อิทธิพลคั่นกลางของบรรยากาศองค์การและการทำงานเป็นทีมของครู ที่ส่งผลต่อความสัมพันธ์ระหว่างภาวะผู้นำของผู้บริหาร กับความสามารถของครูในมหาวิทยาลัยเมืองนานชาง

MEDIATION EFFECT OF ORGANIZATIONAL CLIMAT AND TEACHERS' TEAMWORK ON RELATIONSHIP BETWEEN ADMINISTRATORS' LEADERSHIP AND TEACHERS' ABILITY IN UNIVERSITIES IN NANCHANG CITY

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Abstract

The objectives of this research were: (1) To explore the components of administrators' leadership, teachers' ability, Organizational Climate and teachers' teamwork in universities in Nanchang (2) To develop the mediating effect model of the organizational climate and teacher's teamwork on the relationship between the administrators' leadership and teachers' ability in universities in Nanchang and (3) To decompose the direct and indirect effect of administrators' leadership, organizational climate and teachers' teamwork on teachers' ability in universities in Nanchang, Jiangxi province.

The research employed a quantitative approach. The population of the research were 1,540 teachers in the universities in Nanchang under Jiangxi province. The sample were 449 teachers, determined by G*power and obtained by proportional stratified random sampling method. Data were collected by a five-point rating scale questionnaire. The data were analyzed by descriptive statistics, Confirmatory Factor Analysis and Structural equation modeling.

The research found that; (1) administrators' leadership, organizational climate, teachers' teamwork, and teachers' ability each comprised three distinct components (2) the mediating effect model of organizational climate and teacher's teamwork on the relationship between the administrators' leadership and teachers' ability in universities in Nanchang a good fit with the empirical data; (χ^2=101.115, df=71, CMIN/Df=1.424, CFI =0.988, TLI=0.985, SRMR =0.024, RMSEA =0.030) and (3) the administrators' leadership, Organizational Climate and teachers' teamwork had significant direct effect on the teachers' ability. Additionally, administrators' leadership had indirect effect on teachers' ability through the mediating effect of organizational climate and teachers' teamwork.

Keywords: Administrators' leadership, Organizational climate, Teachers' teamwork, Teachers' ability.

Introduction

Since the 21st century, global economic transformation and technological advancements have catalyzed profound shifts in education systems worldwide. The rise of educational informatization has pressured traditional teaching models to evolve, demanding that educators enhance both pedagogical innovation and technological integration to address students' diversified learning needs in the digital age. In China, Jiangxi Province's 14th five-year plan for educational development prioritizes its "Education Strong Province" initiative, emphasizing rural teacher training, dual-qualified vocational faculty development, and smart education platform construction to advance regional educational modernization. (China Education Center, 2025)

Existing studies highlight a bidirectional interplay between university administrators' leadership and teacher ability development. However, research gaps persist: (1) oversimplified focus on singular dimensions, neglecting systematic analysis of dynamic interaction mechanisms; (2) overreliance on qualitative methodologies with limited quantitative validation, restricting generalizability; (3) insufficient cross-cultural and cross-institutional comparative studies, hindering comprehensive theoretical frameworks. Addressing these gaps holds critical implications. Empirically mapping leadership-ability pathways can optimize resource allocation, promote equity, and directly enhance teaching quality by empowering teacher professional growth.

This study examines administrator-teacher dynamics across four universities in Nanchang city, (2 public/2 private) via questionnaires, focusing on digital-era role shifts. Findings show teachers ability must evolve beyond traditional teaching roles by enhancing digital integration, interdisciplinary collaboration, and adaptive pedagogy. Administrators' strategic resource allocation critically shapes professional growth pathways. The research offers frameworks for leadership evaluation systems and competency development mechanisms, emphasizing policy-institutional synergy to address post-pandemic educational challenges. It's advocates on coordinated management to modernization universities on administrative structure, organization cultural and teamwork to improve educational quality according align with globalization, high technology growth and economic base society demands of the new world.

