The Effects of the Intervention of New Science and Technology on Teacher Instructional Leadership Models

Hua Zhi,
Sukhum Moonmuang and Sataporn Pruettilul
Bankokthonburi University, Thailand
Corrsponding Author, E-mail: 578072367@qq.com

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Abstracts

The objectives of this research were:(1) To study the effect of new science and technology on teachers' instructional leadership ; (2) To study the mediating effects of university leaders and administrators and organizational climate on the relationship between new science and technology and teacher instructional leadership in Dalian's public colleges and universities ; (3) To evaluate the Model fit. in Dalian's public colleges and universities.

The research was a quantitative research method. Population was Art teachers of 10 public colleges and universities in Dalian Liaoning Province, totalling 881 people. The samples were obtained through G*Power software, with a total of 407people.The key informants were Art teachers in public colleges, obtained by purposive sampling method. The instruments used for data collection was Online questionnaire survey platform_ Questionnaire Star. The statistics used for data analysis were confirmatory factor analysis (CFA)and structural equation model (SEM)were used for the data.

The research findings revealed that; (1) the constituent factors of teachers' instructional leadership of art teachers in public colleges and universities in Dalian City, Liaoning Province include: Instructional innovation. The promotion of teacher instructional 、Instructional guidance and management. Create a good instructional environment (2) Analyzed the impact on the teachers' instructional leadership of art teacher in public colleges and universities in Dalian Liaoning Province, and found that new science and technology has a direct impact teachers' instructional leadership through the intermediary variable university leaders and administrators and organizational climate.

Keywords: New Science and Technology;Teachers' Instructional Leadership; University Leaders And Administrators; Organizational Climate.

Introduction

With the development of teacher's instructional leadership and the advancement of science and technology education, science and technology instructional leadership arises at the historic moment. In the era of science and technology, education administrators and teachers, as one of the main subjects of education leadership, are indispensable backbone forces in the development of colleges and universities (the main position to realize intelligent education). (A.D.T., 1997) We should deeply integrate science and technology into the process of education and instructional leadership, accelerate the development of our own science and

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technology instructional leadership, and promote the development of science and technology education. Therefore, it is particularly important to conduct a comprehensive and systematic study on teacher instructional leadership. However, according to the current research on the leadership of science and technology education for education managers and teachers, it can be seen that the research on the instructional leadership of science and technology teachers in education is still in the initial stage (from the depth and breadth of the research, the number of researchers in the research time and length)(Bai Yingying, 2013) .Therefore, this study aims to deepen the theoretical research of educational managers and teachers' technological instructional leadership, and provide some suggestions and strategies for improving educational managers and teacher instructional leadership.

Research Objectives

1. To find the effects of new science and technology on teacher instructional leadership
2. To find the effects of new science and technology on teacher instructional leadership
3. To study the mediating effect of organizational and climate on the relationship between new science and technology and instructional leadership
4. To evaluate the Model fit.

Research Methodology

Study area selection

This research defined the scope of the problem as the surrounding areas of the education from China. According to the chinese education development condition applied to this research, the specified area is the circles with Dalian china as their centers and extending to Liaoning province,even china. Depending on the accessibility of the area to the education radiation range, the radiation range can be expanded because Dlian is education areas. a large city, An expanded radiation range can contain enough respondents to satisfy the research.

Population and sample

The population of this study were the public universities art teachers in Dalian, Liaoning Province, which were working in public colleges or universities in academic year 2021.There are 10 colleges or universities that have teaching Art Education All of 10 colleges or universities were selected as multi stage in sampling.

The multi-state random sampling technique were used for select sample in this study. The first step was a cluster random sampling which were randomly select 10 public universities in Dalian city. The second step, simple random sampling were applied to select the teachers from the universities which were selected in the first step, and 400 teachers were selected for all universities as samples. Four hundred teachers were specified by using the G*power software calculations.The creation of research instruments

To ensure that the sample size was sufficient for data analysis and for making inferential statistics, The researcher was use the AMOS software to calculate the number of degrees of freedom was 75, in each cluster or university when given number of clusters = 10 universities.

Data Collection

In order to analyse data with nominal or ordinal scale or the qualitative data, the frequencies and percent statistics were employed as show in table 1

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The data were conducted with 411 questionnaire from public colleges or universities s, 407 valid questionnaires.

Table 1 Frequencies, percent and cumulative percent.

