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Exploring Teacher Leadership and the Factors Contributing to It: An Empirical Study on Chinese Private Higher Education Institutions

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Abstract

China has witnessed a considerable expansion of private higher education institutions (HEIs) over the last two decades, and research has shown that teacher leadership (TL) is an essential aspect of providing quality higher education. This study proposed a model to explain TL and the factors that contribute to it in private HEIs. A sample of 4,152 participants responded to an 11-item questionnaire using a 5-point scale designed to measure three variables: TL, teacher self-efficacy (TSE), and teacher competence (TC). The results showed that the three variables were valid in explaining TL and the factors that contribute to it. Hypothesis tests revealed that both hypotheses were supported. Finally, the results revealed that TSE and TC are both significantly associated with TL. The practical and theoretical implications of these findings and the scope for future research are discussed.

Keywords

teacher leadership, teacher self-efficacy, teacher competency, Chinese private higher education institutions, empirical study

Introduction

Private higher education institutions (HEIs) are increasingly important in parts of the world that have previously relied on the public sector, such as China (Altbach, 1999). With recent social development and government support, China has witnessed a considerable expansion of private HEIs over the last two decades, a growth that contributes to providing more balanced and more inclusive higher education (Zhou et al., 2018). However, the landscape of private HEIs varies considerably in different countries. Most leading HEIs in the United States are private universities with graduate schools; these universities represent a valuable national asset, as they provide excellent research and student training (Committee for Corporate Support of American Universities, 1969). Most of these private HEIs hold dominant positions within higher education in the United States compared with public institutions. The situation is quite different for Chinese private HEIs. In China, the top HEIs are public universities, and the overwhelming majority of Chinese private HEIs are teaching universities, whose faculty members are not expected to conduct the kinds and quantities of scholarly research common in research universities. Currently, many countries enhance higher education performance by heightening competition in a knowledge-based society (Casani et al., 2014). High-quality education is regarded as the cornerstone of private HEIs' survival against a background of global concerns regarding intense competition with public HEIs.

Teaching faculty are the most important property of HEIs (McKee et al., 2013). Not only does teacher quality have statistically significant effects on student learning (De Paola, 2009; Prosser et al., 2003), it is also critical to a university's pursuit of excellence (Lanarés, 2011). Teacher leadership (TL) broadly affects teacher professional development (Ghamrawi, 2013; Hickey & Harris, 2005; M. Taylor et al., 2011), creativity (Kandiko, 2012; Zacher & Johnson, 2015), student learning engagement (Yao et al., 2018), school decision-making (Bagley & Margolis, 2018; Bellon & Beaudry, 1992), and school improvement (Harris & Muijs, 2003; Ingersoll et al., 2018) for HEIs and K–12 schools. Developing leadership is a key factor in improving learning and teaching in higher education. While much of the increased awareness about the importance of faculty development is focused on the professional development of HEI teachers (Bhika et al., 2013; Chauvin

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et al., 1997; Friedman, 2005; Hott & Tietjen-Smith, 2018; Meiki et al., 2017; Mohr & Shelton, 2017), there is an increasing focus on the need for TL skills development in HEIs (Cox, 2016; Haris et al., 2016; Solis et al., 2011), a need that is especially strongly indicated by the results of empirical studies (e.g., Zacher & Johnson, 2015).

The Chinese government amended the *Private Education Promotion Law* in 2016. The main aim of this reform was to enhance private schools' autonomy. However, when we examine the comparative situations of those teaching, appointments in Chinese public HEIs are usually for life; by contrast, faculty appointments in private HEIs include part-time, probationary, and temporary contracts (Qin & Yang, 1993). The lack of job stability, low salaries, and major obstacles to professional development (Zhou et al., 2018) make teaching at private HEIs a less attractive career option in China. Because teachers are the frontline agents of any educational reform, they serve as the drivers of HEIs' improvement plans. Thus, improving the teachers' quality is crucial in raising the overall quality of Chinese private HEIs.

As part of this process, the enhancement of TL skills is one of the most important steps in improving the quality of private HEIs in China. Therefore, it is necessary to first take stock of TL skills at Chinese private HEIs. According to the statistics of the Chinese Ministry of Education (MoE), of a total of 1,544 private HEIs, only five provide postgraduate programs, and those five had no full-time teaching positions (MoE, 2020). In line with the findings of Casani et al.'s (2014) case study of the Spanish university system, we noticed that private universities, particularly the for-profit kind, conduct research less intensively than public institutions, and their focus tends to be more on teaching. With volatile job security, scant benefits, and little professional training, the teaching and learning quality of Chinese private universities can hardly be guaranteed.

