Navigating the Dinamics of Teacher Job Satisfication: Leadership, Supervision and Performance

Denny Rachmadi[1], Heri Yanto[2], Sukestiyarno[3], Yeri Sutopo[4]

Abstract

This study explores the impact of principal leadership, supervisory supervision, and teacher work climate on teacher job satisfaction in Indonesia, with a focus on the mediating role of teacher performance and the moderating effect of work motivation. Using a comprehensive approach that encompasses primary, secondary, and high schools across diverse geographic and economic settings, the research aims to provide a nuanced understanding of how these factors interact to influence teacher satisfaction and performance. The findings reveal that principal leadership and teacher work climate significantly enhance teacher job satisfaction, with teacher performance acting as a critical mediator in these relationships. However, the study indicates no significant moderating effects of work motivation on the relationships examined. These results suggest that while effective leadership and a supportive work environment are essential for improving teacher satisfaction, further exploration of motivation's role is warranted. Educational institutions are encouraged to implement professional development initiatives and foster supportive leadership practices to enhance teacher well-being and effectiveness. This research contributes valuable insights to the literature on educational leadership and teacher job satisfaction.

Keywords: *Principal Leadership, Teacher Job Satisfaction, Teacher Performance, Work Motivation, Teacher Work Climate.*

Introduction

It's time to begin sharing these experiences since organizational dynamics and leadership in our schools have had such a profound impact on the landscape of 21st-century education (Day et al. 2021). The happiness of teachers in their work has a direct impact on the quality of the educational environment as a whole, and this has made good leadership from administrators more crucial (Crisci, Sepe, and Malafronte 2019). Research studies have also shown that transformational leader motivates and influences the followers to support the organization more likeable and high performing efforts (Schuckert et al. 2018). Researches have associated this to better place of work setting and increased job satisfaction among teachers (Lasrado and Kassem 2021). However, as the very nature of leadership has changed, so too has its benefits and challenges permeated those held by school administrators of equity to shape teacher workspaces (Toropova, Myrberg, and Johansson 2021). Supervisory techniques, aimed at providing a supportive and guiding work environment rather than management by Rules, are one of the indispensable issues in today's workforce (Fleming, Rowe, and Jackson 2021). In addition, school work climate is also related to teacher happiness and satisfaction (Lavy and Bocker 2018). This can include an environment of collegiality and support that is associated with increased motivation and engagement, which are prerequisites for improving teaching outcomes and from there, student achievement (Duffin et al. 2020; Stupnisky et al. 2018). The relationship between leadership, supervisory oversight and work climate is a focus of discussion in contemporary education circles; several studies have addressed how these factors combine to influence teacher job satisfaction (Day, Sammons, and Gorgen 2020; OPRE 2021).

There are still significant challenges that have a direct impact on teachers' job satisfaction, despite the growing awareness that leadership and supervision play a key role in school send for each (Rezaee et al. 2020; Torlak and Kuzey 2019). One issue that needs to be addressed is the inequality of supervisory roles, which can affect how teachers perform and perceive schools differently (Pollock and Briscoe 2020; Shalem and De Clercq 2019). In such a scenario, the teachers may begin to feel that their work environment is not very conducive for learning (Girardet 2018; See et al. 2020), because too many times supervisors who in

[1] Department of Education Management, Faculty of Teacher Training and Education, Universitas Negeri Semarang, Semarang 50229, Indonesia, Email: dennyrachmadi1976@students.unnes.ac.id, (Corresponding author)
[2] Department of Education Management, Faculty of Teacher Training and Education, Universitas Negeri Semarang, Semarang 50229, Indonesia.
[3] Department of Education Management, Faculty of Teacher Training and Education, Universitas Negeri Semarang, Semarang 50229, Indonesia.
[4] Department of Education Management, Faculty of Teacher Training and Education, Universitas Negeri Semarang, Semarang 50229, Indonesia

reality do not know how to lead others give confusing or conflicting advice (Schneider 2023). Additionally, growing administrative work for principals has impeded their capacity to give leadership development and support to educators (Billingsley et al. 2018; Szeto and Cheng 2018). As a result, worries have been expressed about the degree to which the leadership models in schools will be sustainable - particularly in resource-scare areas (Ribeiro et al. 2021). Furthermore, the requirements for teachers have only increased with the use of new educational technology and implementation changes to curriculum standards (Burbules, Fan, and Repp 2020; Li et al. 2019). These trends have led to increased stress among teachers, and decreased motivation for work (Berg and Smith 2018; Bottiani et al. 2019; Skaalvik and Skaalvik 2021; Spiteri and Chang Rundgren 2020). Dealing with these problems necessitates an integrated approach to improve the welfare of teachers that tackles leadership, supervision and work climate (Aulén et al. 2021; Jeon and Ardeleanu 2020).