Research Questions

1. What are the components of Administrators' Leadership, Organizational Climate, Teachers' Teamwork and teachers' Ability in universities in Nanchang?

2. What is the mediation effect model of Organizational Climate and teamwork on the relationship between administrators' leadership and Teachers' Ability in universities in Nanchang?

3. How does Administrators' Leadership, Teachers' Teamwork and Organizational Climate had direct effect and indirect effect on Teacher' Ability in universities in Nanchang?

Research objective

1. To explore the components of Administrators' Leadership, Teacher's Ability, Organizational Climate, and Teachers' Teamwork in universities in Nanchang

2. To develop the mediating effect model of organizational climate and teacher's teamwork on the relationship between Administrators' Leadership and Teachers' Ability in universities in Nanchang.

3. To decompose the direct and indirect effect of Administrators' leadership, Organizational Climate, and Teachers' Teamwork on the Teachers' Ability in universities in Nanchang.

Research hypothesis

H1; Administrators' Leadership had a positive direct effect on the Teachers' Ability.

H2; Organizational Climate had a positive direct effect on the Teachers' Ability.

H3; Administrators' Leadership had a positive direct effect on the Organizational Climate.

H4; Teachers' Teamwork had a positive direct effect on the Teachers' Ability.

H5; Administrators' Leadership had a positive direct effect on the Teachers' Teamwork.

H6; Organizational Climate had a positive direct effect on the Teachers' Teamwork.

H7; Administrators' Leadership had an indirect effect on the Teachers' Ability through Organizational Climate, as a mediating effect.

H8; Administrators' Leadership had an indirect effect on the Teachers' Ability through Teachers' Teamwork, as a mediating effect.

H9; Administrators' Leadership had an indirect effect on Teacher' Ability through Organizational Climate and Teachers' Teamwork, as mediating effect.

Conceptual framework

This research was conducted on four universities in Nanchang, Jiangxi province. The research methods to verify the correlation between the four variables, includes administrator leadership (personal reason, school reason, social factors), teachers' ability (communication, organization and management, educational Research), organizational climate (organizational culture, learning climate, interpersonal relationships), and teachers' teamwork (team goals, team norms, team leadership, and team communication). As the figure 1

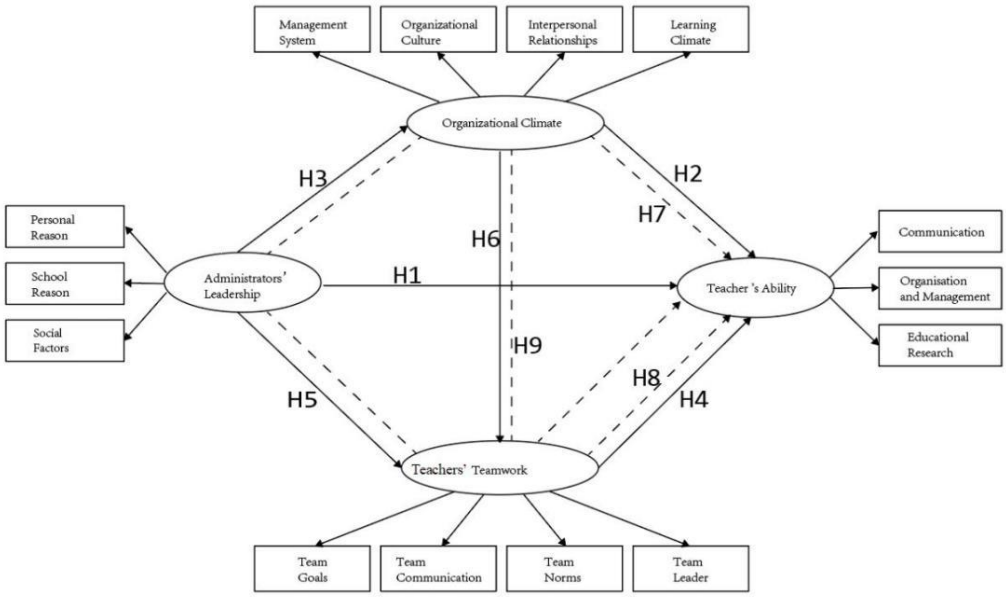


Figure 1 Conceptual framework of this research

Research Methodology

The research was using quantitative approach. The research methodology will be organized following topics: Research design, Population and sampling, Research instruments, Data collection, and Data analysis.

