

Multi-Level Factors Affecting Teachers' Instructional Leadership in Universities under Guangdong Province

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Abstracts

The objectives of this research were that; (1) to examine the teacher level factors affecting teachers' instructional leadership in universities under Guangdong Province; (2) to examine the organizational level factors affecting teachers' instructional leadership in universities under Guangdong Province; and (3) to construct the multi-level model of teacher factors and organizational factors affecting teachers' instructional leadership in universities under Guangdong Province.

The research was a multi-level methodology research. The sample size was determined by the Optimal Design (OD) software, obtained by multi-level proportional random sampling method, totalling 30 administrators and 300 teachers, from 30 colleges in 3 universities under Guangdong Province. The instruments used for data collection were 2 questionnaires (for teachers and for administrators). Data was analyzed by Hierarchical Linear Model (HLM) program statistical packet.

The research findings revealed that; (1) the factors on the teacher level consisted of teacher commitment, teacher experience, teacher interpersonal relationships, and teacher perceptions of leadership at teacher level had effect on teachers' instructional leadership with statistically significant at .05; (2) the factors on the organization level consisted of school culture, school policy and organization structure at organization level had effect on teachers' instructional leadership with statistically significant at .05, except organizational structure no significant; (3) The multi-level model factors affecting teachers' instructional leadership, there was ICC=0.21 and the intercept(U0) was statistically significant ($p < 0.05$), that could be suitable for multi-level analysis. The factors on teacher level had

effect on teacher instructional leadership was 80% ($R^2=0.80$) and the factors on organization-level had effect on teacher instructional leadership was 62% ($R^2=0.62$) on the slope intercept of teacher level.

Keywords: Teachers' instructional leadership, multi-level model, teacher level factors, organization level factors.

Introduction

Teachers lacked an identity as leaders. In recent years, teacher leadership has received increasing attention as a sound means of achieving educational reform and instructional improvement through ongoing, school-based professional development for teachers. Teachers are also involved in leadership development. However, teachers leading school improvement efforts are reluctant to see themselves as leaders and rarely refer to themselves or others as "leaders." In fact, they see their informal collaboration as having a greater impact on school improvement than the formal efforts of school administrators.

Related to the character of job, the researcher often gets to cross paths with frontline teachers under Guangdong province, and in my interactions, their lack of awareness and related confidence in instructional leadership. Hu & Gu (2012) found from a questionnaire survey of teachers in Guangdong Province that teachers were generally confident in their ability to manage their teaching and learning work, but that there were fewer opportunities for teachers to participate in decision-making on school affairs, possibly due to the lack of a motivational institutional culture and the lack of reflection and research capacity in teaching. In addition, teachers' personal prestige among colleagues, good interpersonal relations, teaching ability and moral character are also important factors. For those reasons, this study selects teacher instructional leadership as a research topic to explore the factors that influence teachers' instructional leadership under Guangdong province.

Instructional leadership is an important aspect of professional development for teachers and a needed source of motivation for creative teams. The scope of work of teachers in the roles they assume can be included in the category of instructional leadership. In the process of educational practice, teachers in university are instructors of students, managers and leaders of teams, and implementers of personal professional development. As instructors of students, the teacher is responsible not only for the basic

teaching tasks, but also for stimulating the creative ideas of the students. Educational leadership is the process and action of determining the direction and common vision of an educational organization and exerting positive influence on all members to work actively to achieve organizational goals. Leading, guiding, teaching, persuading, and motivating are important means of exerting influence. And Wen (2004) suggested that educational leadership is a key factor in educational innovation. Teacher leader is to promote their own professional development and to serve the development of the school. By reviewing and summarizing the research literature on teacher professional development and teacher leadership, Poekert (2012) explores the relationship between the two, with teacher professional development contributing to the development of teacher leadership, which in turn further contributes to the professional development of teachers and their colleagues.

