Research Article:

Enhancing Teacher Leadership in Malaysian Secondary Schools: Do Collaborative School Culture and Principal Support Matter?

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ABSTRACT

Despite the impact of school culture on teacher leadership was well-theorised in literature, the extent to which the principal support strengthening the relationship between school culture on teacher leadership remains unknown. This study aims to examine the influence of collaborative school culture on teacher leadership with the four dimensions of principal support (professional support, emotional support, instrumental support and assessment support) as moderators. This study used an explanatory sequential mixed-methods design. Three hundreds and sixty teachers were the samples from 45 secondary schools in the states of Kedah, Perlis and Penang. Meanwhile, 18 secondary teachers participated in the semi-structured interviews. The quantitative findings revealed a significant influence of collaborative school culture on teacher leadership. The relationship between collaborative school culture and teacher leadership was stronger when the principal's instrumental support was higher compared to its counterpart. However, there was no moderating effect of professional support, emotional support, and assessment support on the relationship between collaborative school culture and teacher leadership. The qualitative findings informed the impact of collaborative school culture on teacher leadership could be enhanced with support from the local social community, effective communication between leaders and teachers, and teacher engagement in academic and non-academic activities. Implications of the study and future studies are presented.

Keywords: Collaborative school culture, partial least squares structural equation modelling, principal support, teacher leadership, thematic analysis

INTRODUCTION

Teacher leadership has been identified as a significant factor in driving school improvement efforts (Harris et al., 2017). According to Fullan (2010), teacher leadership is closely related to schools that practice collaborative school culture and provide professional support to teachers. The literature highlighted that a collaborative school culture promotes teamwork among teachers and encourages active participation and collective efforts from all members of the school community to achieve the school's short-term and long-term planning goals (Tallman, 2019). Thus, collaborative school culture could enhance teacher leadership.

With this concern, principal support is an important factor to enhance teacher motivation as it influences the overall work environment and facilitates the successful execution of diverse school initiatives (Evonne & Crispina, 2017). According to Levenson (2014), principal support has the potential to enhance the effectiveness of teachers through the demonstration of leadership skills and exerting a positive influence on students and fellow teachers. Therefore, principal support is likely to strengthen the relationship between collaborative school culture and teacher leadership. Thus, a direct effect between collaborative school culture and teacher leadership seems fragmented without the influence of principal support on this relationship. Nonwithstanding this, little attention has been paid to the possible moderating role of principal support compared to its mediating effects in educational leadership and management (EDLM) literature

The teacher leadership model was also surprisingly rare utilised in a few empirical studies even though the overall research attention on this topic has increased over the years according to recent reviews of the relevant literature (Nguyen et al., 2020). In addition, researchers have posed inquiries regarding the role of teachers, highlighting that they may have limited involvement in leadership activities due to a prevailing belief that their primary responsibility is solely to teach students based on the provided curriculum and ensure timely completion of the syllabus (Abu Bakar et al., 2015).

Besides, a systematic review conducted by Özdemir et al. (2022) has pointed out the limited use of mixed-methods research design in school leadership studies despite such a research approach is deemed more appropriate for gaining deeper insights into the studies. To address this call, the current study attempts to use an explanatory sequential mixed-methods research design to better illuminate how the collaborative school culture impact on teacher leadership via the principal support dimensions.

This study attempts to answer the following research questions:

1. Is there any positive relationship between collaborative school culture and teacher leadership?
2. Do the principal support dimensions moderate the relationship between collaborative school culture and teacher leadership?
3. How does collaborative school culture influence teacher leadership?
4. How does the dimension of principal support (instrumental support, professional support, emotional support and assessment support) influence the relationship between collaborative school culture and teacher leadership?

The current study offers a comprehensive empirical examination of the direct and moderating effects between collaborative school culture, principal support dimensions, and teacher leadership. The study also contributes to the expanding body of literature in the field of educational leadership.

Theoretical Underpinning

Social cognitive theory by Bandura (1986) is the theoretical foundation of this study. Social cognitive theory explains the external environment such as social pressure, cognitive and personal factors, including personality and demographic characteristics, and behaviour are mutually reciprocal. In this study, social cognitive theory describes that the collaborative school culture and principal support play an important role in influencing the behaviour of a teacher. In detail, collaborative school culture is an environmental factor that influences teachers to lead and carry out tasks in the school. The environment influences the work culture among teachers to work together to achieve the school's vision and mission (Hoy & Miskel, 2013). Furthermore, principals who have cognitive and personal leadership skills are able to influence the behaviour of teachers to carry out their responsibilities in the school (Ghani et al., 2016). Therefore, based on the social cognitive theory, collaborative school culture and principal support will engender teacher leadership, which provides opportunities for teachers to appreciate and have confidence in achieving a shared vision of continuous improvement in the school (Carpenter, 2015).

LITERATURE REVIEW

Teacher Leadership

Teacher leadership exists when a teacher's high level of knowledge and skills can influence other individuals inside and outside the organization (Danielson, 2006). The teachers who lead must have extensive knowledge and high skills in their expertise. Thus, they could influence other individuals equally to achieve the school's goals. Drawing from the statement by Muijs and Harris (2007), the concept of teacher leadership is parallel to the concept of distributive leadership. However, the concept of teacher leadership is rather focused on teachers in schools. Teacher leadership is not only limited to formal leadership roles like other leadership concepts but also involves informal leadership roles or holding any position in school management.