Organisational theory has examined how leadership, supervision and teacher satisfaction relate. For example, transformational leadership theory suggests that leaders can motivate and inspire followers by developing a shared vision and promoting their personal development (Bass and Avolio 1994; Rolfe 2011). As schools are considered organizations in the educational context, it offers a practical example for transformational principal leadership since its nature is based on how principals can actually lead by guidance and example to their teachers (Leithwood and Jantzi 1990; Leithwood, Tomlinson, and Genge 1996). At the same time, Herzberg's Two-Factor Theory of Motivation helps identify what keeps individuals from being dissatisfied at work and implies that there are some other factors also contribute job satisfaction which are internal motivators like recognition (Alshmemri, Shahwan-Akl, and Maude 2017; Sanjeev and Surya 2016), What is clear from both models, though, is the key role that leadership and support play in building a work environment that promotes teacher job satisfaction.

There is a growing sense of urgency in studying the impact of principal leadership, supervisory supervision and teacher work climate on job satisfaction as schools are being placed under more pressures to increase performance outcomes. As educational systems in many countries are influenced by technological developments and policy practices that promote rapid change, it is important to understand how teacher ability to adapt is connected to leadership and organizational factors (Avalos 2011; Christensen et al. 2018). Although previous research has investigated the influence of leadership and supervision in certain settings, there is a deficit in the literature regarding how these two variables interact with one another and subsequently influence teacher performance and job satisfaction. Balwant et al. (2019), Windlinger, Warwas, and Hostettler (2020) Most of the research focused on either leadership or supervision but not together along with its boundary condition which is teacher motivation (moderating) and teacher performance (mediating effect) at the same time. This study addresses that gap by exploring the mechanisms through which principal leadership, supervisory supportive behaviors, and work climate jointly affect teacher job satisfaction,a path moderated by teachers motivation and mediated by their performance (Liu, Lu, and Yin 2022; Windlinger et al. 2020). Its novelty is that it uses an integrated perspective, taking all these aspects into account instead of looking at them independently (Bavato 2022; Pimentel et al. 2014). Thus, this study adds to the fuller picture of what makes a difference in shaping teacher job satisfaction, being useful for educators and educational leaders who wish to address ways of supporting school conditions and teacher outcomes (Blaik Hourani, Litz, and Parkman 2020). This study also responds to the call for more empirical evidence about effects of these factors when they are considered together within a contemporary educational environment, especially with current changes in Education leadership and supervision.

This research is conducted to explore principal leadership, supervisory supervision and teacher work climate that influenced on job satisfaction of teachers in Indonesia. Implementing this from research objective, the study will try to investigate the mediation of teacher performance and moderation with work motivation on that relationship. It aims to be a novel study into how these aspects relate to each other and add up in education leadership and organizational dynamics, proposing useful ideas for enhancing the problem of teacher job satisfaction and demand-side style in schools.

Literature Riview

Critical Theory Riserach

Critical theory is a major theoretical approach that originated in the Goran Therborn (1984), Frankfurt School and has been widely used in other fields of research, particularly education. The importance for us to critically explore the power structures, social inequalities and ideologies that construct institutions such as schools is theorised (Henry Giroux 1987). Critical theory is important in education research because it helps uncover hidden aspects of school leadership, supervision and faculty satisfaction, which are often determined by the influence of socio-political factors on a larger scale (Giannakaki and Batziakas 2016). In this case, researchers utilise critical theory in the educational space to disrupt traditional hierarchical systems and produce more just and equitable educational practices (Kalervo N. Gulson 2007). Critical theory is particularly relevant to the proposed research given its key role in interrogating the exercise of leadership practices and the intensity of supervision that largely reinforce or oppose local school power dynamics (Kalervo N. Gulson 2007).