Instructional leadership is a needed source of motivation for creative teams. As a member of a professional teaching and research team, the teacher is not only a researcher of the professional curriculum, but also a leader of the curriculum. Through qualitative case studies of seven Maine schools and a review of the literature, Fairman (2015) and his developed a conceptual model, Spheres of Teacher Leadership Action for Learning. They describe the various strategies teachers used to influence colleagues in direct and indirect ways, through formal and informal leadership, they also discuss the importance of relationships, informal collaboration, trust and collegiality in supporting teachers' leadership development and school, which will be an argument for the research about teacher level factors in this paper.

Under the background of the lack of identity perception and important of professional development, Multifactorial and advanced modelling provide solid evidence for relevant studies on teachers' instructional leadership. Most studies had used lower order (i.e. bivariate, direct effects) conceptual models and relied heavily on descriptive and simple correlational statistical tests. The lack of consistent results within the database of studies was attributed largely to limitations in research design and quality. The researcher tried to use multi-level model as research design to test the factors of teacher and organization levels embedded mutual affect teacher instructional leadership. It enables increased reliability and consistency of the research. Moreover, the results allow us to fully recognize the antecedent variables of teacher instructional leadership.

Objectives

(1) To examine the teacher level factors affecting teachers' instructional leadership in universities under Guangdong province.

(2) To examine the organization level factors affecting teachers' instructional leadership in universities under Guangdong province.

(3) To construct the multi-level model of teacher factors and organization factors affecting teachers' instructional leadership in universities under Guangdong province.

Conceptual framework

Figure 1 displays all the relationships to be tested in our study. It proposes three sets of paths. The first one is from three organizational factors affecting teacher instructional leadership on organization-level. The second one is from four teacher factors affecting teacher instructional leadership on teacher-level. The third one is the cross effects of organization-level factors affecting teachers' instructional leadership as multi-level factors model. Previous research provides support for all the relationships. However, no study prior this one has put them together to study.

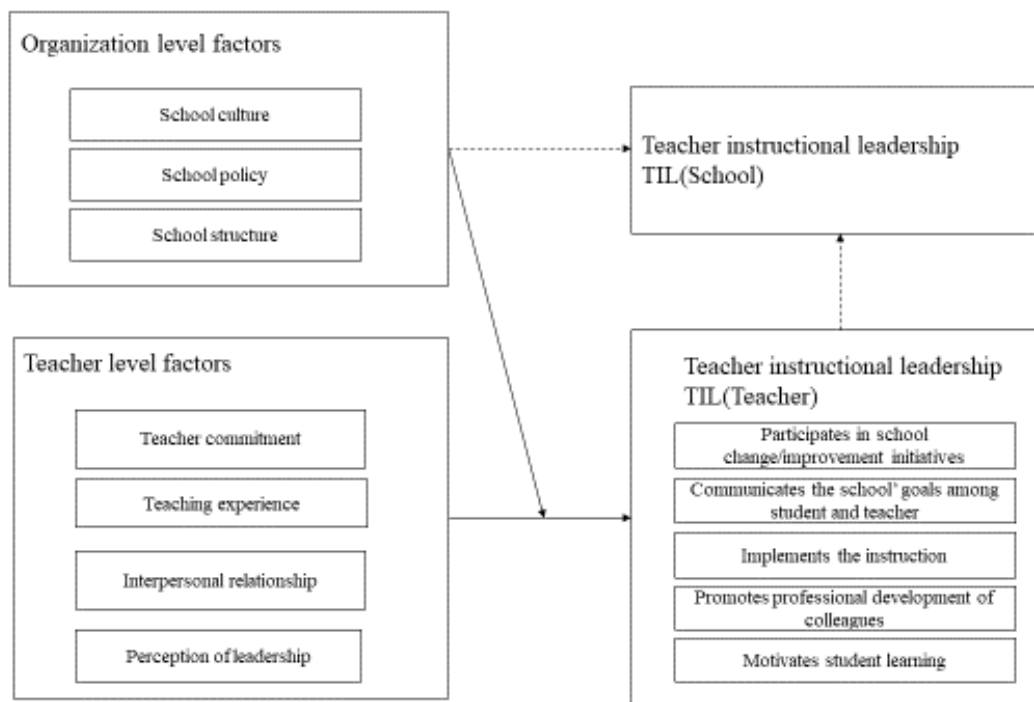


Figure 1. Conceptual framework

Methodology

Study area selection

This study defines the scope of the problem as the Guangzhou City Higher Education School in Guangzhou Province. According to the multilevel theoretical model used in this study, the designated area is the universities in the university town area of Guangzhou. The university town is the convergence of core universities in Guangdong Province, forming a platform for sharing educational resources, and the sample universities cover science, engineering, liberal arts, and art majors, containing enough respondents to meet the needs of the study.