Research Design

This research design was focus on the relationship among Administrators' Leadership, Organizational Climate, Teachers' Teamwork had direct effect on teachers' ability and Administrators' Leadership had indirect effect on teachers' Ability in universities through teachers' teamwork and organizational climate

Population and sample

The research population were teachers from four universities in Nanchang, including Jiangxi University of Science and Technology, Nanchang Institute of Science Technology, Nanchang University, and Yuzhang Normal University was a total of 1,544 teachers. the sample determined by G*power (df 99, effect size 0.3, error prob. = 0.05 and power = 0.80), were 449 teachers, and using proportional stratified random sampling method.

Research instruments

The questionnaire comprises two sections: section 1) For basic demographics of respondents by checklist (age, education, gender), and section 2) For latent variables, using

a five-points rating scale questionnaires, there were divided to four parts; Administrators' Leadership, Organizational Culture, Teachers' Teamwork, and Teacher Ability. To ensure validity from the Item-Objective Congruence (IOC) index was applied, with five experts scoring each item was between 0.60-1.0, and reliability analyzed with Cronbach's alpha coefficient was between 0.86 – 0.91 to confirmed to internal consistency of the questionnaires.

Data Collection

The researchers distributed a Likert (5-point rating scale) questionnaire to the participants. Select teachers from four universities in Nanchang City, Jiangxi Province (Jiangxi University of Science and Technology, Nanchang Institute of Science Technology, Nanchang University, and Yuzhang Normal University) as research samples and collect data through online questionnaires.

Data analysis

To facilitate the presentation and interpretation of research results, a series of symbols and abbreviations were used in the study. AL represents Administrator Leadership, TA represents Teachers' Ability, OC represents Organizational Climate, TT represents Teachers' Teamwork, etc., The data analyzed on descriptive with percent, mean, S.D., Skewness and Kurtosis, and inferential statistic with CFA and SEM.

Research Result

1) The data was collecting from the questionnaires, the result on the information of respondents as the table 1.

Table 1 Demographic statistics of respondents

		Frequency	Percent	Cumulative Percent
gen	Male	251	52.1%	52.1%
	Female	231	47.9%	100.00%
age	less than 26 years	84	17.4%	17.4%
	26-35years	185	38.4%	55.8%
	36-45years	141	29.3%	85.1%
	46-50years	56	11.6%	96.7%
	More than 50 years	16	3.3%	100.00%
working	5 years or less	133	27.6	27.6
experience	6-10 years	188	39	66.6

		Frequency	Percent	Cumulative Percent
	11-25 years	113	23.4	90
	15 years or more	48	10	100
Professional title	Assistant teacher	133	27.6	27.6
	Instructor	289	60	87.6
	Associate Professor	51	10.6	98.1
	Professor	9	1.9	100

Table 1 shows a demographic of respondents, the majority were males of 52.1% and female of 47.9%. Age groups reveal was 26-35 years old (38.4%), followed by 36-45 (29.3%), under-26 (17.4%), with those over-fifty years old was the smallest group (3.3%). Professional titles were predominantly instructors of 60% and assistant teachers was 27.6%, while associate/full professors constitute was 10.6% and 1.9% respectively. Work experience distribution shows 6-10 years as most common was 39%, followed by 1-5 years was 27.6%, 11-15 years was 23.4%, and over-15 years was 10%.

2) Data descriptive analysis on mean, standard deviation, Skewness and Kurtosis from the questionnaires, as the table 2.

