothesis 1. Each of the four justice dimensions exerted unique significant predictive effects on work engagement; procedural justice and informational justice showed comparatively stronger predictive power, confirming Hypothesis 2. In summary, higher perceived organizational justice in school management contributes to higher teacher work engagement for primary and secondary-school teachers in Linyi City.

5.2 Discussions

The present study's findings are largely consistent with existing domestic and international research outcomes on organizational justice and teacher work engagement (Huang et al., 2024; Lyu, 2016; Köse & Uzun, 2018). The significant positive association between organizational justice and teacher work engagement aligns with the core viewpoint of conservation-of-resources theory. Fair school management supplies valuable psychological resources for teachers; conversely, perceived unfairness consumes individual psychological resources, triggers negative emotions and reduces teachers' willingness to devote themselves to teaching (Hobfoll, 1989). From the perspective of social-exchange theory, when schools deliver fair treatment in resource allocation, decision-making procedures and interpersonal communication, teachers will reciprocate with higher work engagement out of the norm of reciprocity (Blau, 1964).

In this study, interpersonal justice scored highest among the four dimensions, which may relate to the collectivistic, relationship-oriented cultural context of Chinese basic-education campuses. School administrators in Linyi generally maintain polite daily communication with front-line teachers. Nevertheless, informational justice obtained the lowest score. It implies that many schools still lack sufficient transparent interpretation for assessment, promotion and reward-punishment policies. Rules are announced, but detailed explanations for decision-making backgrounds and standards are often missing, creating information asymmetry between managers and teachers.

Regarding teacher work engagement, dedication stood out as the strongest dimension. This result reflects the intrinsic professional ideal and sense of mission among local primary and secondary-school teachers. However, vigor and absorption were restricted by realistic pressure. Excessive non-teaching work occupies teachers' time and energy, making it difficult for them to maintain continuous vitality and deep immersion in teaching practice.

Regression results indicated procedural and informational justice have stronger predictive effects on work engagement. This outcome carries practical meaning for school governance. Many studies have emphasized the importance of distributive justice focusing on salary and benefit distribution (Lyu, 2016). This study further reveals that standardized procedures and transparent information disclosure are equally critical for stimulating teacher work engagement in Linyi's school context. Even if material resource distribution is relatively reasonable, non-standard decision-making processes and insufficient information disclosure will still weaken teachers' overall fairness perception and suppress their work engagement.

It is also worth noting that the sample displayed moderate mean values for both core variables. It suggests that local school management fairness and teacher work engagement have room for

improvement, especially for rural and private schools, where management conditions require more attention.

5.3 Implications of the study

5.3.1 Practical Implications

According to the empirical results, practical recommendations are proposed for educational administrative departments and primary-secondary-school administrators in Linyi City to improve teachers' perceived organizational justice and promote work engagement.

First, optimize institutional procedures and reinforce procedural justice. Schools should formulate unified, open assessment, title-promotion and reward standards. Teachers shall be provided legitimate channels to express opinions before major management decisions are rolled out. Decision-making processes should avoid human interference and differential treatment for different positions. Standardized procedures can enhance teachers' sense of institutional security.

Second, improve information transparency to lift informational justice. Schools need to fully release assessment rules, promotion quotas, performance-distribution schemes and other key management information via staff meetings, internal platforms and official announcements. Necessary explanations for adjustment of institutional policies should be delivered to reduce information asymmetry between administrators and teachers.

Third, continue to value interpersonal justice and human-oriented campus management. School leaders should maintain respectful, equal communication with front-line teachers. Build regular communication mechanisms to listen to teachers' real-world difficulties and demands, reduce bureaucratic management styles, and create harmonious administrator-teacher relationships.

Fourth, reasonably promote distributive justice. Optimize the distribution mechanism of performance pay, workload, honor and training opportunities. Ensure rewards match teachers' practical contributions, avoid resource inclination toward administrative posts, and safeguard the legitimate interests of front-line teachers.

Fifth, reduce unnecessary non-teaching burdens for teachers. Cut redundant administrative work so that teachers can preserve energy for classroom instruction, improve their vigor, and achieve deeper absorption in teaching-research activities, thus giving full play to their professional dedication.

5.3.2 Theoretical Implications

The present study enriches localized empirical evidence for the research on school-management-related organizational justice under China's prefecture-level basic-education background. Adopting Colquitt's four-dimensional organizational-justice framework, this study verifies how distributive, procedural, interpersonal and informational justice jointly predict teacher work engagement among Linyi primary and secondary-school teachers. It supplements municipal-level empirical data for domestic school-organizational-justice research. Meanwhile, this research combines organizational-justice theory, conservation-of-resources theory and social-exchange theory to interpret the formation mechanism of teacher work engagement, providing references for follow-up educational-management research in similar regional contexts.

5.4 Future research

This study has several limitations, which offer directions for future research.

First, this research adopted a cross-sectional questionnaire survey design. It can only reflect static correlation between variables and cannot draw firm causal conclusions. Future researchers may adopt longitudinal tracking design or mixed-methods research combining questionnaires with semi-structured interviews, to deeply observe the dynamic influence path of perceived organizational justice on teacher work engagement over time.

Second, convenience sampling was used in this study. Although the sample covers different ages, teaching years and school types, random sampling could be adopted in future studies to

improve sample representativeness. Sub-group comparison can be further expanded to conduct in-depth analysis of differences between urban-rural schools, public-private schools and different teacher groups.

Third, this study mainly examined the direct predictive effect of four-dimensional organizational justice on teacher work engagement. Subsequent research can introduce mediating or moderating variables such as psychological safety, professional identity, school climate or demographic variables, to explore the internal mediating mechanism and boundary conditions of this relationship.

Fourth, the research object is limited to primary and secondary-school teachers in Linyi City. Future studies can expand the geographical scope to compare teachers from different cities or provinces, so as to test whether the research conclusions have broader applicability in the Chinese basic-education system.

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Data Availability Statement: The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

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