Population and sample

Data collection from teachers and administrators who work in public universities in Guangzhou in academic year 2023, The data structure is hierarchically nested, which lends itself to the use of multilayer linear models. According to the latest list of colleges and universities released by the Ministry of Education, there are 36 general undergraduate universities in Guangzhou, including 22 public general undergraduate universities and 14 private general undergraduate universities.

The samples were determined by the need for matching multilevel regression models to determine the sample size was determined by the Optimal Design (OD) software, obtained by multi-level proportional random sampling method, as follows; the first stage using by random sampling method on the university under Guangzhou in Guangdong province. There were three public universities. The second stage, in each type of university were selected using by random sampling method on the faculty administrators among 30 faculty. And the third stage, in each faculty were selected teachers by random sampling method on the 10 teachers. The total number of samples were 30 administrators and 300 teachers from 3 university under Guangzhou in Guangdong Province.

The creation of research instruments

The instruments used for data collection were 2 questionnaires (for teachers and for administrators). The quality of instruments has been verified by Content Validity (IOC>0.5) and Reliability (Cronbach's alpha coefficient >0.70). Data analyzed by Hierarchical Linear Model (HLM) program through null model, simple model, hypothetical model.

Data Collection

Step1 Request permission to collect data for research to the administrators and teachers of the three public universities under Guangdong province.

Step2 Request a letter of recommendation for the researcher from Faculty of Educational, Bangkokthonburi University.

Step3 Selection the coordinating the administrators and teachers to help assist in coordinating data collection in each institution. Those will be oriented to understand the details of the questionnaire administration and data collection.

Step4 Carry out data collection with the selected samples by sending questionnaires to the coordinator, the administrator and teacher who will help collect data with the selected samples in each college.

The data is collected by personally conducting questionnaire surveys among the respondents. Respondents have two weeks to fill out the questionnaire and return. Questionnaires have been received at the response rate of 100%.

Data analysis

In this research, The SPSS software will be employed for analyzing the categorical variables and description statistic. Data analyzed by Hierarchical Linear Model (HLM) program through null model, simple model, hypothetical model.

Summary of the model specified (in equation format)

(1) Null Model

Level-1 Model

$$Y = B_0 + R$$

Level-2 Model

$$B_0 = G_{00} + U_0$$

Y represented the outcome Y for teacher level nested in organization level.

B_0 represented random parameter, which is the organization level residual variance.

R represented unexplained variance.

$$\text{Combined: } Y = G_{00} + U_0 + R$$

(2) Simple model;

Level-1 Model

$$Y = B_0 + B_1*(T1) + B_2*(T2) + B_3*(T3) + B_4*(T4) + R$$

Level-2 Model

$$B_0 = G_{00} + U_0$$

$$B_1 = G_{10} + U_1$$

$$B_2 = G_{20} + U_2$$

$$B_3 = G_{30} + U_3$$

$$B_4 = G_{40} + U_4$$

Combined: $Y = G_{00} + G_{10}*(T1) + G_{20}*(T2) + G_{30}*(T3) + G_{40}*(T4) +$

$U_0 + U_1 + U_2 + U_3 + U_4 + R$

(3) Hypothetical Mode;

Level-1 Model

$$Y = B_0 + B_1*(T1) + B_2*(T2) + B_3*(T3) + B_4*(T4) + R$$

Level-2 Model

$$B_0 = G_{00} + G_{01}*(X1) + G_{02}*(X2) + G_{03}*(X3) + U_0$$

$$B_1 = G_{10}$$

$$B_2 = G_{20}$$

$$B_3 = G_{30}$$

$$B_4 = G_{40}$$

Combined: $Y = G_{00} + G_{01}*(X1) + G_{02}*(X2) + G_{03}*(X3) + G_{10}*(T1) + G_{20}*(T2) +$