Table 2 The standard deviation of coefficient of variation, skewness, and kurtosis.

	$\overline{x}$	S.D.	Skewness	Kurtosis
AL1	3.4075	0.04309	-0.233	-0.995
AL2	3.3926	0.04384	-0.220	-0.986
AL3	3.4510	0.04250	-0.290	-0.814
AL	3.4170	0.03568	0.058	-1.202
TA1	3.4071	0.04243	-0.232	-0.933
TA2	3.4046	0.04474	-0.177	-1.151
TA3	3.4461	0.04388	-0.303	-0.921
TA	3.4192	0.03601	0.042	-1.299
TT1	3.3855	0.04402	-0.22	-1.032
TT2	3.4220	0.04202	-0.232	-0.920
TT3	3.4552	0.04074	-0.322	-0.795
TT4	3.3755	0.04568	-0.277	-1.030
TT	3.4095	0.0342	0.079	-1.324

Table 2 The standard deviation of coefficient of variation, skewness, and kurtosis.

	$\overline{x}$	S.D.	Skewness	Kurtosis
OC1	3.4763	0.04298	-0.327	-0.938
OC2	3.4577	0.0422	-0.309	-0.884
OC3	3.4270	0.04412	-0.258	-0.987
OC4	3.4021	0.04334	-0.288	-0.995
OC	3.4408	0.03477	0.0410	-1.364

From Table 2, descriptive statistics reveal consistent patterns across variables (AL, TA, TT, OC). All exhibit concentrated distributions (means: AL=3.417, TA=3.419, TT=3.410, and OC=3.441) those were at high level, the standard deviations was between 0.035–0.036. the skewness was between 0.041–0.079 and negative kurtosis was between -1.202 – -1.364, The indicate that shown normal data distributions.

3) The Intercorrelation Between Latent Variables, as the table 3.

Table3 The Square Matrix of Intercorrelation Between Latent Variables

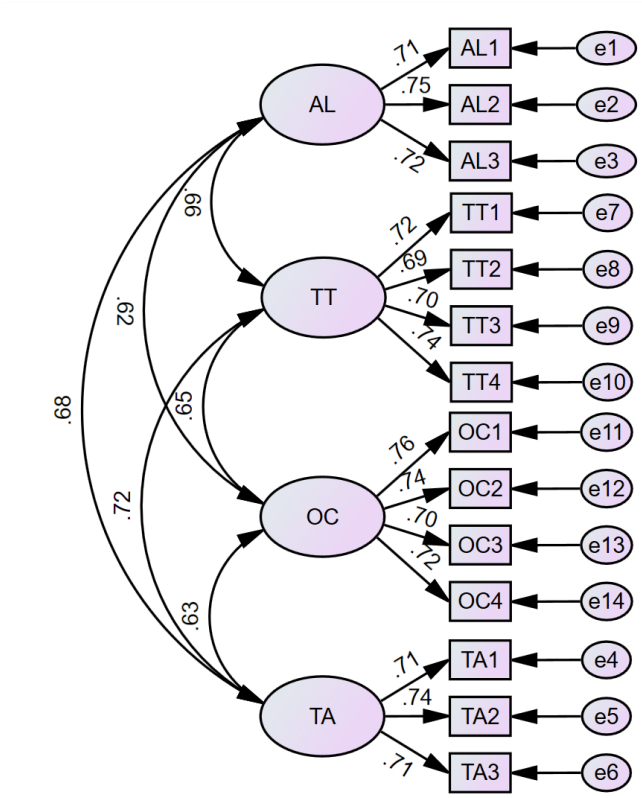
	AL	TA	TT	OC
AL	1			
TA	0.522**	1		
TT	0.519**	0.563**	1	
OC	0.490**	0.500**	0.528**	1

** Correlation is significant at the 0.01 level (2-tailed).

The inter-correlation matrix reveals significant positive associations among variables ($p<0.01$). that shown moderate-to-strong correlations (between 0.49 to 0.56) indicating correlation was suitable for CFA and SEM analysis on the next step.