Levels	frequencies	% of Total	Cumulative %
gender			
male	209	51.4 %	51.4 %
female	198	48.6 %	100.0 %
age			
25-35	56	13.8 %	13.8 %
36-45	265	65.1 %	78.9 %
above45	86	21.1 %	100.0 %
exp			
experience1	132	32.4 %	32.4 %
experience2	184	45.2 %	77.6 %
experience3	67	16.5 %	94.1 %
experience4	24	5.9 %	100.0 %
Total	407	100.00%	100.00%

In this study, a total of 407 sample data were collected from a sampling survey of art teachers in ten colleges or universities of public universities in Dalian, Liaoning Province. The data in Table 1 shows that descriptive statistical analysis of sample data, including gender, age and experience, was conducted using SPSS software. The analysis showed that there was little difference in gender ratio, with males accounting for 51.6 percent and females for 48.4 percent. Among them, 13.8% are under 35 years old, 65.1% are between 36 and 45 years old, and 21.1% are above 45 years old. Experience 2 accounts for 45.2%, followed by experience 1 (32.4%), experience 3 and experience 4 (16.5% and 5.9%, respectively).

Data analysis

The statistics to be used in this analysed were, means (X(—)), standard deviation (s.d.), skewness, kurtosis, Shapiro-Wilk W test, and Mardia’s coefficient. Results of data analyses were as in table 2.

Table 2 Means standard deviation skewness kutosis and Shapiro-Wilk test.

			Skewness		Kurtosis		Shapiro-Wilk	
	$\bar{x}$	SD	Skewness	SE	Kurtosis	SE	W	p
X1	3.66	0.94	-0.96	0.12	0.56	0.24	0.91	< .001
X2	3.64	1.08	-0.60	0.12	-0.53	0.24	0.92	< .001
X3	3.60	1.10	-0.67	0.12	-0.42	0.24	0.92	< .001
X4	3.69	1.11	-0.73	0.12	-0.27	0.24	0.91	< .001
X5	3.62	1.12	-0.78	0.12	-0.14	0.24	0.91	< .001
X6	3.57	1.05	-0.73	0.12	-0.15	0.24	0.93	< .001
X7	3.58	1.08	-0.72	0.12	-0.34	0.24	0.92	< .001
X8	3.60	1.05	-0.81	0.12	-0.08	0.24	0.92	< .001
X9	3.56	1.04	-0.76	0.12	-0.07	0.24	0.92	< .001
X10	3.58	1.09	-0.67	0.12	-0.23	0.24	0.92	< .001
Y1	3.53	1.11	-0.65	0.12	-0.43	0.24	0.93	< .001
Y2	3.53	1.10	-0.55	0.12	-0.59	0.24	0.93	< .001
Y3	3.52	1.07	-0.59	0.12	-0.52	0.24	0.94	< .001
Y4	3.48	1.05	-0.66	0.12	-0.36	0.24	0.93	< .001

As can be seen from the above table, statistical analysis results of data of various topics included in the questionnaire, including the number of cases, minimum value, maximum value, mean value, standard deviation, Skewness and Kurtosis, are used to verify whether the data obtained in the survey obey the normal distribution. Whether the data obey normal distribution will have a crucial impact on the subsequent analysis. When the absolute value of Skewness is less than 3 and the absolute value of Kurtosis is less than 10, it indicates that the samples basically obey normal distribution. The results of formal samples in the table show that the absolute values of Skewness of each topic are all less than 3, and the absolute values of Kurtosis are all less than 10. Data analysis in table 4.2 showed the means of the observed variables ranged from 3.48 to 3.69, which shown that the means of all observed variables in the high lead. SD ranged from 0.94 to 1.12, Skewness ranged from -0.96 to -0.55, which shown that the normality of the data can be accepted. although the variable was negatively skewed (Collier, 2020 : 55.).Kurtosis ranged from -0.59 to 0.56, which shown that the normality of the data could be accepted. the kurtosis was a positive leptokurtic distribution. The standard deviation of all observed variables is around 1, indicating that the degree of discreteness of the observed variables is small.

Univariate normality test

In the assumption of univariate normality test, the researcher investigated the skewness and the kutosis. In data analysis we found that the Shapiro-Wilk test for all variable are statically significant ($p<.05$), which may shown that all variables did not distributed niormaly, however when we consider the skewness which were less than 2 and -2 and the kurtosis which

were less than 10 and -10, we still concluded that all variables distributed normal (Collier, 2020 : 55.)

Multivariate normality test

Table 3 Maria's coefficient multivariate testing.

	Coefficient	z	χ^2	df	p
Skewness	12.1		818	560	< .001
Kurtosis	220.8	-1.54			0.124

In table 3 the multivariate normality test for all variables in this study shown that the skewness was 12.1 which statistically significant (p <.001) which revealed that all variables may not distributed multivariate normality, but in kurtosis we found that the statistic was 220.8 which was not statistically significant and shown that all variables still distributed normally (Byrne, M. B., 2010 : 107-132.)