Katzenmeyer and Moller (2009) expounded that teacher leadership is the teacher's practice as a school team leader that demonstrates new teaching methods, shares knowledge and skills, and improves school achievement. It is in line with the research by Muijs et al. (2013), which stated that teacher leadership is a practice of improving the teaching profession of teachers in schools. This is because the teacher leader can be the main driver of leading other teachers to obtain improvement in a school. According to Tsai (2015), teacher leadership occurs when there is a process of teachers individually or collectively influencing their colleagues, principals and other members of the school to improve teaching and

learning. As Supovitz (2018) mentioned that teacher leadership is a process or behaviour shown by the teacher to lead other colleagues to do an activity compared to the position. Besides, Poekert et al. (2016) described that the development of teacher leadership is the result of an individual's repeated experience that emphasises self-development in the work done. Therefore, teacher leadership is conceptualised as a major school change process that involves teachers as the main cause of change (Nguyen et al., 2020).

Collaborative School Culture

Collaborative school culture is conceptualised as the way teachers and administrators interact to share information about teaching and plan curriculum activities in schools (Riveros, 2012). Collaborative school culture also supports and emphasises trust in the relationship between teachers and parents (Gruenert, 2005). According to Deal and Peterson (2010), the way of building a school's culture over time relies on teacher relationships with colleagues to support student achievement. Collaboration between teachers and the school community can develop into a practise culture in schools. This is because collaboration is a process that involves teachers making discussions, sharing knowledge, sharing experiences and building a curriculum together (Lieberman, 2013). Thus, collaborative relationships are the actions that can create relationships through communication and cooperation with each other (Vangrieken et al., 2015). As Tsai (2015) stated, it is crucial to establish a cooperative environment and working relationships between teachers and administrators to share the school's mission and vision.

Furthermore, the concept of collaborative school culture allows creation of works teams at school through co-teaching or by the participation of the members in the classroom. As a result, teachers serve as role models for students in terms of teamwork. It showed that when teachers work together, they may examine difficulties in students' learning and identify their problems within the curriculum (Gumuseli & Eryilmaz, 2011). Apart from that, Gumuseli and Eryilmaz (2011) mentioned that principals must concentrate on the ongoing development of schools that are well-prepared with the beliefs, values, and attitudes to foster a supportive learning environment in order to emphasise the significance of collaborative school culture. Therefore, principals need to develop receptive and supportive relationships and provide a healthy working environment for teachers to improve their teaching profession.

Collaborative School Culture and Teacher Leadership

Sawchuck (2011) explained that a strong and positive collaborative school culture is able to influence teacher leadership. However, this depends on the school's capacity to foster an environment that encourages teachers to take the initiative and play a leadership role (Mangin, 2007). As Demir (2015) highlighted, teacher leadership is an encouragement to work towards collaboration among teachers with the support of administrators. Thus, a school culture that supports teachers participating in leadership roles can increase teacher leadership (Sheppard et al., 2010). Furthermore, Poekert (2012) argued that in order to become teacher leaders, it is important to emphasise their professional development. This

is because teacher leadership is not simply tied to the teacher's characteristics. As Poekert et al. (2016) mentioned, for teachers to lead and participate in the development of schools, they also need to be given programmes for improving their professionalism, supportive environments, and leadership chances. Therefore, school culture is important to form teacher leadership (Mohd Noor et al., 2018).

Kabler's (2013) quantitative study found that there is a significant relationship between the school culture and teacher leadership in the school districts of Southeast Tennessee. Meanwhile, research by Yusof et al. (2016) expounded that there is a strong relationship between school culture and teacher leadership. In detail, it explained that the dimension of a school culture of collaborative support influenced the teacher's professionalism. Similarly, the study conducted by Kılınç's (2014) revealed that school culture has a significant relationship to teacher leadership among primary school teachers, who attended a conference organised by the Bafra District National Education Directorate in Bafra, Samsun. This is further explained by Talib et al. (2015) that an increase in teacher leadership is significantly correlated with a strong school culture that acts as a compass to assist school administrators. Thus, we hypothesised that collaborative school culture has a positive relationship with teacher leadership.

> H1: Collaborative school culture has a positive relationship with teacher leadership.

Principal support dimensions as moderators

Principals are encouraged to provide support to teachers. A successful principal may foster confidence and trust among teachers so that they can lead together in the school (Qian et al., 2017). Fowler (2014) further explained that a wise principal can identify teachers who can lead. According to Stoll et al. (2015), principals should encourage teacher leaders to participate in collective leadership change processes and empower them to participate in decision-making. Therefore, teacher leadership empowerment in schools requires principal support (Wilhelm, 2013). However, the qualitative study of Al-Taneiji and Ibrahim (2017) expounded that there are a few school managers who feel less secure when teachers show leadership because they undermine the authority of the administrators.

In schools, principals help teachers who are involved in school management to lead the school. Teacher leaders who serve as leaders either in subject areas or as committee leaders are responsible to provide leadership to other teachers (Wilhelm, 2013). Waldron and McLeskey (2010) mentioned that principals support the development and maintenance of the collaborative school culture, ensure the suitability of changes, and build the school's capacity to meet the needs of students. The study by Hughes et al. (2015) found that a principal can help teachers make changes by supporting their teaching activities. Besides, Anastasiou and Papakonstantinou (2014) described that when principal provides effective and systematic training and career development opportunities, encourage teachers in decision-making and provide better working conditions; it will help teachers to carry out their work, increase job satisfaction and reduce their emotional stress. Similarly, Carpenter (2015) stated that principals should provide support to teachers to ensure a positive school culture and the effectiveness of professional learning for school improvement. Principals

should involve teachers directly by providing teachers with a leadership structure that impacts school improvement through a collaborative culture.

A study conducted in Turkey on the empowerment of school culture among 43 teachers in the Gaziantep district revealed that principals need to cultivate good relationships and provide support to teachers to achieve school goals (Balkar, 2015). This is because principal support can cause the teacher leaders to lead the school community to achieve the school's goals. Moreover, the level of principal support can be increased through communication to promote the principal's knowledge about teacher leadership (Mangin, 2007). In addition, principals take initiatives in human resource development and provide support to teachers by encouraging teachers and support group members to improve their knowledge (Ahmad & Boon, 2011). Nevertheless, the study of Mohd Tahir et al. (2012) explained that outstanding principals still lack priority and support in teaching activities, observing and evaluating teachers' teaching in schools.