Most previous research on university TL has focused on campus affairs (e.g., Lester & Kezar, 2012) and university governance (e.g., Afful, 2015); there have been few studies examining teaching leadership for higher education teachers. It is therefore critical to understand perceptions of teaching and learning among teachers in private HEIs. It is also important to explore the relationship between TL and teaching quality. On this basis, the purpose of the present study is to examine the level of TL in Chinese private HEIs. More precisely, this study aims to summarize the common ground of models and frameworks for TL in HEIs; propose a measurable TL model; and develop and validate a corresponding scale. The results are expected to create a valid and reliable TL scale for HEIs and provide empirical evidence for the concepts and theoretical models of HEIs' TL.

Literature Review

While the literature on K–12 TL is extensive, there are considerably fewer accounts of TL in higher education (Ramsden et al., 2007). Zurita-Ortega et al. (2019) and Berestova et al. (2020) found TL varying at different education levels after investigating TL by sampling K–12 and HEI teachers. As faculty members, teachers in HEIs expect to be rewarded for achievements across the full spectrum of research, teaching, and service. However, the main task for teachers in Chinese private HEIs is teaching. Because of this similarity with K–12 teachers, the abundant research into K–12 TL can provide valuable references for TL research in Chinese private HEIs. Therefore, the first part of the literature review looks at K–12 TL, before proceeding to TL in HEIs.

TL in K–12

The definitions of TL. TL exists on various levels, both formal and informal (Lovett, 2018). Much of the literature has concerned itself with the definition of TL from several perspectives. Bascia (1997) claimed that extra-classroom work may demonstrate teachers' leadership skills through their participation in decisions concerning education administration. Considering teacher professionalization, Wasley (1989) regarded it as a form of collective leadership that develops through the process of influencing colleagues and generating expertise through collaboration. Teacher collaboration supports student learning in a variety of contexts (Devlin-Scherer & Sardone, 2013). Based on the view of spatial expansion, TL also refers to teachers' capacities to demonstrate leadership skills in their own teaching and in their students' learning, both inside and outside of the classroom (Harris & Muijs, 2004). More specifically, Rosenholtz (1989) defined TL as the ability to offer encouragement to colleagues, share techniques and knowledge, resolve classroom problems, and be passionate about learning new things.

Previous studies have expanded our understanding of TL from its role in administrative matters to its professional influence, and expanded its setting from the classroom to various learning communities. Although previous studies have defined TL in a variety of ways, it still suffers from the lack of a clear, shared definition among researchers (Lovett, 2018). After a comprehensive examination of the main definitions, Schott et al. (2020) strongly recommended a definition that not only stresses TL as a process of influencing others but also includes other important elements of TL, such as its independence of a formal position and development of students as a goal. A definition of TL is thus proposed in the present study based on existing ideas. Taking an integrative approach toward the concept of TL, and combining with the teaching-oriented characteristics of the teachers in Chinese private HEIs, this study defines TL in HEIs as teachers' comprehensive influence on colleagues, students, and other members of the HEI community, enacted through learning community activities and based on both professional power and other nonpower factors.

The dimensions of TL. To be able to measure TL, it is first necessary to understand its dimensions. The measurement of

Table 1. The Dimensions of Teacher Leadership.

Authors/Institution (year)	Dimensions (level of education)
Center for Strengthening the Teaching Profession (CSTP, 2018)	Working with adult learners, communication, collaboration, knowledge of content and pedagogy, systems thinking, equity lens (K–12)
Katzenmeyer and Moller (2001)	Career development path, affirmative acknowledgment, professional autonomy, cooperation with colleagues, joint participation, open communication, establishing a favorable learning environment (K–12)
Xie et al. (2020)	Association leadership, professional learning leadership, assessment leadership, instructional leadership, community leadership, policy leadership (K–12)
Frost and Durrant (2004)	Promoting a positive cultural atmosphere, accelerating administrative innovation at HEIs, strengthening teacher professional development, and enhancing student learning effectiveness (HEIs)
Hook (2005)	Leading teams on campus, developing teaching programs, and promoting peer cooperation (HEIs)

TL with the aim of improving teaching quality has been widely researched in K–12. Our review of the existing literature on the dimensions of TL in both K–12 and HEIs identified the following main aspects (Table 1).

No one unified classification standard can be found in the existing literature, and each framework of TL has different dimensions. Although there are distinct differences between the K–12 teaching profession and those in HEIs, what is noticeable is that the dimensions of TL share essential characteristics, for instance, cooperation, communication, innovation, and facilitating learning. In this sense, TL in K–12 and HEIs has commensurability, which lays a solid foundation for exploring TL in HEIs by referring the dimensions of K–12 TL.