Intercorrelation between observed variables

Table 4 intercorrelation matrix n = 407

	x8	x9	x10	x1	x2	x3	x4	x7	x6	x5	y4	y3	y2	y1
x8	1.00													
x9	0.874**	1.00												
x10	0.845**	0.823**	1.00											
x1	0.665**	0.648**	0.616**	1.00										
x2	0.313**	0.268**	0.292**	0.775**	1.00									
x3	0.349**	0.293**	0.312**	0.786**	0.794**	1.00								
x4	0.354**	0.333**	0.309**	0.801**	0.797**	0.795**	1.00							
x7	0.415**	0.428**	0.418**	0.451**	0.309**	0.329**	0.354**	1.00						
x6	0.42**	0.424**	0.401**	0.451**	0.34**	0.339**	0.347**	0.839**	1.00					
x5	0.427**	0.429**	0.403**	0.453**	0.342**	0.342**	0.354**	0.878**	0.887**	1.00				
y4	0.495**	0.504**	0.46**	0.54**	0.38**	0.409**	0.426**	0.505**	0.507**	0.517**	1.00			
y3	0.496**	0.51**	0.469**	0.534**	0.418**	0.394**	0.424**	0.483**	0.483**	0.48**	0.84**	1.00		
y2	0.491**	0.5**	0.445**	0.546**	0.419**	0.425**	0.453**	0.44**	0.456**	0.465**	0.822**	0.833**	1.00	
y1	0.496**	0.516**	0.473**	0.581**	0.448**	0.446**	0.474**	0.507**	0.514**	0.524**	0.877**	0.876**	0.838**	1.00

Note: ** p<.01

From the correlation results in the table above, we can see that there are positive and significant correlations between X8, X1-X7, and Y1-Y4; that is, there are significant correlations between organizational climate and university leaders, teacher leadership models, and new technologies. Positive sexual influence. There are positive and significant correlations between X1, X2, X3, X4 and X5-X7, X8-X10, and Y1-Y4, which means that there is a significant relationship between new technology and university leaders, organizational atmosphere, and teacher leadership models Similarly, it can be seen that there are significant positive effects between university leaders and organizational climate, teacher leadership models and new technologies; the correlation coefficients between all variables are less than 0.9, which means that the relationship between variables There is no multicollinearity, and the next step of confirmatory analysis can be carried out.From the correlation matrix, we have been

see that there is a positive correlation between all variables, and the P-value is less than 0.01, indicating that some of them has a high correlation between the variables.