$G_{30}*(T3) + G_{40}*(T4) + U_0 + R$

Results

Table 1 Table summary of the results of analysis about null model

Fixed Effect	Level-1 Coefficients	Level-2 Predictors	Coefficient	Standard Error	T-ratio	Approx. d.f.	p-value
Y	INTRCPT B0	INTRCPT G00	3.13***	0.066	48.65	29	0.000
Random effect	Level-1	Level-2	SD	Variance component	df	Chi-square	p-value
		INTRCPT, U0	0.317	0.10	29	105.27	0.000
	R		0.619	0.38			

Note...***p<0.001

In this model, the researcher set the dependent variable only at the teacher level, without any independent variables at the teacher level or at the organization level, and with random intercepts.

In this model, the researcher set the dependent variable only at the teacher level, without any independent variables at the teacher level or at the organization level, and with random intercepts. The random effect the intercept(U0) On organization Variance Component was 0.10, the variance ratio is organization had 21%, it had statistically significant. The intercept(R) on teacher level Variance Component was 0.38 and the variance ratio is 79%. It was summarized that teachers' instructional leadership shows a strong clustering effect or there was intra class correlation 21% ($ICC=0.1/0.1+0.38=0.21$), and it could be necessary to conduct multi-level studies.

Table 2 Table summary of the results of analysis about simple model

Fixed Effect	Level-1 Coefficients	Level-2 Predictors	Coefficient	Standard Error	T-ratio	Approx. d.f.	p-value
Y	INTRCPT	INTRCPT	3.31***	0.043	76.43	29	0.000
	B0	G00					
	T1 slope	B1 INTRCPT	G10 0.242***	0.045	5.346	29	0.000
	T2 slope	B2 INTRCPT	G20 0.208***	0.047	4.397	29	0.000
	T3 slope	B3 INTRCPT	G30 0.219***	0.053	4.129	29	0.000
	T4 slope	B4 INTRCPT	G40 0.129***	0.025	4.733	29	0.000
Random effect	Level-1	Level-2	SD	Variance Component	df	Chi-square	p-value
		INTRCPT	0.224	0.05***	29	161.566	0.000
		U0					
	T1	Slope	U1 0.070	0.010	29	25.606	>0.50
	T2	Slope	U2 0.149	0.022	29	39.264	0.097
	T3	Slope	U3 0.164	0.026	29	34.580	0.218
	T4	Slope	U4 0.020	0.0004	29	21.138	>0.50
	R		0.27	0.076			

Note...***p<0.001

In this simple model, the researcher set dependent and independent variables at the teacher level, without any independent variables at the organization level, and with random intercepts. or slope as out-come for analyzing the model.

The fixed effect of The intercept(B0) coefficient was 3.31 and significant and the coefficient of T1-T4 (B1-b4) was more than 0 and significant. The random effect of intercept(U0) on organization level Variance Component was 0.05 and significant. Slope U1-U4 had no significant. it was summarized that on teacher level, all the factors of teacher level had fixed effect and slope of intercept effect on instructional leadership with significant ($p < .001$), but each factor on teacher level had only random intercept effect with significant ($p < .001$), the random slope did not significant ($p > .001$).

It means all of variable in the teacher level could join effect to teacher leadership or could be descript on variance of teacher leadership (y) at 80% ($R^2 = 0.38 - 0.076 / 0.38$). It means that the variance component on the teacher level after descript by all factors on teacher level then had variance enough for take on the next level, but on each factor the random effect did not significance or did not variance enough for analysis on the next level.