TL in HEIs

The literature on leadership in higher education is focused mainly on senior academic leaders with managerial roles. Many studies have suggested that holding academic leadership roles such as leading a department is a favorable factor for improving teachers' innovative ability (Smith et al., 2012). Thus, the related issues of faculty leadership (Tsoh et al., 2019), academic leadership (Bikmoradi et al., 2010; Hofmeyer et al., 2015; Karaferye, 2017; Rich, 2006), department leadership, and educational leadership are the hot topics in discussing leadership in HEIs. The term professional development is used loosely to cover faculty development, instructional development, and organizational development (Diamond, 2002).

In the higher education context, the term faculty leadership is usually discussed instead of TL (e.g., Graham et al., 2018). Some studies concern faculty leadership, which is included as an element in studies on faculty development. HEIs have designed faculty leadership development programs for multiple purposes (Forrester et al., 1989), among which academic development is prominent. Siddique et al. (2011) explored the links among the variables of academic leadership, motivation of faculty members, and organizational effectiveness. Academic leadership can also manifest as research leadership, educational leadership, and administrative leadership, and benefits organizational effectiveness, educational services to students, and faculty satisfaction (Siddique et al., 2011).

Carver and Klein (2013) introduced the use of action research to examine the content and outcomes of university-based leadership preparation programs, identifying teacher empowerment and partnerships as the basic approaches to improving TL skills. Pearce et al. (2018) argued that shared leadership is a potential elixir for leading public institutions of higher learning, unleashing creative potential, focusing on pressing strategic imperatives, and enabling sustainable systems that leverage true talent to the maximum effect. Likewise, discussions about educational leadership focus on instructional leadership (Beattie, 2020) and educational administration in higher education (Marshall et al., 2020).

Formulation of Hypotheses

TL and Teacher Self-Efficacy (TSE)

Malinen (2016) argued that TSE can be defined as a teachers' individual beliefs in their capabilities to perform specific teaching tasks at a specified level of quality in a specified situation. TSE has been shown to positively affect the effectiveness of a teacher (Steele, 2010) and further studies have found that TSE can also affect student academic achievement (Shahzad & Naureen, 2017; Sottile et al., 2001). TL closely relates to teacher collective efficacy (Derrington & Angelle, 2013), and Sun and Xia (2018) pointed out that distributed leadership has direct effects on both TSE and job satisfaction. However, the issue of how teachers perceive distributed leadership and the relation between TL and TSE have been neglected in the research. A review of the existing literature demonstrates that studies on TSE and TL have only focused on principal leadership behavior and TSE (Calik et al., 2012; Mehdinezhad & Mansouri, 2016). It is thus necessary to better understand the relationship between TL and TSE.

Measures to promote TL tend to be inadequately implemented, which has a negative effect on professional competence development (Berestova et al., 2020). The development of self-efficacy is related to performing more confidently in leadership roles in university leadership academy model (Augustine-Shaw & Devin, 2014). The evidence from the literature is that TSE and teacher competence (TC) have a significant effect on TL in HEIs. Lecturer commitment on student perceptions of teaching quality is positively related to student satisfaction (Xiao & Wilkins, 2015), which affects TSE. However, there have been few attempts to develop any actual theories on this issue (Harris, 2005).

Hypothesis 1 (H1): Teachers' self-efficacy will have a significant influence on their leadership.

TL and Teacher Competence (TC)

TC is a term that is often used interchangeably with teacher capacity. However, TC "involves a complex set of knowledge, abilities, and personal attributes in dynamic interplay" (Davey, 1991, p. 121). TC has also been defined as "an amalgam of professional knowledge, beliefs, motivational orientation, and self-regulation" (Wuttke & Seifried, 2017, p. 1). A growing body of literature advises that facilitating TL is good for their professional career development (Sinha et al., 2012), while Cherkowski (2018) argued that "teacher leadership is a mindset, a way of seeing the work of leadership as an opportunity to build collective capacity for growing well-being as central to school improvement work" (p. 63). Teaching professional competence refers to the basic pedagogical competence of a teacher and includes both pedagogical competence and digital competence, among other factors (Benali et al., 2018). Koellner et al. (2011) cited mathematics teachers' professional development as an example, and pointed out that developing leadership skills is helpful in building teachers' capacities. Li and Pei (2017) argued that from the perspective of endogeny, the exertion of TL does not depend on a formal position, but on the personal influence generated naturally through a teacher's competence, experience, literacy, and professional knowledge and skills. China urgently needs to develop a scientific TC testing model, especially for subcompetence (He, 2014).

Thus, we may propose the hypothesis that TC is positively correlated with TL.