Measurement model

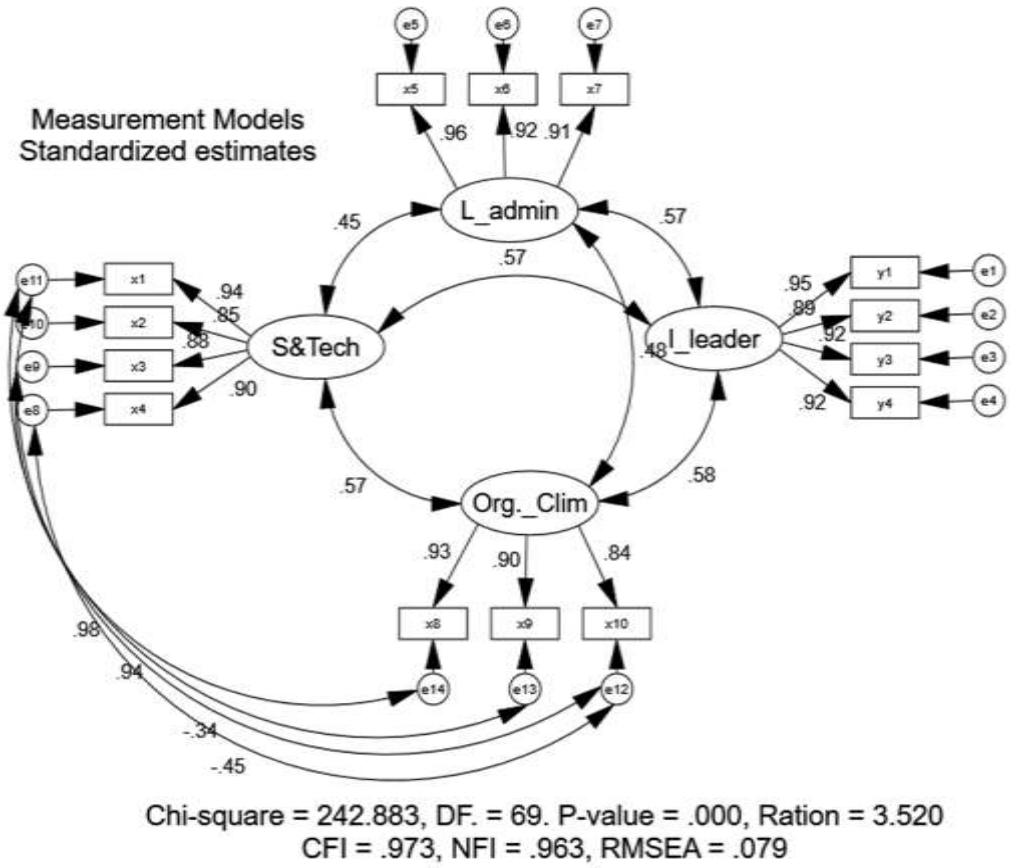

Figure 1 the Measurement Model of Four Latent Variables and Their intercorrelation in Standardized Format, and The Model Fit Indexes.

From Figure 1 ,it can be seen that there are a total of 4 latent variables in this measurement model, and the relationship between the 4 latent variables is a correlation relationship, where the correlation coefficient between S&Tech and L_admin is 0.45, the correlation coefficient between S&Tech and I_leader is 0.57, the same as S&Tech and Org._Clim, and the correlation coefficient between Org._Clim and L_admin and I_leader is 0.48 and 0.58, respectively. The correlation between L_admin and I_leader is 0.57. S&Tech has 4 explicit variables, x1, x2, x3 and x4, corresponding the factor loads of which are 0.94, 0.85, 0.88 and 0.90. L_admin has 3 explicit variables, x5, x6 and x7, and the factor loads of which are 0.96, 0, 92 and 0.91, respectively. Org._Clim has 3 explicit variables, x8, x9 and x10, corresponding to factor loads of 0.93, 0.90 and 0.84. Finally, I_leader has 4 explicit variables, y1, y2, y3, and y4, and the corresponding factor loads are 0.95, 0.89, 0.92 and 0.92. It can be seen that the factor load of these explicit variables is close to 1, indicating that the latent variables have a strong ability to interpret the explicit variables and have a high "index reliability".

Table 5 The Results of Model Factor Loading.

Latent	Factor	Factor Loading (λ)	λ^2	CR	AVE
L_admin	X5	0.96	0.926		
	X6	0.92	0.8462	0.957	0.848
	X7	0.91	0.8281		
Ogr_climate	X8	0.94	0.8836		
	X9	0.90	0.81	0.941	0.799
	X10	0.82	0.6724		
I_lead	Y1	0.95	0.9025		
	Y2	0.89	0.7921	0.952	0.869
	Y3	0.92	0.8464		
	Y4	0.92	0.8464		
S_tech	X1	0.94	0.8836		
	X2	0.85	0.7225	0.922	0.798
	X3	0.89	0.7921		
	X4	0.90	0.81		

As shown in the table above, all the factor loading coefficients of the four variables range from 0.85 to 0.96, all greater than 0.7, and the CR values of the four variables are 0.957, 0.941, 0.952, and 0.922, all greater than 0.9. The AVE values are 0.848, 0.799, 0.869, and 0.798, all of which are above 0.5, which indicates that the model has a good fitting degree and strong acceptability.

Model fit evaluation

Table 6 Measurement model fit valuation after modifying.

Measure	Estimate	Threshold	Interpretation
CMIN	70.906	--	--
DF	26	--	--
CMIN/DF	2.727	Between 1 and 3	Excellent
CFI	0.99	>0.95	Excellent
SRMR	0.047	<0.08	Excellent
RMSEA	0.06	<0.06	Acceptable
PClose	0.27	>0.05	Excellent

Table 6 presents the evaluation of the model fit to the original data measurement model. Data analysis shows that the chi-square value is 70.906, the degree of freedom is 26, and the CMIN/DF is 2.727. It meets the threshold between 1-3, and the fitting degree is good. The comparative fit index (CFI) was 0.99, meeting the threshold of greater than 0.95 or severe HI. The standard root mean square (SRMR) was 0.047, meeting the threshold of less than 0.8 or showing a good fit. The Root Mean Square Approximation Error (RMSEA) is 0.06, which is still acceptable compared to the threshold of less than 0.06.In addition, he NFI reflects the difference between the hypothetical model and the independent model, and the NFI=0.963>0.9, indicating that the hypothetical model fits well. Even 90% confidence interval value for RMSEA is within the boundary of <0.5 for a good fit model.

Through the above analysis, we concluded that the fitting degree of the original measurement model is better.