In this study, principal support is divided into four dimensions, i.e., professional support, emotional support, instrumental supports, and assessment support. Professional support provides opportunities for teachers to improve their skills and expertise in teacher leadership in schools (Cheung et al., 2018). Emotional support refers to the extent to which the principal gives support and trust in the decision made by the teacher (Hallam et al., 2015). Instrumental support refers to the extent to of the principal supports teachers in terms of time, resources, and constructive feedback to effectively perform teaching tasks. Assessment support is the extent to which principals evaluate a teacher's decision and provide thoughtful recommendations to help teachers improve the need for teaching in schools. Hence, we hypothesised that the dimensions of principal support have a moderating effect on the relationship between collaborative school culture and teacher leadership.

H2a: The relationship between collaborative school culture and teacher leadership is stronger if the level of professional support is stronger compared to its counterparts.

H2b: The relationship between collaborative school culture and teacher leadership is stronger if the level of emotional support is stronger compared to its counterparts.

H2c: The relationship between collaborative school culture and teacher leadership is stronger if the level of instrumental support is stronger compared to its counterparts.

H2d: The relationship between collaborative school culture and teacher leadership is stronger if the level of assessment support is stronger compared to its counterparts.
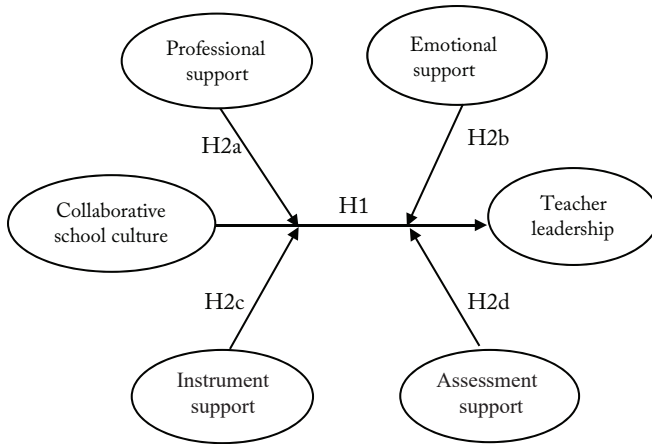
Figure 1. Research model

METHODS

This study uses an explanatory sequential mixed-methods design, starting with a quantitative approach and followed by a qualitative approach (Creswell, 2016). The data collection and analysis of this study is conducted separately. Data collection and quantitative data analysis is done in the first stage, followed by the second stage of data collection and qualitative data analysis. The second stage, which is a semi-structured interview session, was used and data for this study was collected from the teachers in the first stage quantitative research sample identified.

Sample

A total of 27 national secondary schools were selected in the state of Kedah, three schools in Perlis and 15 schools from Penang. Each school is represented by eight teachers of Language, Humanities, Science and Mathematics, and Technical and Vocational subjects. So, there are total of 360 teachers in the quantitative phase. Sample selection for interviews was conducted by choosing teachers who teach in schools that got the highest mean score in the states of Kedah, Perlis, and Penang in the analysis of quantitative findings. The selected respondents are teachers who answered quantitative questionnaires from selected schools in the states of Kedah, Perlis, and Penang. A semi-structured interview in a qualitative method is based on 5% of the number of samples that achieve the highest mean score for the level of quantitative achievement variables according to school. The highest mean score indicates the highest average mean for the three variables studied, namely collaborative school culture, teacher leadership, and principal support for each school. Selection of one

school from each state of Kedah, Perlis, and Penang and six teachers are selected from the selected schools. Therefore, there are a total of 18 teachers in the semi-structured interview.

Measures

This study used Gruenert and Valentine's (1998) scale to measure collaborative school culture. The scale consists of 35 items with six dimensions, namely collaborative leadership (11 items), teacher collaboration (six items), collective goal (five items), professional development (five items), peer support (four items), and shared learning (four items) with 5-point Likert scale, ranging from strongly disagree (1) to strongly agree (5). This study adapted Teacher Leadership School Survey developed by Katzenmeyer and Katzenmeyer (2005) to measure teacher leadership. The teacher leadership scale has a total of 49 items with seven dimensions: developmental focus (seven items), recognition (seven items), autonomy (seven items), coherence (seven items), participation (seven items), open communication (seven items), and positive environment (seven items). The participants responded to 5-point Likert scale, ranging from strongly disagree (1) to strongly agree (5). DiPaola's (2012) principal support scale was used in this study to measure the four dimensions of principal support: professional support (four items), emotional support (four items), instrumental supports (four items) and assessment support (four items). The participants responded to 5-point Likert scale, ranging from strongly disagree (1) to strongly agree (5).

Data Collection Procedure

This study involves two types of quantitative and qualitative data collection processes. The following is the data collection process carried out in this study. The researcher applied for permission from the Malaysian Education Policy Research Planning Division (EPRD), Ministry of Education Malaysia before administering the actual study. Then, the researcher contacted the Kedah State Education Department, the Perlis State Education Department ,and the Penang State Education Department to obtain information on the number of national secondary schools in the three states. After that, the researcher provided a copy of the official letter to the principals in the 45 schools involved in the actual study. The researcher distributed 10 additional sets of questionnaires to each selected school to reduce the error of returning the number of questionnaires. The distribution of the excess number of questionnaires to each school can be done so that the researcher gets the desired number of questionnaires.