Table 3 Table summary of the results of analysis about hypothetical model

Fixed Effect	Level-1 Coefficients	Level-2 Predictors	Coefficient	Standard Error	T-ratio	Approx. d.f.	P-value
Y	INTRCPT B0	INTRCPT G00	2.102***	0.280	7.482	26	0.000
		INTRCPT G01	0.155*	0.071	2.170	26	0.039
		INTRCPT G02	0.119*	0.052	2.275	26	0.031
		INTRCPT G03	0.029	0.058	0.512	26	0.613
		INTRCPT G04	0.237***	0.046	5.120	292	0.000
	T1-slope-B1	INTRCPT G10	0.192***	0.045	4.214	292	0.000
	T2-slope-B2	INTRCPT G20	0.222***	0.049	4.479	292	0.000
	T3-slope-B3	INTRCPT G30	0.130***	0.0309	4.212	292	0.000
T4-slope-B4	INTRCPT G40						
Random effect	Level-1	Level-2	SD	Variance Component	Df	Chi-square	P-value
		INTRCPT, U0	0.14	0.019	26	83.43	0.000
	R		0.27	0.075			

Note. * $p < 0.05$, ** $p < 0.01$ *** $p < 0.001$



Based on the data results of simple model, the researcher try to remove the residuals U1-U4 in hypothetical model. In this model, the intercept and slope at the teacher level are used as dependent variables in the regression equation at the organizational level.

The fixed effect of the intercept(B0) corresponds to four parameter estimates in organization level, the intercept (G00) coefficient was 2.10 and significant ($p < 0.001$). the intercept (G01-G02) coefficient was more than 0 and significant ($p < .05$). the intercept (G03) coefficient was 0.029 and it had no significant ($p > .05$). it was summarized that on organization level, factors of school culture and school policy had fixed effect and slope of intercept effect on instructional leadership with significant ($p < .05$), but factor of school structure on organization level had no significant ($p > .05$).

The coefficient of T1-T4 (slope B1-B4) was more than 0 and significant ($p < .001$). It was summarized that on teacher level, all the factors of teacher level had fixed effect and slope of intercept effect on instructional leadership with significant ($p < .001$).

On the random effect estimation and in organization level, the intercept(U0) Standard Deviation was 0.14 and Variance Component was 0.019 and the variance ratio is 20%, and it had statistically significant ($p < .001$). and in teacher level, the intercept(R) Standard Deviation was 0.27 and Variance Component was 0.075 and the variance ratio is 80%. It suggested level 2 intercept model $R^2 = 62\%$ ($R^2 = 0.05 - 0.019 / 0.05$), it means that 62% of the variation on the slope intercept of teacher level on y (teacher instructional leadership) was due to changes in organization-level influences.

It means that the variance component on the teacher level after describing by all factors on teacher level then had variance enough for take on the next level, but on each factor the random effect did not significance or did not variance enough for analysis on the next level. The graphical representation is as follows;

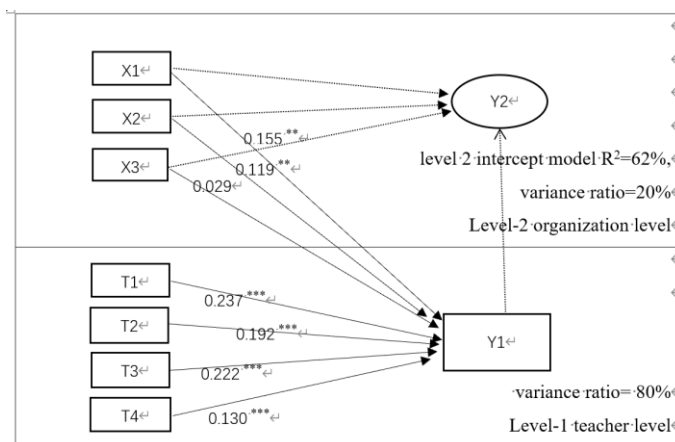


Figure 2 The results of analysis about hypothetical model

Conclusion

First, the factors on the teacher level consisted of teacher commitment, teacher experience, teacher interpersonal relationships, and teacher perceptions of leadership at teacher level had effect on teachers' instructional leadership with statistically significant at .05.

Second, the factors on the organization level consisted of school culture, school policy and organization structure at organization level had effect on teachers' instructional leadership with statistically significant at .05, except organizational structure no significant.

Third, there was multi-level model of teacher factors and organization factors significant affected teachers' instructional leadership through null model, simple model, hypothetical model. In null model, There was ICC=0.21 and the intercept(U_0) statistically significant ($p < .05$), that could be suitable for multi-level analysis. In simple model, 80% of the variation in teachers' instructional leadership was due to changes in teacher-level influences (level 1 model $R^2 = 80\%$). In hypothetical model, 62% of the variation on the slope intercept of teacher level on teachers' instructional leadership (y) was due to changes in organization-level influences (level 2 intercept model $R^2 = 62\%$).