Hypothesis 2 (H2): Teachers' competency will have a significant influence on their leadership.

Method

Measures

In this study, we utilized three self-reported questionnaires to collect data, including participants' demographic information and their perceptions of leadership, self-efficacy, and competence. The details are as follows.

Chinese Private University Teacher Leadership Questionnaire. To explore TL at Chinese private HEIs, the Chinese Private University Teacher Leadership Questionnaire was developed based on the Teacher Leadership Skills Framework developed by the Center for Strengthening the Teaching Profession (CSTP, 2018). It is worth mentioning that teachers at Chinese private HEIs are in a disadvantaged situation concerning academic research due to schooling priorities, lack of financial support, and inferior teacher academic competency. The overwhelming majority of Chinese private HEIs are teaching-oriented colleges. According to the statistics of the Chinese MoE, the percentage of PhD degree holders among full-time teachers at private HEIs is only 2.98% (MoE, 2017). Given that academic research is not compulsory for Chinese private HEI teachers, the questionnaire conforms to the reality of Chinese private HEIs. More specifically, the scale consists of four subconstructs, namely, building relationships of trust (BRT), integrating in collective work (ICW), improving communication means (ICM), and using systematic thinking (UST). Each subconstruct is measured with five items. Consequently, this questionnaire includes 20 items and each item is answered on a 5-point Likert-type scale, ranging from 1 = *strongly disagree* to 5 = *strongly agree*.

Teacher Self-Efficacy Scale. The Teacher Self-Efficacy Scale was originally developed by Tschannen-Moran and Hoy (2001) and measures teachers' working efficacy. It includes three subconstructs: instructional strategies efficacy (ISE), class management efficacy (CME), and student engagement efficacy (SEE). Each subconstruct is measured with eight items. The items are answered on a 5-point Likert-type scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*.

Teacher Competency Scale. The Teacher Competency Scale consists of four subconstructs, divided into teacher management competency (TMC), teacher teaching competency (TTC), teacher research competency (TRC), and teacher general competency (TGC). Each subconstruct is measured with six items. The items are answered on a 5-point Likert-type scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*.

Data Analysis

Based on the suggestion of Anderson and Gerbing (1988), we analyzed the raw data with two steps, using SPSS 25.0 and AMOS 25.0 software. First of all, we tested the reliability and validity of each construct.

Structural equation modeling (SEM) was employed in this study for its ability to analyze the relationships between the latent and observed variables and estimate random errors

in the observed variables directly, giving rise to more precise measurements of the items and constructs in the survey (Teo, 2019).

Results

Descriptive Statistics

Using the cluster sampling method, data were obtained from the Private Education Research Team (PERT) database covering 6,874 teachers from 76 private HEIs in 10 provinces. PERT was constructed in 2016 by Beijing Normal University (BNU) for series of studies. Data from China's Eastern, Central, and Western regions were used to achieve balance in the sampling process. After data cleaning, 4,152 samples were selected for analysis in this study, giving an effective sample proportion of 60.4%. There were 1,623 male teachers, accounting for 39.09%, and 2,529 female teachers, accounting for 60.91%.

The mean, *SD*, kurtosis, and skewness values for each of the items in the questionnaires were computed. The mean values were above the midpoint of 3.0, ranging from 3.722 to 4.138, and *SD* values ranged from 0.486 to 0.724, indicating a fairly positive response to the items by the participants and a spread of scores around the mean. In the TL construct, UST had the lowest value (3.976). SEE had the lowest value (3.948) in the TSE construct, while TRC ranked lowest (3.722) in the TC construct (Table 2).

The absolute values of the kurtosis and skewness for the items were between 0.418 and 0.564, and 0.409 and 2.836, respectively. These values were within the recommended cutoffs of |3.0|, indicating univariate normality in the data (Hair et al., 2010).

Test of the Measurement Model

The overall model fit was assessed using the chi-square test and other fit indices such as the goodness-of-fit index (GFI), the comparative fit index (CFI), the Tucker–Lewis index (TLI), and root mean square error of approximation (RMSEA). Kline (2010) suggested that acceptable model fitness indicators should include the chi-square value (χ^2), but this value is easily affected by sample size, and so χ^2/df should also be calculated. The values of GFI, CFI, and TLI should be higher than 0.9 and the value of RMSEA less than 0.06. From the results, the measurement models first order displayed an acceptable fit to the sample data (Table 3). This suggests that there may be a higher order factor. Therefore, this study constructed a second-order factor analysis model, and the results showed that the model and the data were well matched. The indicators are shown in Table 3. Compared with the first-order model, the χ^2/df value and other fitting indexes do not change much, but the structure of the model itself is greatly simplified. Therefore, the second-order model should be preferred.