The qualitative method is conducted after the mean of the highest scores by school in each state is known. So, each state is represented by a school that achieves the highest mean score for all three study variables. A total of six respondent teachers from selected schools to conduct interview sessions. 5% of the total sample was selected to be interviewed. A total of 18 teachers were successfully interviewed. The researcher met the principal or senior assistant at the school in question to obtain permission to hold an interview session with six teachers at the selected school. The procedure for applying for permission to conduct a semi-structured interview session is carried out like the stage of the quantitative method.

The interview session was conducted without interrupting the teaching and learning process of the interviewed teachers.

Data Analysis Procedure

This study uses two types of data analysis, namely quantitative data analysis and qualitative data analysis. To answer the research questions, the researcher used descriptive statistical analysis to examine the level of each dimension for the variables collaborative school culture, teacher leadership and principal support. For the quantitative data analysis, this study employed partial least squares-structural equation modeling (PLS-SEM) for hypothesis testing using the SmartPLS version 3.0 software. This study has two second-order construct (collaborative school culture and teacher leadership). The collaborative school culture variable contains six first-order constructs, namely collaborative leadership (PK), teacher collaboration (KG), professional development (PP), unity of goals (KM), solidarity support (SK), and learning sharing (PR). The teacher leadership variable contains seven first-order constructs, namely developmental focus (FP), recognition (PI), autonomy (AU), coherence (KS), participation (PY), open communication (KT), and positive environment (PE).

In this study, data triangulation is used to increase the credibility and validity of the research results. This study uses two types of triangulation, namely respondent triangulation and place triangulation. Respondent triangulation is data obtained from six teachers in the same school. The data collected from the same interview questions will be compared and produce a summary that represents the findings of the school to increase the validity of the qualitative findings.

While triangulation of place is to compare the research findings from three schools (representing the states of Kedah, Perlis, and Penang). The data collected using this method is examined and subsequently produces conclusions according to the school or more specifically to the collaborative school culture. Finally, the triangulation of data used in this study is to examine the findings of a qualitative study on the moderator effect of principal support on the relationship between collaborative school culture and teacher leadership. The qualitative data analysis of this study is thematic for the purpose of analysing content and developing cognitive mapping.

This study uses the 6-phase thematic analysis approach introduced by Braun et al. (2016). In phase 1 of thematic analysis, the researcher read each transcript several times to understand the interview data. In phase 2, the codes were recorded for the first time in 18 transcripts. In phase 3, the codes obtained in phase 2 were combined into main themes for the first time. In phase 4, the themes generated in phase 3 are examined and revised. A thematic map is formed according to research questions and interview questions. Phase 5 involves naming relevant themes and being able to clearly explain the qualitative findings. Phase 6 involves qualitative data reporting based on the themes built in phase 5. The procedures or steps that need to be followed in making this thematic analysis are the data management matrix, transcription, data filtering, coding, producing themes, and sub-themes and displaying the

results (Braun et al., 2016). Finally, the qualitative data report produced in phase 5 also relates the qualitative findings to the research questions, theories, and literature highlights discussed in the section of literature review in addition to being supported with relevant verbatim.

RESULTS

Quantitative Phase

Assessment of measurement model

For the first run of analysis, 10 items of collaborative school culture were excluded because the loading values were below the threshold of 0.70 (Hair Jr et al., 2017). For a similar reason, 12 items of teacher leadership were excluded. As Hair Jr et al. (2017) stated, the items should be removed when the removal of items could lead to an increase in composite reliability (CR) and average variance extracted (AVE). This study performed the second run of analysis with the remaining 45 items.

Table 1 shows the CR and AVE are above the threshold of 0.70 and 0.50, respectively (Hair Jr et al., 2017). Despite there were seven items below the loading values of 0.70, these items were retained as the CR and AVE of the respective first-order construct were above the thresholds. Therefore, the convergent validity of the first-order constructs was established. Table 2 shows all the Heterotrait-Monotrait Ratio of Correlations (HTMT) values were below the threshold of 0.90 (Henseler et al., 2015). The finding showed the establishment of discriminant validity of the first-order constructs.

Table 1. Measurement model of first-order constructs

Construct and items	Loading	CR	AVE
Collborative school culture			
Collaborative leadership (PK)		0.790	0.556
BSK2	0.756		
BSK11	0.723		
BSK26	0.728		
BSK32	0.744		
Teacher collaboration (KG)		0.788	0.554
BSK8	0.741		
BSK23	0.754		
BSK33	0.737		
Professional development (PP)		0.782	0.537
BSK6	0.908		
BSK13	0.500		

Table 1. (*Continued*)

Construct and items	Loading	CR	AVE
Unity of goals (KM)		0.808	0.515
BSK5	0.734		
BSK12	0.715		
BSK19	0.798		
BSK31	0.610		
Solidarity support (SK)		0.806	0.675
BSK10	0.791		
BSK17	0.851		
Learning sharing (PR)		0.762	0.517
BSK1	0.665		
BSK9	0.755		
BSK16	0.734		
Teacher leadership			
Developmental focus (FP)		0.806	0.581
KG5	0.723		
KG6	0.736		
KG7	0.825		
Recognition (PI)		0.81	0.588
KG9	0.740		
KG10	0.810		
KG11	0.748		
Autonomy (AU)		0.812	0.591
KG18	0.770		
KG20	0.809		
KG21	0.724		
Coherence (KS)		0.802	0.575
KG22	0.720		
KG23	0.819		
KG27	0.731		
Participation (PY)		0.789	0.556
KG29	0.810		
KG32	0.727		
KG34	0.695		
Open communication (KT)		0.769	0.527
KG36	0.788		

Table 1. (*Continued*)

Construct and items	Loading	CR	AVE
KG37	0.690		
KG38	0.696		
Positive environment (PE)		0.789	0.556
KG44	0.779		
KG45	0.759		
KG47	0.696		

Note. CR indicates composite reliability and AVE indicates average variance extracted