Hypothesis testing

SEM Model fit evaluation

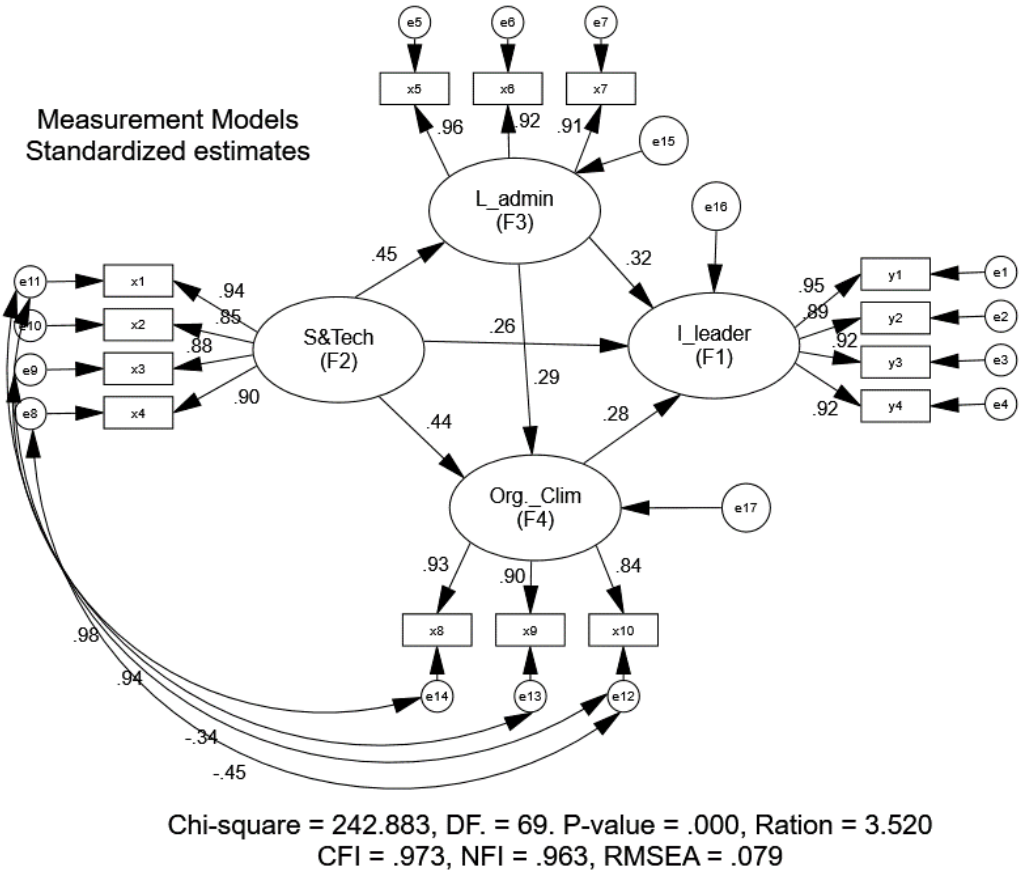

Figure 2 Structural Equation Models and Model Evaluation in standardized.

Figure 2 is a standardized structural equation model, from the figure we can see that after standardization, the relationship between the four latent variables presents a directional relationship, the factor load of each latent variable corresponding to the explicit variable is consistent with Figure 4.1, and the P-value of the overall model = 0.000<0.001, rejecting the null hypothesis, indicating that the observation data and the hypothesis model do not match, but in SEM, the moderate P-value is not used as the main judgment standard. We observe other indicators, CFI=0.973>0.9, indicating that the comparative fitting index is acceptable, NFI=0.963>0.9, indicating that the model fitting effect is good.

Table 7 The Results of Model Fit Evaluation for Each Indicator.

Measure	Estimate	Threshold	Interpretation
CMIN	242.883	--	--
DF	69.000	--	--
CMIN/DF	3.520	Between 1 and 3	Acceptable
CFI	0.973	>0.95	Excellent
SRMR	0.051	<0.08	Excellent
RMSEA	0.079	<0.06	Acceptable
PClose	0.000	>0.05	Not Estimated

As shown in the above table, if the fit index of the model reaches the recommended value, it means that the model fit is good, indicating that the hypothetical model is supported by the data. The fit of the model was analyzed by confirmatory factor analysis, and it was found that all values of the measurement model met the standard, where CMIN/DF=3.520, and the data met the standard. NFI was 0.693, CFI was 0.973, and the average data was greater than 0.9, which met the model standard. Indicates a good fit of the model. RMSEA=0.079, less than 0.08, is acceptable, and the PClose is less than the threshold of 0.05, It can be seen that the overall fit of the model has reached the recommended value, indicating that the constructed model is supported by actual data (Joel & Collier, 2020 : 221-239.)which is not estimated.