4) Measurement model (Confirmation factors Analysis model)

Based on the above analysis, 14 dimensions were identified. Next, this study conducted a confirmatory factor analysis using Amos software to assess on figure 2



Chi-square=101.115, df= 71, CMIN/df= 1.424,

TLI=0.985, GFI= 0.970, CFI=0.988, RMSEA=0.030

Figure 2 The Measurement Model in Unstandardized estimates.

Table 4 Show the measurement model indicated a good of fit after modifying.

Parameters	Threshold	Model Value	Interpretation
CMIN	101.115	--	--
df	71	--	--
CMIN/df	1.424	1-3 Excellent,3-5 Acceptable	Excellent
CFI	0.988	>0.95 Excellent, >0.9 Acceptable	Excellent
GFI	0.970	>0.95 Excellent, >0.9 Acceptable	Excellent
TLI	0.985	≥0.90 Excellent, >0.8 Acceptable	Excellent
RMSEA	0.030	<0.05 Excellent, <0.08 Acceptable	Excellent

The model fit assessment reveals the following results from the Confirmatory Factor Analysis; (CFA) conducted using the AMOS software: Chi-square value for model was 101.115, with corresponding degrees of freedom (df) at 71. The relative chi-square value (CMIN/df) of 1.424, was within the range of 1-3, it suggests that the model's fit was excellent. The others indicators of the model's appropriateness, the Tucker-Lewis Index (TLI) was

0.985, the Goodness of Fit Index (GFI) was 0.970, and the Comparative Fit Index (CFI) was 0.988, collectively suggesting a strong fit of the model to the data. The Root Mean Square Error of Approximation (RMSEA), calculated at 0.030, there were supports the notion that the model exhibits an excellent of fit with the empirical data. The standardized estimate value was shown in Table 5.

Table 5 Results of standardized estimate, convergence validity analysis

Relationship			Standardized Estimate	S.E.	C.R.	P	AVE	CR
AL1	<---	AL	0.787			***		
AL2	<---	AL	0.716	0.086	12.035	***	0.584	0.808
AL3	<---	AL	0.788	0.082	11.978	***		
TA1	<---	TA	0.706			***		
TA2	<---	TA	0.743	0.091	12.175	***	0.506	0.854
TA3	<---	TA	0.685	0.085	11.794	***		
TT1	<---	TT	0.713			***		
TT2	<---	TT	0.782	0.068	12.618	***	0.561	0.836
TT3	<---	TT	0.783	0.07	12.631	***		
TT4	<---	TT	0.715	0.074	13.072	***		
OC1	<---	OC	0.752			***		
OC2	<---	OC	0.716	0.069	14	***	0.521	0.813
OC3	<---	OC	0.709	0.066	13.557	***		
OC4	<---	OC	0.712	0.068	13.934	***		

According to Table 5, the standardized factor loadings for each measured variable were all greater than 0.7. The AVE of each latent variable was greater than 0.5, and CR was greater than 0.8, indicating that aggregated validity of the scale was acceptable. The Composite Reliability (CR), The Average Variance Extracted (AVE), The Maximum Shared Variance (MSV), The Maximum Reliability (MaxR(H)), and the Latent Variables Intercorrelation with Square Root of AVE shown in the Table 6.

Table 6. show CR, AVE and discriminant of model

	CR	AVE	MSV	MaxR	AL	TA	TT	OC
AL	0.76	0.584	0.272	0.808				
TA	0.755	0.506	0.317	0.854	0.522**			
TT	0.836	0.561	0.317	0.836	0.519**	0.563**		
OC	0.809	0.521	0.279	0.813	0.490**	0.500**	0.528**	

From Table 6, the latent variables reliability, the CR were more than 0.70, MSV less than AVE and the MaxR(H)>CR, and to identifying the convergent validity of the AVE≥0.50, to identify the discriminant validity by the method of Fornell & Larcker (1981), the square root of AVE of latent variables must be more than its shared variance to other latent variables.