Table 2. Discriminant validity ($HTMT_{0.90}$) for first-order constructs

	AU	FP	KG	KM	KS	KT	PE	PI	PK	PP	PR	PY	SK
AU	**0.769**												
FP	0.368	**0.762**											
KG	0.214	0.421	**0.744**										
KM	0.371	0.569	0.547	**0.718**									
KS	0.559	0.487	0.422	0.405	**0.758**								
KT	0.272	0.509	0.380	0.542	0.413	**0.726**							
PE	0.253	0.387	0.518	0.447	0.420	0.358	**0.746**						
PI	0.428	0.503	0.392	0.450	0.625	0.351	0.490	**0.767**					
PK	0.180	0.350	0.532	0.535	0.333	0.333	0.558	0.436	**0.746**				
PP	0.356	0.339	0.531	0.525	0.419	0.419	0.455	0.441	0.500	**0.733**			
PR	0.358	0.362	0.538	0.633	0.342	0.342	0.477	0.393	0.554	0.520	**0.719**		
PY	0.434	0.503	0.376	0.653	0.472	0.472	0.349	0.450	0.314	0.436	0.512	**0.745**	
SK	0.208	0.427	0.394	0.570	0.259	0.259	0.404	0.371	0.416	0.374	0.493	0.514	**0.822**

Note: AU = autonomy; FP = developmental focus; KG = teacher collaboration; KM = unity of goals; KS = coherence; KT = open communication; PE = positive environment; PI = recognition; PK = collaborative leadership; PP = professional development; PR = learning sharing; PY = participation; SK = solidarity support.

For the second-order construct of collaborative school culture and teacher leadership, all loadings were above the threshold of 0.70 except AU and PE as shown in Table 3. However, AU and PE are maintained since the AVE value was above 0.50. The CR and AVE of these two constructs were above the threshold of 0.70 and 0.50, respectively. Thus, the convergent validity of the second-order construct, namely collaborative school culture and teacher leadership was established. Similarly, Table 4 shows that all the values of $HTMT_{0.90}$ were also found below the threshold of 0.90. Hence, the discriminant validity of the second-order construct of collaborative school culture and teacher leadership was established.

Table 3. Measurement model of second-order constructs

Constructs	Items	Loadings	AVE	CR
Collaborative school culture			0.594	0.897
	KG	0.762		
	KM	0.842		
	PK	0.753		
	PP	0.743		
	PR	0.812		
	SK	0.703		
Teacher leadership			0.518	0.882
	AU	0.613		
	FP	0.751		
	KS	0.769		
	KT	0.700		
	PE	0.670		
	PI	0.761		
	PY	0.761		

Note. CR indicates composite reliability and AVE indicates average variance extracted

Table 4. Discriminant validity (HTMT$_{0.90}$) for second-order constructs

	Collaborative School Culture	Teacher leadership
Collaborative school culture	**0.771**	-
Teacher leadership	0.708	**0.720**

Assessment of structural model

Figure 2 shows that R^2 values for the endogenous latent variable. The R^2 value of 0.563 for teacher leadership showed that collaborative school culture and principal support dimensions explained 56.3% of the variance in teacher leadership.
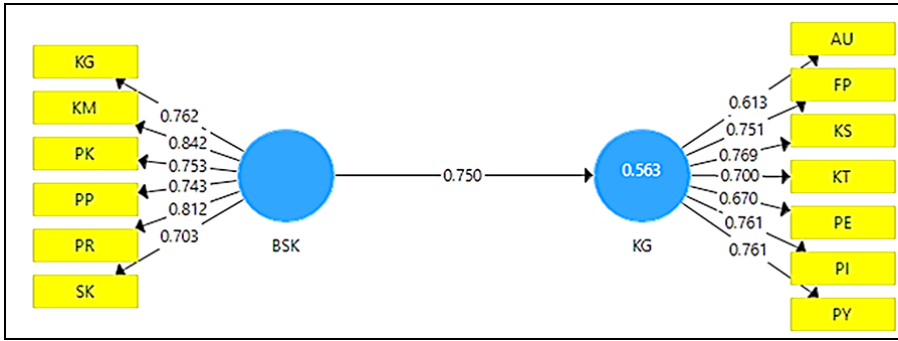
Figure 2. Structural model

Table 5 displays that the direct effect between collaborative school culture and teacher leadership was significant (β = 0.750, t = 30.749). Thus, H1 was supported. For the analysis of moderating effects, professional support did not have a moderating effect between collaborative school culture and teacher leadership (β = –0.030, t = 1.120). Therefore, H2a was not supported. Besides, emotional support did not moderate the relationship between collaborative school culture and teacher leadership (β = –0.028, t = 1.147). Thus, H2b was not supported. Instrumental support moderated the relationship between collaborative school culture and teacher leadership *(β = 0.043, t = 2.098)*. Hence, H2c was supported. Finally, assessment support did not have a significant moderating effect between collaborative school culture and teacher leadership (β = –0.035, t = 1.300). Therefore, H2d was not supported.

Table 5. Results of hypothesis testing

Hypothesis	β	SD	t-value	p-value	95% CI corrected bias	Decision
H1 : BSK → KG	0.750	0.024	30.749	0.001	[0.704, 0.786]	Supported
H2a: BSK*SP → KG	–0.030	0.027	1.120	0.263	[–0.078, 0.027]	Not supported
H2b: BSK* EM →KG	–0.028	0.024	1.147	0.251	[–0.074, 0.020]	Not supported
H2c: BSK*SI → KG	0.043	0.021	2.098	0.036	[0.004, 0.088]	Supported
H2d: BSK*SN →KG	–0.035	0.027	1.300	0.194	[–0.086, 0.020]	Not supported

Note. BSK = Collaborative school culture, KG = Teacher leadership, SP = Professional support, EM = Emotional support, SI = Instrumental support, SN = Assessment support

Qualitative Phase

Research question 3: How does collaborative school culture influence teacher leadership?