Hypotheses testing

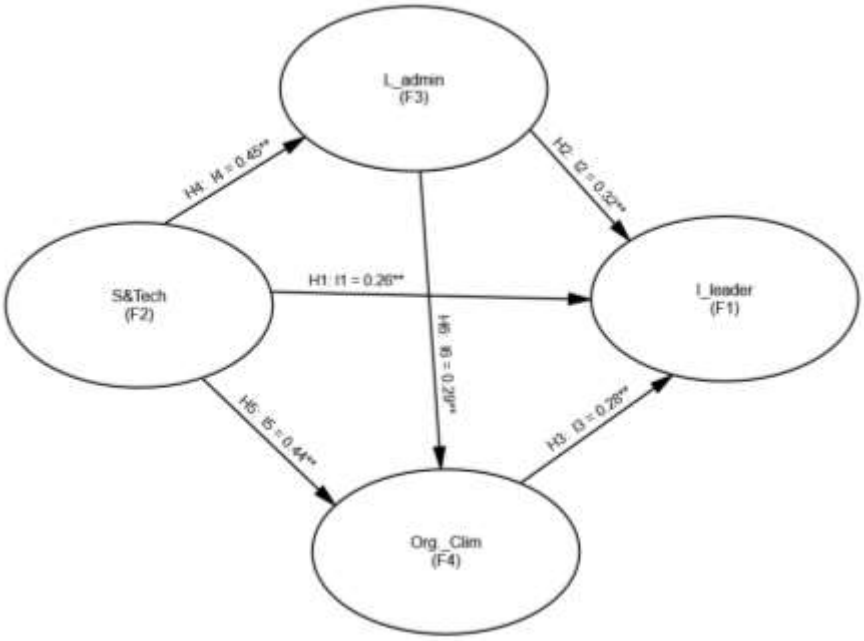

Figure 3 the Hypotheses of the Effects between the Exogenous on the Endogenous Variables.

Table 8 Direct effect testing in unstandardized and standardized.

Direct Path		Estimate	S.E.	C.R.	P	β
H1: S&Tech	→ l_leader	0.307	0.055	5.625	***	0.262
H2: L_admin	→ l_leader	0.308	0.045	6.895	***	0.316
H3: Org_Clim	→ l_leader	0.334	0.055	6.1	***	0.282
H4: S&Tech	→ L_admin	0.542	0.056	9.66	***	0.453
H5: S&Tech	→ Org_Clim	0.434	0.045	9.738	***	0.439
H6: L_admin	→ Org_Clim	0.236	0.036	6.536	***	0.286

Note: C.R.represent the z-test

In hypothesis testing, we usually observe the P value calculated according to the model, that is, the probability of the outcome when the null hypothesis is town. A P value <0.05 statistically indicates that the hypothesis is valid.As can be seen from the 4.11 table, we have 6 direct paths, where the value of C.R. is greater than 1.96, combined with the P-value, it can be seen that the model is very significant, where Esitmate is the unstandardized load factor and beta is the standardized load factor.The significance results of the six direct hypotheses in this study were all less than 0.01, indicating that the six direct hypotheses in this study were valid (Arbuckle,2018 : 336-344.) The path coefficients of H1-H6 were 0.307,0.308, 0.334, 0.542,0.434, and 0.236, respectively. It can be seen that the direct effects of S&Tech→l_leader, L_admin→l_leader, Org_Clim→l_leader, S&Tech→L_admin, S&Tech→Org_Clim, L_admin→Org_Clim all reach a very significant level.

Indirect Effect Analysis

Table 9 Indirect effect testing in unstandardized and standardized.

Indirect Path	Unstandardized Estimate	Lower	Upper	P-Value	Standardized Estimate
F2→F3→F4	0.167	0.115	0.236	0.001	0.143***
F2→F3→F4→F1	0.043	0.027	0.066	0.000	0.130***
F3→F4→F1	0.079	0.050	0.123	0.000	0.081***

Among the indirect hypothetical effects, Hypothesis 7 indicates that new science and technology will have a positive impact on the indirect organizational climate through university leaders and administrators. In the null hypothesis, we observe the P value calculated by the model. The O-value is the probability of the outcome when the null hypothesis is true. A P value <0.05 in Statistics Student indicates that this hypothesis is valid. This table shows that the P value is 0.001, ie <0.01, which is significant, indicating that the hypothesis H7 is valid. Hypothesis H8 indicates that new science and technology have an indirect positive impact on

the teacher leadership model through university leaders and administrators. The table shows that the P value of Hypothesis 8 is 0.000, which is less than 0.01. Hypothesis H8 is valid. Hypothesis H9 shows that university leaders and administrators indirectly have a positive impact on teacher leadership patterns through organizational climate, and the table shows that the P value is 0.000 less than 0,01, that is, hypothesis H9 is valid.
Decomposition effects

$$\text{Spurious} = \text{Raw} - (\text{Direct} + \text{Indirect})$$

(Nayebi, 2020, p. 56)

In data analysis, development this table 4.13 analysis the effect decomposition of endogenous the variables on the exogenous variables.