The Heterotrait-monotrait ratio (HTMT) analysis was used to assess the discriminant validity. Discriminant validity refers to the ability to distinguish between the observed values when measuring different variables using different indicators. Discriminant validity can be measured by comparing the correlation coefficient between variables with the square root of their average extracted variance (AVE).

5) Hypothesis Testing

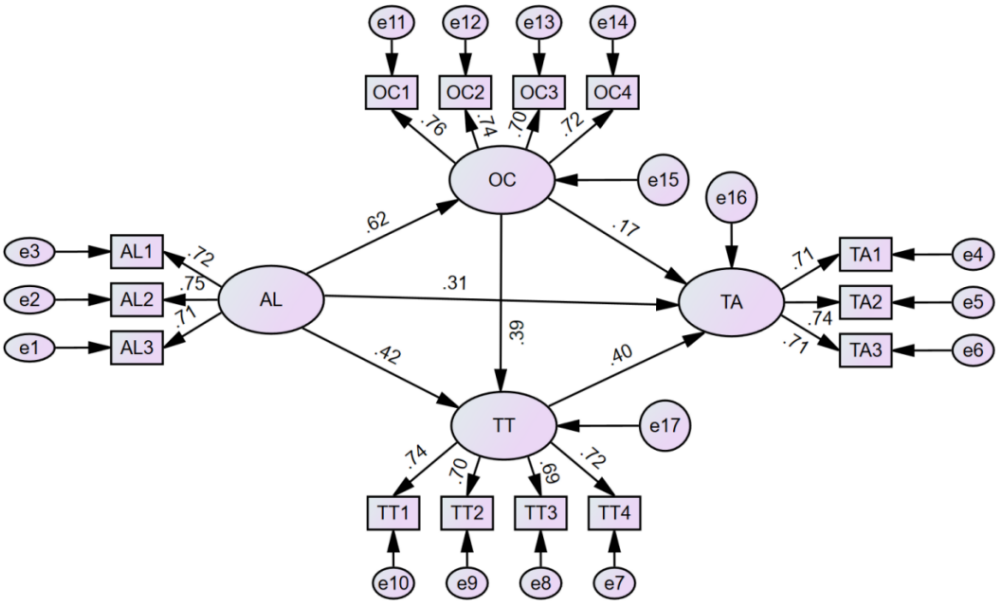


Figure 3 Structural Equation Models

From the figure 3, the result for analyzed on the effects of factors on the teachers' ability

Table 7 Path Analysis and Significance Testing of Latent Variables

Relationship			Unstd.	Std.	S.E.	C.R.	P	Hypothesis
OC	<---	AL	0.669	0.62	0.069	9.719	***	H3
TT	<---	AL	0.449	0.418	0.077	5.806	***	H5
TT	<---	OC	0.393	0.395	0.069	5.727	***	H6
TA	<---	OC	0.159	0.173	0.066	2.419	**	H2
TA	<---	TT	0.371	0.404	0.075	4.948	***	H4
TA	<---	AL	0.303	0.307	0.077	3.933	***	H1

Notes; Significance Indicators: **p<0.01, **p<0.001

From Table 7; The path analysis demonstrates statistically significant relationships among all latent variables (p<0.01). Administrators' Leadership had a positive direct effect on Organizational Climate (H3), (at 0.62, p<0.001)., effect on teachers; teamwork (H5), at 0.418, p<0.001), and effect on Teachers' Ability (H1), at 0.307, p<0.001). The OC had significantly positive direct effect on TT (H6), at 0.395, p<0.001) and effect on TA (H2), at 0.173, p<0.01). addition the TT shows had a positive direct effect on TA (H4), at 0.404, p<0.001, H4). The strongest relationship emerges between AL and OC (unstandardized coefficient=0.669, CR=9.719), while the weakest direct effect is OC⟶TA (unstandardized=0.159, CR=2.419). All critical ratios exceed 2.419, confirming robust statistical significance. These findings were accepted hypotheses H1-H6, when analyzed an indirect effect as follow in table 8.