Based on the thematic analysis, four main themes, namely (1) social support of the local community, (2) open communication, (3) teacher involvement in school activities, and (4) increasing teacher self-efficacy emerged. The description of these four themes is as follows:

1. Social support of the local community: Cooperation and involvement with school members and the community such as parents and the outside community have a positive impact on the culture of a school, especially the collaborative school culture. This statement could be explained as follows:

   > Parents and teacher Associations always support our programs in what we want to do, especially those activities involving academics and curriculum. They provide close support in terms of moral and financial support… (R1)

   Social support of the local community such as parents and teacher associations plays an important role in increasing teacher leadership. When the local community recognises the expertise and efforts of teachers, it enhances their confidence and motivation to take on leadership roles. Supportive community members who provide positive feedback and publicly acknowledge their accomplishments have helped teachers to see themselves as leaders.

2. Open communication: The findings of the qualitative study explained that there is an open communication relationship among the school administrators, especially the principal, teachers and staff. Besides, two-way communication happened between teachers and students in the school. Dissemination of information is done through weekly discussions. In addition, the use of media tools such as the Public Address (PA) system and the use of telegrams help to deliver information effectively. An in-service training programme and professional learning community (PLC) activities encourage information sharing among teachers. This open communication has provided a lot of important information to the school community.

   > …we give district teachers information collaboratively with all teachers. We prepare models and guides for teachers to help students in other schools… (R2)

   > …we have a Telegram group that always shares all kinds of materials in teaching and facilitation. (R14)

   The presence of open communication, two-way dialogue, information-sharing practices, and collaborative opportunities described in the statements can create an environment that supports and improves teacher leadership. These factors promote empowerment, collaboration, professional development, access to information and

positive relationships, all of which contribute to the growth and effectiveness of teacher leadership.

3. Teacher involvement in school activities: Findings showed that teachers' involvement in school activities can increase teachers' confidence, whether experienced teachers or teachers who have just served or newly transferred to a school. This statement is explained by R1, R3 and R6 as follows:

    > …when a new teacher transferred from another school, he or she faced a different school culture. We will collaborate with him. We help him in terms of confidence and increase his confidence. (R1)

    > Collaborative culture is very good to increase the teacher's confidence as a leader and teacher. It gives us the courage to do whatever we do. (R3)

    > …indeed a collaborative culture can increase teachers' confidence in engaging in leadership activities either for students or teachers as well… (R6)

    In summary, these statements collectively support the idea that teachers' involvement in school activities and the presence of a collaborative culture can enhance their confidence as leaders. By fostering collaboration, providing support and creating an environment that encourages teamwork, teachers are more likely to develop their leadership skills and take on various leadership roles within the school setting.

4. Increased self-efficacy of teachers: Findings revealed that collaboration among school members is able to increase the self-efficacy of teachers. Teachers have the opportunity to participate in school programs and be involved in all areas of work. The opportunity to participate in school activities can provide chances for teachers to become teacher leaders in the school. This statement is explained by R6, R10 and R16 as follows:

    > Teachers are often allowed to get involved in school activities throughout the year. (R6)

    > I'm glad to be given a chance. Just a bit tired. (R10)

    > All teachers at this school including me always involved in school programs. Thus, it shows a collaborative effort. Sometimes we become leaders and sometimes we become committee members. It is like when someone becomes a coordinator of a program, he

has to handle all the committee members. At this moment, we are allowed to lead... (R16)

These statements collectively support the idea that collaboration, involvement in school activities and the opportunities provided to teachers contribute to increasing teacher leadership. The knowledge, experience and management skills that have been learned with other teachers to manage the school programs have indirectly influenced teacher leadership.

Research question 4: How does the dimension of principal support (instrumental support, professional support, emotional support and assessment support) influence the relationship between collaborative school culture and teacher leadership?

Instrumental support as a moderator

This section discusses the findings of the interview analysis that examines the moderating effect of instrumental support on the relationship between collaborative school culture and teacher leadership. Based on the thematic analysis, six main themes, namely (1) principal as a facilitator, (2) effective management, (3) effective two-way communication, (4) trust in teachers, (5) open-minded principal, and (6) professionalism of the principal's leadership emerged. The description of these six themes is as follows:

1. Principal as a facilitator: Findings showed that principal leadership support is important in collaborative school culture and teacher leadership. Principals play a supportive role and give confidence to teachers to lead among teachers. In addition, the principal plays a role as a facilitator in school management such as empowering teachers to carry out certain school activities and providing suggested solutions to problems that exist during the planning and implementation of school activities. The importance of principal support was explained by the respondents (R1, R11, and R12) as follows:

    The principal support will have an impact. It is very difficult if there is no support from the top management. Sometimes we, as a teacher, give instructions to our colleagues and they might say you are not the leader. So, it is our challenge. But if the principal supports what I said and asked the teacher to do, it will be easier. It showed that the principal's role is more impactful. (R1)

    The principal support strengthens the teacher's leadership while the school culture shapes the teacher leadership. (R11)

    Principal involved in the planning. He can solve the problems of his staff. The principal is a decision maker too. (R12)

Support from the principal helps teachers to complete a task smoothly. The principal's role as a facilitator gives confidence to teachers to be responsible as teacher leaders.

2. Effective management: Findings revealed that middle leadership is important in the planning and implementation of school activities. The principal provides proper time to the middle leaders to plan and this encourage effective management among teachers. The principal support has improved school achievement. This statement is explained by R2 and R16 of the study as below.