Table 2. Mean and *SD* of Each Item.

Constructs	Items	*M*	*SD*
Teacher leadership (TL)	BRT	4.040	0.502
	ICW	4.005	0.502
	ICM	4.132	0.499
	UST	3.976	0.549
Teacher self-efficacy (TSE)	ISE	4.078	0.470
	CME	4.061	0.486
	SEE	3.948	0.535
Teacher competence (TC)	TMC	3.956	0.556
	TTC	4.138	0.509
	TRC	3.722	0.724
	TGC	3.899	0.583

Note. Items in the Table refer to the subconstructs; each value is the average value of the items contained in the subconstructs. BRT = building relationships of trust; ICW = integrating in collective work; ICM = improving communication means; UST = using systematic thinking; ISE = instructional strategies efficacy; CME = class management efficacy; SEE = student engagement efficacy; TMC = teacher management competency; TTC = teacher teaching competency; TRC = teacher research competency; TGC = teacher general competency.

The composite reliability (CR) and average variance extracted (AVE) methods were used to measure the reliability and validity of each item in the measurement model. Using a more conservative indicator of validity, the AVE for each construct, which measures the amount of variance captured by the construct in relation to the amount of variance attributable to measurement error, was computed (Teo, 2019).

In terms of verification of basic adaptation indicators, the factor loading value is suggested to lie between 0.50 and 0.95. In terms of a model's intrinsic structural fitness, when the CR is higher than .60 and the AVE is higher than 0.50, it indicates that the observed variable can effectively reflect its potential variable, which has good reliability and validity (Bagozzi & Yi, 1988). Some scholars also claim that the better combination reliability requires Cronbach's alpha to be above .70.

As shown in Table 4, the factor loading, squared multiple correlation, CR, AVE, and Cronbach's alpha of all items and variables meet the recommended guidelines. The factor loading coefficients (λ) of 11 items from the three constructs are relatively high, ranging from 0.828 to 0.917. The CR value (ρ_c) of the three constructs is .926, .924, and .917, all above .60. The values for AVE (ρ_v) are 0.757, 0.803, and 0.739, all above 0.50. Finally, the values for Cronbach's alpha are .892, .875, and .874, all above .70.

Accordingly, it is appropriate to proceed to test the structural model.

Further analysis found that the values of AVE and the squared correlation of the three constructs are higher than other values in the same row and column (Table 5). It proves the three constructs have good discriminant validity.

Table 3. CFA Model Fit of Each Construct.

Models	χ^2/DF	GFI	CFI	TLI	RMSEA
First order of TL	13.217	0.945	0.949	0.941	0.054
Second order of TL	13.639	0.943	0.947	0.939	0.055
First order of TSE	12.087	0.937	0.948	0.942	0.052
Second order of TSE	12.087	0.937	0.948	0.942	0.052
First order of TC	14.993	0.925	0.946	0.939	0.058
Second order of TC	16.828	0.913	0.938	0.931	0.062
Full model	45.479	0.911	0.946	0.928	0.104

Note. DF = degrees of freedom; GFI = goodness-of-fit index; CFI = comparative fit index; TLI = Tucker–Lewis index; RMSEA = root mean square error of approximation; TL = teacher leadership; TSE = teacher self-efficacy; TC = teacher competence; CFA = confirmatory factor analysis.

Table 4. Summary of Measurement Model.

Constructs	Items	Factor loading	SMC	CR	AVE	Cronbach's α
Teacher leadership (TL)	ICW	0.896	.802	.926	0.757	.892
	ICM	0.885	.783			
	BRT	0.851	.724			
	UST	0.847	.718			
Teacher self-efficacy (TSE)	ISE	0.891	.794	.924	0.803	.875
	CME	0.917	.841			
	SEE	0.880	.774			
Teacher competence (TC)	TMC	0.887	.787	.917	0.739	.874
	TTC	0.850	.722			
	TRC	0.828	.685			
	TGC	0.874	.763			

Note. Items in the table refer to the subconstructs; each value is the average value of the items contained in the subconstructs. SMC = squared multiple correlation; CR= composite reliability; AVE= average variance extracted. BRT = building relationships of trust; ICW = integrating in collective work; ICM = improving communication means; UST = using systematic thinking; ISE = instructional strategies efficacy; CME = class management efficacy; SEE = student engagement efficacy; TMC = teacher management competency; TTC = teacher teaching competency; TRC = teacher research competency; TGC = teacher general competency.

Table 5. AVE and Squared Correlation Between the Constructs.