Table 8. Show the indirect effects analysis

Indirect path	Estimate	95%C.I		Hypotheses
		Lower	Upper	
AL-->OC-->TA	0.671	0.548	0.802	H7
AL-->TT-->TA	0.592	0.425	0.783	H8
AL-->OC-->TT-->TA	0.719	0.593	0.860	H9

Table 8 The path analysis reveals significant indirect effects of Administrators' Leadership (AL) on Teaching Ability (TA) through mediators. For H7, AL⟶OC⟶TA shows a standardized effect of 0.671 (95% CI: 0.548–0.802), confirming organizational climate's mediation. H8 demonstrates AL⟶TT⟶TA with 0.592 (CI: 0.425–0.783),

highlighting teachers' ability as a mediator. H9's dual mediation (AL⟶OC⟶TT⟶TA) yields the strongest effect (0.719, CI: 0.593–0.860). All hypotheses (H7-H9) are supported, emphasizing OC and TT's cascading mediating roles.

Conclusion

1) Administrator leadership were three components, namely; personal reason, school reason, and social factors. Teachers' ability were three components, namely; communication, organization and management, educational Research. Organizational climate were three components, namely; organizational culture, learning climate, and interpersonal relationships. And Teachers' teamwork were three components, namely; team goals, team norms, team leadership, and team communication. The overall at a high level.

2) The mediation effect model of Organizational Climate and teamwork on the relationship between administrators' leadership and Teachers' Ability in universities in Nanchang fit well with empirical data. (χ^2=101.115, df=71, CMIN/Df=1.424, CFI =0.988, TLI=0.985, SRMR =0.024, RMSEA =0.030).

3) The administrators' leadership, Organizational Climate, and Teachers' teamwork had significant positive direct effect on the teachers' ability. Additionally; Administrators' leadership had indirect effect on teachers' ability through the mediating effect of organizational climate and teachers' teamwork.

Discussions

From the main finding could be discussion as follow;

The administrators' leadership had a positive direct effect on teachers' ability (H1), due to administrators' leadership plays a central role in setting the tone, vision, and expectations within a school. Effective leaders support professional development, offer instructional guidance, and foster a collaborative and motivating environment. When leaders are supportive, teachers feel more empowered and confident in applying innovative methods and improving their skills, according on transformational leadership theory (Bass, 1985): Leaders who inspire, intellectually stimulate, and show individualized consideration enhance followers' performance and commitment and administrators' leadership has a strong positive influence on teacher motivation and capacity building (Leithwood, & Jantzi, 2006).

Organizational Climate had significant positive direct effect on the teachers' ability (H2), due to teachers to feel safe, supported, and valued. Such environments reduce stress and enhance collaboration, leading to more effective teaching practices with according of Hoy & Miskel (2008) reported the authors argue that a positive school climate is essential for teacher effectiveness and student outcomes. And teachers' teamwork had significant positive direct effect on the teachers' ability (H4) due to when teachers collaborate, they share strategies, solve problems collectively, and engage in continuous learning. This professional dialogue and shared practice enhance instructional quality and lead to mutual improvement according Vangrieken, Dochy, Raes, & Kyndt, (2015). Said; the collaboration enhances teacher learning and instructional effectiveness, leading to improved teacher capacity.

Administrators' leadership had a positive direct effect on organizational climate (H3) and teamwork (H5) in higher education, that due to the effective leadership from school administrators cultivates a positive organizational climate by shaping norms, trust, and open communication. At the same time, it facilitates teamwork among teachers by encouraging collaboration, mutual support, and shared responsibility. These outcomes are well-supported by educational leadership theories and empirical research. According Leithwood & Jantzi (2006) found that transformational leadership significantly improves the school climate by promoting collaboration and trust. And Supovitz, Sirinides, & May (2010) found that when principals actively support and participate in collaborative teacher efforts, teacher teams are more cohesive and effective.