Discussion

Discussion of Research Objective 1

Teacher commitment had significant affected teachers' teacher instructional leadership. The finding was revealed as such because the higher the level of teachers' commitment meaning that the more positive their performance, and the higher their trust in the organization, made them more willing to participate in school affairs, to give more teaching energy or work time, and to help the professional development of team members thus improving the overall competitiveness of the team. The findings were in the same direction with that research of Donglong, Taejun, Julie, & Sanghun (2020), which was found that teacher commitment significant effects their organizational citizenship behavior. Also, the findings were in the same direction with Meyer and Allen(1991) who found employees who were affective committed are more likely to exert effort on behalf of the organization. Moreover, from the research of (Donati, Zappalà, & González-Romá, 2020), it was found that effective commitment plays an important role on trust in teams indicates that highly

committed teachers play an important role in team development, which gives proof to the present finding.

Teaching experience had significant affected teachers' instructional leadership at teacher level. The finding was revealed as such because the teachers' level of professional development is recognized, and authority is established. Their concern for teaching is not limited to teaching to serve students, but is focused on school goals, willing to participate in college affairs, value the professional development of team members, and develop together with the school and team. This research finding was in accordance with the theories or research of Che Qi (2017) which was found that teacher professional development has a significant impact on instructional leadership. The finding was in the same direction with Zhao (2016) and Wu (2019) that the traits of the leader are the most important influences on the instructional leadership of university teachers. Moreover, from the research of teacher instructional leadership refers to teachers' leading team members to work together on teaching and learning by virtue of the expert knowledge they possess (Ye and Zhu, 2018), their model emphasizes the teaching experience focus on achievement effect teachers' instructional leadership, other personal traits of teachers were used as observed variables in the model.

Interpersonal relationship had significant affected teachers' teacher instructional leadership at teacher level. The finding was revealed as such because those better interpersonal relationships promoted teachers' integration into the teacher community, gained a sense of group honor and belonging, and led to more outstanding performance in teaching, participation in school affairs, and promotion of peer professional development. The researcher refined three dimensions to understand better interpersonal relationships; team members often helped each other, got along well, were valued by their supervisors. This research finding was in accordance with the theories or research of York-Barr & Duke (2004) which found that interpersonal relationships were effective in influencing teacher leadership. Also, the findings were in the same direction with Manggin (2007), who found that supportive principals would express expectations for improved instruction to teacher leaders in repeated communications while viewing teacher leaders as useful instructional resources, and they use this strategy that they expect teachers to communicate engagement with teacher leaders to support the development of teacher leadership. Supportive interpersonal relationships among teachers promote collaborative sharing and

trust among teachers, which influence the effective achievement of instructional leadership by university teachers (Katzenmeyer and Moller, 2001). Good interpersonal relationship means gaining the support of principals and colleagues, creating a working atmosphere of trust and cooperation, which enhances teacher instructional leadership. Price tested principal-teacher relationships affect teachers' satisfaction, cohesion, and commitment levels (Price, 2012). So, supportive interpersonal relationships positively influence teacher instructional leadership by making it possible for teacher instructional leaders to be supported among principals and teachers during instructional activities.

Perception of leadership had significant affected teachers' teacher instructional leadership at teacher level. The finding was revealed as such because those teachers who have a better perception of leadership will consciously learn leadership skills in their teaching work, exert leadership effectiveness, gain new teaching experiences and outcomes, and Teachers who recognize that their own leadership role and expectations will stimulate their initiative, then be stimulated in this cycle to achieve higher levels of instructional leadership. This research finding was in accordance with the research of Yang (2020), which was found that teacher self-perceptions and skills about leadership direct impact their instructional leadership in all aspects. Teacher self-perceptions which have been found that the teachers are unconsciousness of instructional leadership in university (Zhang, 2016), influence the effective achievement of instructional leadership by university teachers (Katzenmeyer and Moller, 2001).