Constructs	Teacher leadership	Teacher self-efficacy	Teacher competence
Teacher leadership	.757*		
Teacher self-efficacy	.016	.803*	
Teacher competence	.025	.023	.739*

Note. AVE = average variance extracted.
*Diagonal elements report the AVE and other matrix entries report the squared correlation estimation between them.

Test of the Structural Model

The results of the test of the structural model showed an acceptable model (χ^2/df = 45.479; GFI = 0.911; CFI = 0.946; TLI = 0.928; RMSEA = 0.104; Table 3). The reason for the χ^2/df value showing a large numerical value is the large sample size and the chi-square expansion. TL was determined by TSE and TC, resulting in an R^2 value of .764. It indicates TSE and TC together explained 76.4% of the variation in TL. *t* values were 18.089 and 22.916 for H1 and H2, while path coefficients were 0.362 and 0.432, respectively. Analysis of the structural model showed that all paths were statistically significant and that both hypotheses were supported (Table 6).

Discussion and Conclusion

This study aims to assess the validity of the proposed model (Figure 1) in explaining the factors that contribute to TL at Chinese private HEIs. Scholars have called on teachers at universities and colleges to recognize and practice TL skills. In fact, there has been a considerable increase in research on TL in various educational contexts.

Table 6. Summary of Structural Model.

Hypotheses	Relationships	Path coefficient	*t* value	Results
H1	TSE → TL	0.362***	18.089	Supported
H2	TC → TL	0.432***	22.916	Supported

Note. TL = teacher leadership; TSE = teacher self-efficacy; TC = teacher competence.
***$p < 0.001$.