> The principal has to give a suitable time to complete a task. For example, a new teacher needs a period of adjustment with the students. The time is important to able to accept teachers' ideas and teachers also feel happy if their problems have been solved. If the principal is bossy, everyone has to agree with all the decisions made. In the meeting, those teachers who agreed with all the decisions mostly will not work on what has been discussed. The responsibility will be on those teachers who are quiet in the meeting. (R2)

> It is important to have enough time for teachers to plan comprehensively. Thus, it can ensure the smoothness and effectiveness of the planned program. The role of the principal is crucial as an experienced person. He can give us an opinion during the planning process… (R16)

Time management and planning between principals and teachers can improve the smoothness and effectiveness of an activity or school program. The principal support plays an important role in planning together with the teachers to achieve the success of a program.

3. Effective two-way communication: Findings state that two-way communication between principals and teachers is very important for information transparency. Principals need to be honest and act professionally in giving instructions and suggestions in the planning and implementation of school activities. Principals should ask questions directly and provide solutions to problems during discussions. Respondents found that two-way communication with the principal was able to give a good effect on the delivery of the necessary information. R1, R7, R10 and R16 provide explanations such as:

> I like principals who are honest and do not talk behind your back. For example, my principal is a direct person. Even in the meeting, he will keep asking. We are one family. The principal does not ask us to sit silently. It is an open discussion for everyone. The principal will not leave us without an answer. He will help us with suggestions…. (R1)

> I prefer a straightforward principal. If he is not satisfied with anything, he can just speak up and find a solution. The principal has to be honest and give a solution and discuss the problem. That is why support from the principal is important… (R7)

> …yes, of course. The principal has to be direct in conveying messages. The message will be more transparent… (R10)

> Sometimes, we find it is difficult to accept criticism, but a principal who is honest and also gives feedback will help to improve teacher leadership or career development. (R16)

Two-way communication between the management and teachers gives direction to the teachers to achieve the planned goals together. The success of school activities is the result of the involvement of principals and teachers to carry out the planned activities or programs. Therefore, two-way communication has a positive effect on the relationship between principals and teachers.

4. Trust in teachers: The principal support can boost teachers' confidence when he or she trusts the teachers. However, the situation of distribution of workload through meetings made some teachers feel that the distribution of workload is done according to human discretion. There were issues of injustice to the workload among teachers. Although dedicated teachers often receive appreciation and praise from administrators, the burden on teachers was getting heavier. This statement can be explained as follows.

> Distribution of workload is based on people. If the principal trusts the teacher, he or she will have more workload because the principal knows he or she can complete the task on time. We are okay with the decision. The important thing is to work together… (R3)

> In the management meeting, the tasks of each teacher are well distributed and credit is given to all the teachers. (R5)

> Principal has to involve all the teachers. So, for those teachers who are always looking for an excuse, the principal has to give them a chance to try. The principal always has a plan B. You know we could not expect what will happen. So, plan B is important. You must have somebody to back up the plan… (R10)

> Before the implementation of the programme, we have a checklist and we can ask for help from other staff. The principal stated that other teachers who are ready can help each other. It is the cooperation of teachers… (R6)

The school needs the principal to provide support in terms of the distribution of

workload. This will indirectly create a cooperative relationship among teachers. The principal's trust in all teachers and staff can create a collaborative school culture that is benefited all staff.

5. Open-minded principal: A principal who is open-minded in accepting suggestions and supporting decisions together with teachers can create a collaborative and positive working environment. A principal who always listens to teachers' opinions and suggestions can add confidence to teachers to voice their thoughtful views. If the teacher has the confidence to complete the work assigned then the teacher will enjoy working in the school. The environment affects human relationships. A detailed explanation is expressed as follows.

> The principal always supports the teacher. I think the teachers complete their work confidently and relax without pressure even though the work is complicated… (R4)

> An open-minded principal increases teachers' self-confidence. My principal gives us tasks and at the same time, he gives us suggestions. We get ideas for work assigned… (R8)

> If the principal is open-minded, it is easier for the teacher to perform compared to an autocratic principal… (R16)

The principal who is open-minded has boosted teachers' confidence to complete the tasks. Thus, teachers are confident to lead fellow teachers to complete the task. The role of an open-minded principal can create a collaborative and positive working environment. This positive working environment provides the opportunity for teachers to work together and gives confidence to teacher leaders to lead their colleagues to plan and implement programmes successfully.

6. Professionalism of the principal's leadership: Findings showed that principal support has a positive effect on the teacher and staff at the school. The positive behaviour of the principal has encouraged teachers to make decisions together and achieve the school's goals. The following is the explanation stated by R2, R7 and R16.

> If the principal is involved in the programme, the teacher would be happy because he or she will know who is doing the work. If the principal only listens to the report, the situation is worse... (R2)

> The leader has to lead. The principal support is important for planning to achieve school vision and mission… (R7)

> The principal will ask the committee what kind of tasks he can help. The principal also will share his ideas and at the same time, he will ask for help from the other staff. Everyone can criticise and give opinions. The collaborative cooperation among new

teachers and administrators will help to achieve the school's goals… (R16)

Based on the above qualitative findings, it explained that the principal has provided instrumental support to teachers to lead among teachers. In addition, the principal acts as a facilitator and helps teachers to implement school activities. Thus, the finding revealed that instrumental support has a moderating effect on the relationship between collaborative school culture and teacher leadership.

Professional support as a moderator

Although the professional support dimension is a non-significant moderator, the qualitative findings found that teachers need a principal as an exemplary leader. Besides, the principal provides professional support in schools. He or she gives opportunities to teachers to improve their professional development.

The principal is the leader. Indirectly, he will motivate us to make decisions… (R14)

Actually, leadership requires a character who likes to lead. There are no teachers to lead but need the principal support to find which teachers have the skills to be leaders in the school… (R15)

Emotional support as a moderator

The emotional support dimension was not a significant moderator between collaborative school culture and teacher leadership. However, the qualitative findings showed that principals supported teachers to express a feeling of being valued when making a decision. The principal support such as praising and always supporting the teacher's decision has an impact on the teacher's self-confidence.