Discussion of Research Objective 2

School culture had significant affected teachers' instructional leadership through multi-level model. The finding was revealed as such because organizational leadership culture promoted communicating school goals and developing a shared vision of the school, which in turn influences teachers' instructional leadership on communicating the school' goals among student and other teachers. The findings were in the same direction with that research of Hart (1994), Harris and Muijs (2005), Kezar (2007), Muijs and Harris (2007), which was found that school culture was one of the most important factors influencing the effective achievement of teacher leadership. Among these, a positive and supportive leadership culture is a significant influencing factor for teachers' instructional leadership (Katzenmeyer and Moller, 2001).

School policy had significant affected teachers' instructional leadership at organization level. The finding was revealed as such because supportive policy at the organizational level influence the extent to which teachers are involved in decision-making, instructional strategies. This will be an important directive for empowering teachers to define outputs and standards in the teaching and learning process, and to develop and evolve curriculum, which influences teachers' instructional leadership on participating school change/improvement initiatives and implementing the instruction. School policies such as making teacher leadership development one of the requirements for evaluating titles and earning tenure, setting teacher examples, and forming good leader systems (Kezar, 2007), strong leadership development programs (Muijs and Harris, 2007) were the key positive factor on teacher leadership. School policy to foster a strong community of teachers to promote professionalism would be an important content on teacher instruction leadership. Firdaus proposed school policy is significant influence on motivation and commitment (Firdaus, Purnamasari, & Akuba, 2019). Other organizational policies such as incentives or rewards for teachers engaging in teaching and learning must motivate teachers. Supportive school policy motivates teachers to participate in school decision-making through teaching and learning, to promote professionalism, to achieve a common goal. This finding was in accordance with the existing research, it identifies that the trusting, cooperative, and open characteristics in schools generate higher levels of satisfaction, cohesion around school goals, and commitment among faculty (Morgan & Hunt, 1994); (Donati, Zappalà, & González-Romá, 2020).

School structure had significant affected teachers' instructional leadership at organization level but not significant. The finding was revealed as such because supportive organizational structures and management systems was the necessary motivation and recognition of teacher leadership by school management. This finding was in accordance with the existing research of (Murphy J. , 2007), (Katzenmeyer & Moller, 2011), (Hu & Gu, 2012), (Wang,2017).The slope effects in the equation of organizational level factor school structure had no significant effect on teacher instructional leadership, which were less than desired. The reasons are as follows; organizational-level factors effects on teacher level instructional leadership were not well significant through simple data merging. Sample size limitation leads to unsatisfactory results. The administrator data were overly optimistic, while performance varied widely within the teacher cohort, with more significant teacher-level

influences that weakened the differences between groups. This provides a direction and opportunity for further research.

Discussion of Research Objective 3

There was multi-level model of teacher factors and organization factors on teacher instructional leadership to validate that the factors of two levels embedded mutual affected teachers' instructional leadership. These findings were in the same direction with that research of York-Barr and Duke (2004) and Wenner & Campbell (2017)., which is two of most influential reviews of the literature, to date, concerning teacher leadership. The researchers' innovation is to build a multilevel model of the antecedent variables affecting teacher instructional leadership and to analyze the paths of the antecedent variables more accurately on teacher instructional leadership.

The conclusion reveals that school level factors of supportive school culture, school policies, better teacher commitment, teacher experience, teacher interpersonal relationships, and teacher perceptions of leadership had a positive and significant effect on teacher instructional leadership and the different level contribute to each other. This research finding was in accordance with the research of Alma Harris & Michelle Jones, who applied The Teacher Learning and Leadership Project (TLLP), a five-year longitudinal study to support experienced teachers in self-directed professional learning, improving leadership skills and knowledge exchange, then tested teacher leadership growth and validated the effectiveness of teacher leadership improvement. Findings indicate that teacher leaders will initiate, innovate, implement, and share a wide range of activities to develop collaborative professional learning, improve practice, and support student learning; they will reap the immeasurable benefits of being empowered, enabled, and valued in tangible outcomes such as mentored and assessed professional practice; They will address personal, interpersonal, and practical challenges as their leadership skills are tested and grow; they will learn how to collaborate and share to disseminate knowledge about student learning and sustain improvements in practice; and they will demonstrate the professional, educational, and economic value of self-directed, faculty-led innovation and effective practice (Harris & Jones, 2019).