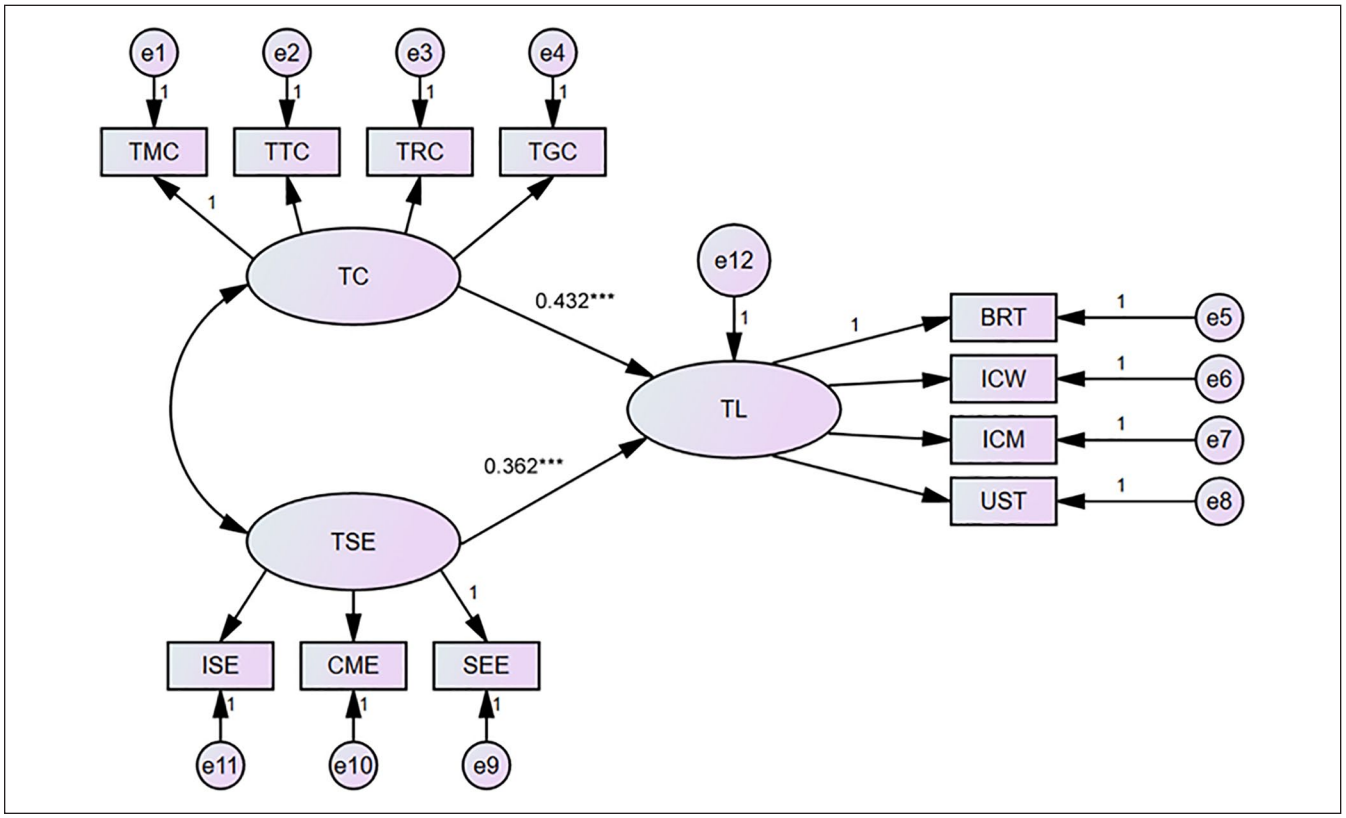

Figure 1. Structural model of the factors contributing to teacher leadership at Chinese private HEIs (11 items).
Note. HEIs = higher education institutions; TL = teacher leadership; TSE = teacher self-efficacy; TC = teacher competence; BRT = building relationships of trust; ICW = integrating in collective work; ICM = improving communication means; UST = using systematic thinking; ISE = instructional strategies efficacy; CME = class management efficacy; SEE = student engagement efficacy; TMC = teacher management competency; TTC = teacher teaching competency; TRC = teacher research competency; TGC = teacher general competency.
***$p < 0.001$.

This study sets out to explore the relationship between TSE, competency, and leadership within the context of Chinese private HEIs, and the results reveal that both hypotheses were supported. Positive significant relationships were observed between TSE and TL, and teacher competency and leadership based on the data that sampled 4,152 teachers from Chinese private HEIs. From the GFIs, the proposed model (Figure 1) is a valid model for explaining the factors that contribute to TL at Chinese private HEIs.

The results of the research show that teachers from Chinese private HEIs generally consider themselves to have certain abilities in terms of leadership qualities, and the levels of their senses of self-efficacy and competency are not low, with mean values above the midpoint of 3.0, ranging from 3.722 to 4.138. These research findings are similar to those of other research studies in the existing literature into the measurement of TSE and competency, and their relationship with TL in different school types (Augustine-Shaw & Devin, 2014; Berestova et al., 2020; Shi & Zhou, 2016). Chinese private HEIs have a high turnover rate, and the self-efficacy and competence levels of their teachers are lower than those of their counterparts in public HEIs. Indeed, there has been a common perception for some time that teachers in Chinese private HEIs are of a generally lower proficiency than their public sector counterparts. However, in stark contrast to that common perception, it reveals in this study that

Chinese private HEI teachers have a high self-efficacy and competency in the scope of China's current overall systematic reform by removing the policy barriers to the development of private education.

The results of this study suggest that the level of teachers' ability to use systematic thinking, student engagement efficacy, and research competency are at a relatively low level. It is true that teachers' scholarly research competency is rather low because Chinese private HEIs are teaching colleges, and only a tiny fraction of teachers are PhD degree holders: As Bailey (1999) argued in an earlier study, holding a PhD degree can promote self-efficacy and motivation in research. This finding reveals the structural difficulty to building Chinese private HEIs' teaching profession.

To fully understand such teachers' relatively weak ability to use systematic thinking, and their low level of performance in student engagement efficacy, the precise nature of systematic thinking, student engagement efficacy, and the contextual influential factors in teaching profession need to be discussed. Basic values, personality, pedagogical orientation, and organizational structure are the parameters of systematic thought (Sarid, 2012). Students who report high engagement had better school attendance and higher test scores (Klem & Connell, 2004). However, some teachers find it challenging to employ pedagogical approaches and a curriculum that fosters higher student engagement (Taylor & Parsons, 2011). Especially in Chinese private HEIs, teachers and students all have less competition for they are at disadvantaged educational situations in Chinese higher education community. With the realistic demand, it is clear that improving teachers' systematic thinking is a long-range process, calling for continuous high-quality faculty development, and organizational reform.

Another result of this study is that the hypothesis that TSE has a significant influence on their leadership was supported. Based on the argument that TL is closely related to collective efficacy (Derrington & Angelle, 2013), this study provides a further explanation of the relationship between TL and TSE. These findings also enrich previous studies which focused solely only on the relationship between a principal's leadership and self-efficacy, thereby neglecting the relationship between TL and TSE (Calik et al., 2012; Mehdinezhad & Mansouri, 2016). Recent studies of TL in HEIs have focused on administrative leadership. We find teachers' self-efficacy has a significant influence on their leadership in Chinese private HEIs, which makes studies in TL in HEIs more diverse.