Table 10 Instructional leaderships as Endogenous

Exogenous	Raw(corr)	Direct effect(DE)	In-direct effect(IE)	Total effect(TE)	Spurious
S& Tech(F2)	0.566	0.262	0.304	0.566	0.000
L_admin(F3)	0.745	0.316	0.081	0.571	0.174
Org._Clim(F4)	0.886	0.282	0.000	0.584	0.302

Note: Corr = correlation coefficient between L-lead (F1) and independent variables spurious = corr –(Direct+Indirect) (Nayebi, 2020, : 56.)

As shown in the table above, among the influence effects of S&Tech, the direct effect of S&Tech on L_admin is 0.262, and the indirect effect of S&Tech on L_admin and Org._Clim is 0.304, that is, the total effect of S&Tech in the path is 0.566. Among the effects of L_admin, the direct effect of L_admin on l_leader is 0.316, the indirect effect of L_admin on Org._Clim is 0.081, that is, the total effect of L_admin is 0.571. In the influence effect of Org._Clim, the direct influence effect of Org._Clim on l_leader is 0.582.

Conclusion

The objectives of this study were: (1)To find the effects of new science and technology on teacher instructional leadership (2) To study the mediating effects university leaders and administrators and organizational climate between new science and technology and teacher instructional leadership (3) To evaluate the Model fit.In order to achieve the objectives of this study， the researchers adopted quantitative research methods. A stratified random sampling method was conducted for 881art teachers from 10 public colleges and universities in Dalian，Liaoning Province. According to the design of this study， G*Power was used to calculate the sampling population of no less than 400 people .

In this study, SPSS is used to systematically analyze the collected questionnaire data, and the data is counted through the quantitative data analysis system. Secondly, AMOS software is used to analyze the fitting degree of the measurement model to test whether the research model meets the standard. Thirdly, use AMOS software to draw the structural equation

model of this study, and evaluate the data and quality of the structural equation model. Finally, the assumptions of the model are tested to check whether each assumption in the model is valid.

First, for the effects of new science and technology on teacher instructional leadership, we use the direct effect test to find that there is a positive impact between new technology and teacher leadership models. Second, aiming at the relationship between university leadership in new science and technology and instructional leadership, using direct effect test and indirect effect test, it is found that university leadership has a mediating role in the model of new technology on teacher leadership. Third, for the relationship between organizational and climate in new science and technology and instructional leadership, using the direct effect test and indirect effect test, it is found that organizational and climate have a mediating role in the new technology to teacher leadership model. Fourth, in terms of the fitting degree of the overall model, firstly, the confirmatory factor analysis is used to analyze each variable, and the measurement model fitting degree is better. Secondly, the structural equation is used to verify the overall model. It can be seen that the fitting degree of the model The fit is good and acceptable. By verifying the hypothesis, the research results are as follows: in the direct effect, new technology and technology have a positive and significant impact on the teacher leadership model; university leaders and administrators have a positive and significant impact on the teacher leadership model; Positivity has a significant impact; new technologies and technologies have a positive and significant impact on university leaders and managers; new technologies and technologies have a positive and significant impact on organizational climate; university leaders and managers have a positive and significant impact on organizational climate. Thus, the hypotheses H1, H2, H3, H4, H5 and H6 are all acceptable. In the indirect effect, new technology and technology indirectly have a significant positive impact on teacher leadership mode through university leaders and managers and organizational atmosphere; new technology and technology indirectly have a significant positive impact on teacher leadership mode through university leaders and managers. There is a significant positive impact; new technology and technology indirectly have a significant positive impact on the teacher's leadership model through the organizational atmosphere. That is, the validity of hypotheses H7, H8 and H9 is verified.

Recommendation

Recommendation for the government

Teachers have always been a valuable resource in schools. School transformation and student development ultimately depend on teachers to promote implementation. Teacher instructional leadership is part of the school leadership system, and teacher instructional leadership is an important factor for promoting professional development and improvement. Excellent university leaders and administrators ,new science and technology and organizational climate can effectively influence teacher quality, campus culture, learning atmosphere, and teaching effectiveness in different ways, and promote teacher professional development, so as to continuously improve student learning quality, skills, confidence, influence, and problem solving. In this study, how can university leaders and administrators ,new science and technology and organizational climate factors play a role in promoting the teacher instructional leadership. This chapter will make recommendations on the following three aspects:

Recommendations for Policy Formulation.

(1) Formulate guidelines and policies for improving teacher instructional leadership.