Principal's motivation will have an impact on teachers even it is a little appreciation… (R2)

…The principal supports and praises the teachers. Principal's recognition and appreciation are important... (R4)

The principal trusts the teachers about planning but it must get the approval from other teachers to support the plan… (R16)

Assessment support as a moderator

The assessment support dimension was not a significant moderator between collaborative school culture and teacher leadership. Qualitative findings were found to contradict the quantitative findings. Qualitative findings found that principals assessed teachers' teaching needs and provided thoughtful suggestions. It is important to help teachers to improve teaching in schools. This is explained by these statements:

The principal will not leave us without an answer. He will help us with

suggestions... So we are being helped… (R1)

The principal provides solutions and discussed the problems. That kind of support is important… (R7)

The principal gives us tasks and then he gives us suggestions. Thus, we can get ideas for work… (R8)

For that support, it is more important to increase our confidence. He gives suggestions, support, and it is helpful… (R17)

Although the quantitative findings revealed that only the instrumental support has a moderator effect, the qualitative result qualitative results showed that all four dimensions of principal support influence collaborative school culture and teacher leadership. Concerning that, instrumental support provides a stronger moderating effect according to the views of the interviewed teachers compared to the other three moderators, i.e., professional support, emotional support, and assessment support.

DISCUSSION

The finding showed that there is a significant influence of collaborative school culture on teacher leadership. It is supported by the study conducted by Yusof et al. (2016) and Kabler (2013) who found that there is a strong correlation between school culture and teacher leadership. Additionally, the study by Valentine et al. (2004) mentioned that teachers who work in a collaborative school culture are very committed and could work together to achieve the school goals. The qualitative finding further explained that the collaborative school culture has successfully encouraged teachers to work together and boosted teachers' confidence in teacher leadership. In addition, there is an open communication relationship between administrators especially among principals, teachers, and staff. Open communication relationships have created cooperation and collaborative relationships among school staff. Teachers can share expertise and lead other teachers towards achieving common goals. The collaborative culture among school staff brings changes to the professional improvement of teachers. It provides participation opportunities for teachers to manage and carry out school activities. The responsibility of implementing school activities and programmes indirectly improves teacher leadership in the school. The collaborative school culture strengthens the knowledge, experience and management skills of teachers.

Secondly, professional support is not a significant moderator between collaborative school culture and teacher leadership. This study is not in line with the study of Cheung et al. (2018) who found that professional support is important in providing opportunities for teachers to improve their skills and expertise in teacher leadership. Thus, the qualitative findings found that teachers need professional leadership support, especially school principals. Principals play a crucial role in facilitating teacher growth and advancement through professional development opportunities. Wang and Ho's (2020) study further emphasised that principals should foster a culture that encourages teachers to develop

their leadership abilities based on their potential, rather than solely relying on middle-level leaders or principals themselves to drive the process of change in leadership.

Thirdly, emotional support is not a significant moderator between collaborative school culture and teacher leadership. Therefore, qualitative findings revealed that not all teachers support the actions of principals who allow making decisions. The principal's involvement gives less confidence to the teacher during school activities because the changes made by the principal have burdened the teacher to carry out new tasks. The principal's evaluation has caused the teacher to feel burdened and the teacher has to carry out tasks according to the principal's instructions. In other words, the qualitative findings indicate that emotional support from principals does not have a strong influence on how collaborative school culture is and how teachers assume leadership roles. Additionally, some teachers may not appreciate principals who make all the decisions as it can make them feel overwhelmed with new responsibilities and restricted in their actions.

Fourthly, instrumental support is a significant moderator between collaborative school culture and teacher leadership. The findings of the study are in line with the study of Harun et al. (2020) which stated that principal support through appreciation and praise will lead to an increase in the teacher's good work performance. Principals can contribute to improving teacher retention by rewarding teachers who show good performance. Principals must always encourage teachers to collaborate with external networks to get new ideas and perspectives to share with their colleagues. Furthermore, principals who are always open to teachers will bring changes in school progress (Adams et al., 2018). The qualitative findings also found that teachers gave positive feedback about the principal's appreciation. The principal support can boost teachers' confidence to achieve the school's goals. Thus, the relationship between collaborative school culture and teacher leadership is stronger when the level of instrumental support is stronger compared to its counterparts.

Finally, assessment support is not a significant moderator between collaborative school culture and teacher leadership. This finding did not support the study of Hallam et al. (2015) stated that principals trust teachers can work together to achieve school goals. Hence, qualitative findings mentioned that there were teachers who did not agree with the principal's assessment of teaching. The principal's assessment of the teacher's task of carrying out school activities puts pressure on the teacher to work together. In simpler terms, the qualitative findings suggest that the assessment support does not have a strong influence on the collaborative school culture and teacher leadership. Furthermore, some teachers may not agree with the way principals assess their teaching, which can add pressure and affect their willingness to work together.

CONCLUSION

This study has expanded the literature on collaborative school culture, instrumental support dimension, and teacher leadership in Malaysian secondary schools. Furthermore, the findings of this study emphasised the importance of collaborative school culture in improving teacher leadership. In other words, collaborative school culture has an impact

on the work culture and its influence on all members of the school community. Thus, the support and encouragement from the school principals play a crucial role in developing teacher leadership and enhancing teachers' professionalism.

In conclusion, the findings of the study showed that collaborative school culture has a positive relationship with teacher leadership. Furthermore, instrumental support has a significant moderating effect on collaborative school culture and teacher leadership. Nevertheless, professional support, emotional support, and assessment support did not moderate the relationship between collaborative school culture and teacher leadership. The qualitative findings have further explained the quantitative findings. However, this study was limited to secondary schools in the state of Kedah, Perlis, and Penang. Therefore, future studies can include other states in Malaysia.

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