In the scope of the research, the relationship between teacher competency and leadership was explored and the results showed that teacher competency has a significant influence on their leadership. This finding differs from the argument that leadership determines general competence (Koellner et al., 2011). By contrast, from the perspective of the structural model, this study suggests general competence determines leadership, and general competence is the foundation of the development of leadership. That is to say, TL depends on the personal influence generated naturally through a teacher's competence, experience, literacy, and professional knowledge and skills (Li & Pei, 2017).

Based on the above findings, especially the issues identified in the survey, this study also provides some suggestions for effective interventions to promote TL skills development at Chinese private HEIs. First, *it is imperative for private HEIs to enhance teachers' systematic thinking skills.* Teaching any content well is, in fact, teaching it as a mode of thinking (Murray& Graham, 1996). Systematic thinking in teaching is beneficial in cultivating students' critical thinking, and improving teaching quality in the long run. As this study reports, the teachers surveyed have low levels of systematic thinking and student engagement, which is a potential difficulty for Chinese private HEIs in trying to improve teaching quality. The style of instruction and concerns of authority, and the organizational structure are strongly related to systematic thinking. The top-down educational administration system in China may account for the lack of teacher autonomy and their mode of thinking, usually playing the role of followers rather than leaders in this system. As such, leveraging their flexible employment mechanisms, private HEIs should explore multiple ways of cultivating teachers' systematic thinking skills. Under certain social contexts, policies facilitating regular rotation of jobs or duties should be set up to support teachers in working on a regular basis in different offices and departments to effectively raise their overall consciousness.

Second, *private HEIs should pay significant attention to improving teachers' self-efficacy, so as to promote the development of TL.* As this study reported, teacher efficacy is closely related to leadership. Likewise, self-efficacy has been positively associated with personal accomplishment, task performance, and even psychological wellbeing, and TSE has been identified as making a direct contribution to job satisfaction (Kasalak & Dagyar, 2020; Safari et al., 2020). However, the overall job satisfaction of teachers in Chinese private HEIs is below the medium level, and the turnover rates are high (Zhou, 2007). At the same time, as Yu and Lee (2020) stated, Chinese individuals have been found to have lower levels of general self-efficacy as compared with their non-Chinese counterparts. That may be because in Western countries, more importance is given to independence and the individual effort of individuals, which encourages individuals to be open to innovations and to improve themselves (Kasalak & Dagyar, 2020). Such cultural and institutional factors may have a strong influence on teachers' self-efficacy and improving this self-efficacy is helpful in stimulating their endogenous motivation. It suggests here, Chinese private HEIs reinforce institutions' cultural climate construction and create the democratic, mutual help and encouraging atmosphere in the societies with collective culture structures, thereby strengthening teachers' self-confidence.

Third, *it is imperative for Chinese private HEIs' teachers to build TC, and lay a solid foundation for teachers' leadership in private HEIs.* Our study confirms that TC is high in Chinese private HEIs, but TRC ranks low in the construct of TC, and TC is strongly linked to TL. Although teaching is the backbone of Chinese private HEIs, scholarly research and teaching are complementary. Building teachers' research competency can be a major breakthrough in increasing teachers' overall competency. Leadership enables effective pedagogic change in higher education (Bahr & Crosswell, 2015), and high levels of TL will improve teaching quality. On that point, Chinese private HEIs could take measures in discipline construction and instructional transformation. By doing this to motivate teaching competence and research competence development, thereby cultivating teachers' basic competence, they could create a virtuous circle of TL promotion and education quality improvement for Chinese private HEIs.

Contributions of This Study

Our evidence suggests that the instrument is valid and reliable. A validated instrument for assessing TL affords educators and researchers a diagnostic tool that can be used to assess the status quo and uncover problems. This kind of evidence is particularly important for teachers' professional development and quality assurance. In addition, quantitative research builds on high-quality measurement instruments. The instrument developed and validated in this study can facilitate more high-quality quantitative studies in the field of TL, especially in HEIs.

Limitations of This Study and Directions for Future Research

Due to such factors as labor resources and time, this study used cluster sampling, a method that is convenient for organization, reduces the labor, material resources, and time requirements, and makes it easy to control the quality of the survey process. However, due to the large differences between different groups, the resulting sampling error is often greater than that of simple random sampling. Future work in this area might include mix methods to better understand what facilitated the obtaining of leadership of teachers from private HEIs. This study is a one-time snapshot of teachers' experiences. A longitudinal study that follows up a group of newly employed teachers year to year could provide unique insight into how the experiences of being teachers in a private HEI change over time as they adjust to their new environment and what factors affect their leadership development. In addition, this study only surveyed teachers. The transferability of the study finding could be further enhanced by surveying and interviewing students, principals, and other key stakeholders, to gain a more comprehensive understanding of the issues talked in this study.

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