As the education landscape evolves with technological advancements and societal changes, the role of teachers as leaders in the classroom has become increasingly crucial. However, not all teachers possess the necessary instructional leadership skills to effectively guide their students to success. It is therefore imperative that guidelines and policies be put in place to enhance teachers' instructional leadership abilities.

(2) Create a good organizational atmosphere and encourage cooperation between teachers.

As a leader in education, a teacher must possess strong leadership skills to guide and inspire their students towards success. However, leadership skills are also necessary when dealing with colleagues in a professional setting, to create a positive and productive working environment. In this regard, creating a good organizational atmosphere and encouraging cooperation between teachers is essential for any successful educational institution.

To build a positive organizational atmosphere, a teacher must be able to communicate effectively, serve as a role model and foster trust and respect among their colleagues. Communication is key as it allows for open dialogue and the sharing of ideas. By being transparent and approachable, teachers can create an environment where everyone feels valued and heard. Secondly, leading by example is crucial when building trust and respect. Teachers must be accountable, responsible and honest in their actions, which in turn will encourage others to do the same. Finally, trust and respect must be earned, not demanded. By providing opportunities for collaboration, acknowledging others' contributions and being supportive in times of need, teachers can create a culture of trust and respect.

(3) Strengthen policy support and resource guarantees for teacher professional development.

As we continue to explore the various components of effective teacher leadership, it is important to take a closer look at how policy support and resource guarantees can play a crucial role in facilitating teacher professional development. With the current challenges facing the education sector, it is clear that teachers require more support and resources to meet the complex demands of the modern classroom. Therefore, it is vital that policy makers and school administrators take a proactive approach to ensure that teachers receive the necessary tools and training to succeed.

Recommendations for Practical Application

One of the most important aspects of teacher leadership is improving the quality of individual teachers. This involves providing teachers with the necessary support, resources, and opportunities to enhance their skills, knowledge, and expertise. To achieve this, schools must adopt a continuous professional development (CPD) program that enables teachers to acquire new skills and knowledge.

The CPD program should be designed to be collaborative, enabling teachers to learn from each other and share best practices. Moreover, it should be tailored to the individual needs of each teacher, allowing them to focus on areas that require improvement. The program should also be ongoing, allowing teachers to continuously improve and update their skills.

Mentorship is another important aspect of improving the quality of individual teachers. Experienced teachers can serve as mentors to new teachers, providing them with guidance and support. This is especially important for new teachers who may be unfamiliar with teaching methodologies and techniques.

In addition to mentorship, teachers must also be encouraged to engage in reflective practice. This involves critically analyzing their teaching methods and techniques, identifying areas where improvement is needed, and taking steps to address these areas. Reflective practice enables teachers to continually evaluate their effectiveness and make improvements to their teaching.

Finally, it is important to provide teachers with opportunities to take on leadership roles within the school. This can include serving on committees, leading professional development sessions, and taking on administrative roles. These opportunities enable teachers to develop their leadership skills, gain valuable experience, and contribute to the overall success of the school.

Recommendation for Further Research.

1) Due to limited time and insufficient knowledge of the researchers, the sample size and geographical coverage of this study were small. Future teacher learning leadership research can broaden the scope of research to achieve more comprehensive professional development and objective research data and conclusions.

2) The teacher is an important guarantee for the development of a school. The educational development of a school depends on the development of the teacher. Therefore, future school leaders must change their ideas, highlight the dominant teacher leadership in day-to-day system design and planning, promote the occurrence of their dominant leadership behavior, and make teachers and administrative leaders complement each other, Promote school reform in all aspects and improve the level and quality of school administration.

3) In order to develop and improve the leadership skills and professional development of teachers in tertiary institutions, teachers need to constantly refine, summarize, and incorporate theory into future practice. I hope that provided that theory can be improved upon, art teachers can continue to reflect and improve in practice, thereby perfecting their own instructional leadership and professional development.

4) It is recommended to continue to improve policy support and guarantee resources for teacher professional development. In the future, in order to increase the level of art teacher professional development, relevant departments need to pay attention to aesthetic education, pay attention to the phenomenon of leadership in the current educational environment, and clarify the concept of teacher leadership. With voluntary professional development of teachers as the main means of enhancing teacher professional development, teacher policy support and resource guarantees provide a platform for continuous development of arts teachers, and ultimately actively promote teacher professional development.

In the process of promoting teacher instructional leadership in colleges and universities, it is also necessary to establish a systematic professional development environment for teachers at various levels and fields of education through various means. In this study, by mediating the factors of teacher quality and organization, teacher learning leadership is in accordance with the predicted value and actual value of teacher professional development assessment (R^2) 0.807, the better the regression adjustment effect, so the correlation in this study is very high. The remaining 19.3% will be studied further by prospective educators.

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