The multi-level model of organizational level factor school structure had no significant effect on teacher instructional leadership, which was less than desired. The value

of this coefficient is positive. This means that the better the organizational structure, the higher the instructional leadership of teachers; and vice versa, the worse the organizational culture, the lower the instructional leadership of teachers. However, this relationship is not significant. Those reasons may be sample which are public schools in China did not differ much in school structure or management systems at the organizational level, resulting in small, non-significant between-group differences in the pathway of school structure influencing teacher instructional leadership.

Recommendation

Recommendation for Policies Formulation

Based on the analysis of multilevel model, policy recommendation was obtained. implementing the management mechanism of teachers' participation in decision-making and getting support and reward from administrators to build a positive and cooperative school culture.

When an instructional initiative is decided upon by administrators from drafting to publication, administrators do not recognize the importance of authorizing teachers to participate in, and revise, this instructional measure. And teachers on the front lines choose not to inform their leaders of the instructional initiative's perspectives and views on curriculum development. Even though they do not approve of the measure, and even if there are some factors that are not conducive to teaching and learning, when it is implemented, teachers remain silent so as not to have a negative impact, which is clearly not in line with the needs of education and school development. Finally, a negative school culture has developed.

The purpose of this study is to explore the influencing factors of teacher leadership, and to construct a campus culture of co-construction, sharing, and co-governance that is conducive to the enhancement of teacher leadership. This provides a foundation for teacher leader practice. Therefore, it is important for administrators to empower and support teachers to participate in decision-making so that they can practice leadership activities, become a bridge between school and student communication, and achieve new school development. Support and reward from administrators, implementing the management mechanism of teachers' participation in decision-making must be an important part of school culture.

Recommendation for Practical Application

Based on the analysis of multilevel model, three practical suggestions were obtained: (1) promoting teachers' professional development; (2) colleagues' trust and respect; and (3) awakening teachers' sense of leadership.

(1) Promoting teachers' professional development

Professional development and preparation mechanisms regarding teachers have been important topics in education. Therefore, this study attempts to provide some suggestions for administrators in education departments and universities about building teachers' teaching leadership. It also has some implications for teachers struggling to find new growth points for teachers on the front line. When teachers function as leaders, they are not only classroom implementers, but also important components in influencing the practices of their colleagues and initiating change in schooling. The conclusions also contribute to the impact of teacher professional development policies.

(2) gaining colleagues' trust and respect

In the actual teaching and learning process, where disagreements occur, respected and trusted teachers can exercise leadership, resolve differences among teachers, and motivate fellow teachers to work together to implement a program. This study examined the factors influencing teacher leadership, maintaining good interpersonal relationships with colleagues had a significant effect on teacher leadership, high recognition of teaching and research achievements also had a significant effect on teacher leadership. So, improving interpersonal skills through intentional training can be effective in gaining recognition and respect from other colleagues, thus improving leadership skills. Of course, high-quality teaching and research results also gain respect and recognition from colleagues.

(3) Awakening teachers' sense of leadership

While teacher leaders are practicing their roles and functioning, individual teachers do not see themselves as leaders, but rather as performers. This is a state where the identity is not yet accepted and teachers feel that they are not being paid for their leadership work, which can lead to concerns that this will change relationships with colleagues. At present, the concept of teacher leaders is relatively unknown, and some developed regions abroad have made teacher leadership an important part of educational reform and development.

The purpose of this study was to examine the factors influencing teachers' instructional leadership, in which teachers' perceptions of leadership at the individual level

significantly influence leadership. Inside China's colleges and universities, the selection of advanced individuals of teachers is used to promote the development of high quality of teaching by playing the role of role model. Teacher leadership is just unconsciously or consciously ignored. But evidence of the presence of teacher leaders is given, namely those who award advanced individuals. Therefore, awakening the awareness of teacher leadership through training and leader guidance will help teachers to complete their identity and facilitate their professional development.

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