On indirect effect; Administrators' leadership had indirect effect on teachers' ability through the mediating effect of organizational climate (H7) and teachers' teamwork (H8). That due to administrators' leadership had indirect effect on school culture and environment. A positive organizational climate—marked by trust, clarity, and professional support—fosters motivation, job satisfaction, and commitment. These, in turn, improve teachers' instructional abilities, willingness to adopt new methods, and continuous professional growth (Bandura, 1986) and according Leithwood et al. (2004) demonstrated that leadership's influence on student outcomes is largely indirect—via climate and teacher behavior and Hord (1997) emphasized that leadership fosters team-based cultures that directly support teacher learning and growth.

Additionally, Administrators' leadership had indirect effect on teachers' ability through the mediating effect of organizational climate and teachers' teamwork. May be due

to indirect path highlights that administrators do not improve teaching ability solely by direct instruction or mandates, but by shaping the systems (climate and culture) and processes (teamwork and collaboration) that enable teachers to grow professionally according Leithwood, Harris, & Hopkins (2008) describe the “mediated effects model” of leadership, in which leadership practices affect student learning by influencing school conditions (climate) and teacher practices (collaboration and instruction).

Recommendation

Recommendations for improve administration’s leadership

Develop comprehensive training programs integrating modern educational theories, leadership strategies, and technological adaptability, focusing on management, communication, and decision-making skills. Establish mentorship systems for knowledge transfer between experienced and new administrators. Foster collaborative decision-making through structured platforms for consensus-building. Implement competency frameworks defining role-specific skills to guide recruitment, promotions, and evaluations. Prioritize continuous learning and inclusive leadership practices to align institutional goals with evolving educational demands, ensuring qualified leaders drive organizational excellence.

Recommendations for improve organizational climate

Enhance faculty well-being through flexible schedules, remote work options, and wellness initiatives to reduce burnout and boost performance. Strengthen administrator-faculty communication via transparent updates, inclusive decision-making, and open-door policies. Codify ethical standards promoting respect and inclusivity, with regular reviews to align with evolving norms. Modernize campus infrastructure (classrooms, labs, tech access) to support cutting-edge education. Prioritize stakeholder engagement, balancing operational efficiency with humane practices to cultivate a motivated, innovative academic community.

Recommendations for improve teacher’s teamwork

Integrate structured collaboration into faculty workflows through curriculum co-development and joint research projects. Strengthen team dynamics via workshops on cooperative pedagogy and social bonding activities. Institutionalize recognition systems with team-based awards and professional growth incentives for collaborative achievements. Promote interdisciplinary synergy by establishing cross-department initiatives (shared research, teaching programs, committees) to dismantle academic silos. Allocate dedicated

resources and scheduled time to sustain these efforts, ensuring cooperative practices become embedded in institutional culture while enhancing collective innovation and pedagogical effectiveness.

Recommendations for practical application

1) Enhancing administrators' leadership in daily operations, 2) Improving organizational climate to support teachers’ development, 3) Strengthening teacher teamwork for professional growth, 4) Promoting the use of technology in teaching and management and 5) Fostering a culture of continuous improvement

Recommendations for further research

Investigate cultural/institutional influences on leadership-teacher dynamics through cross-context comparisons. Conduct longitudinal analyses to track sustained impacts of administrators’ leadership on organizational climate and teaching competencies. Employ mixed-methods designs (quantitative + qualitative) to capture interaction complexities. Explore mediating/moderating factors (e.g., teacher motivation, job satisfaction, resource allocation) shaping these relationships. Prioritize interdisciplinary approaches to identify universal patterns versus context-specific mechanisms, enhancing theoretical generalizability and practical applicability in diverse educational settings.

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