Teacher Job Satisfaction (TJS)

In other words, it is how well teachers feel (or don't) about their role as educators, the environment they work in, and what they deal with on a daily basis that makes up teacher job satisfaction. It is worth noting that job satisfaction plays an important role in teacher performance, workplace motivation and retention (Arian, Soleimani, and Oghazian 2018; Asrar-ul-Haq, Kuchinke, and Iqbal 2017). Teachers with high levels of job satisfaction, according to research, will also deliver better results and have higher levels of commitment to their profession, making them less likely to leave their jobs (Morrow and McElroy 1987). Teacher job satisfaction is influenced by several factors, including supportive leadership, constructive supervision, a positive work culture and professional development opportunities (Collie et al. 2020). Given that schools face challenges related to teacher shortages and burnout, knowing more about the factors that contribute to job satisfaction can help create a work environment where teachers feel supported and able to further their careers (Klassen et al. 2018).

Principal Leadership (PL)

School climate and teacher satisfaction seem to be largely determined by the level of leadership provided by the principal. A great principal is one who instils enthusiasm in teachers to work every day, and who provides clear procedures on how school operations are run, so that everyone feels supported and valued in their position (Tshewang and Yanki 2023). Relevant to the principal's leadership role in schools is the transformational leadership theory of vision, inspiration, and human resource development (Leithwood et al. 2023). Transformational leadership practices by principals are reported to result in a positive school culture, which supports teacher collaboration and student learning outcomes (Li and Liu 2022). Therefore, principal leadership is considered as one of the functions in improving teacher job satisfaction (Hulpia, Devos, and Rosseel 2009). Most studies show that primary school principal leadership has a causal relationship with teachers' job satisfaction (Sancar 2009). Braun et al. (2013) found a positive impact of transformational leadership on teacher job satisfaction. Supportive principals, who provide constructive feedback and foster a collaborative atmosphere, will result in greater job satisfaction among teachers. Conversely, poor leadership can lead to teacher dissatisfaction, burnout, and high turnover. Therefore, this study states that principal leadership has a positive impact on teacher job satisfaction (Liu and Bellibas 2018; Liu, Bellibaş, and Gümüş 2020; Madigan and Kim 2021; Sahito and Vaisanen 2020).

School Supervisor's Super Vision Intensity (3SV)

Among them, we are talking about school supervisors who have the authority to control and direct teacher performance. And supervision means more than just observing teachers - it also includes providing meaningful feedback and opportunities for professional development. Supervision intensity refers to the level of frequency and quality of interaction between school supervisors and teachers (Ahmad and Rochimah 2021). Intensive supervision creates a supportive work environment that can influence teachers

to engage in better teaching practices and develop higher levels of self-efficacy (Klassen et al. 2018; Klassen and Durksen 2014). However, dynamic signals that are spread less frequently have the opposite effect; causing direct reports to feel as though they have been abandoned and not allowed to grow as professionals in their careers (Ismayilova and Klassen 2019). We found a positive relationship between supervision intensity and teacher job satisfaction. Frequent positive supervision is associated with greater job satisfaction (Kelchtermans 1993). This is because strong and stable supervision ensures that teachers receive the support and feedback necessary to get better at their jobs and feel more confident in what they do (Borko and Mayfield 1995). Thus, it is proposed that supervision intensity is positively related to teachers' job satisfaction.

Teacher Work Climate (TWC)

Climate is the broad quality of the school culture teachers experience, reflecting aspects like coworker relationships, administrative support and available resources. Developing a good work climate has the advantage of improving teacher job satisfaction, cooperation and stress reduction but also fosters self-development (Collie et al. 2020). It is a fact that when schools work towards the creation of an empowering and inclusion culture, attrition decreases among teachers and then students excel (Singal 2008). Conversely, a toxic or unsupportive work environment results in teacher burnout and dissatisfaction, reduced knowledge sharing, increased teacher disengagement in their institution Park and Ramirez (2022); all leading to low teacher performance. Research shows that a school's work climate greatly affects teacher job satisfaction. According to a study conducted (Klassen and Tze 2014), teachers who work in a positive and supportive climate are significantly more satisfied with their jobs. This is because such a climate strengthens teamwork, reduces stress, and equips educators to be successful (Salas et al. 2008). Thus, we hypothesize that teacher job satisfaction is positively influenced by teacher work climate.

Teacher Performance (TP)

Teacher performance: How well teachers teach and how their work contributes to student success Leadership, supervision, and organization (Leithwood et al. 2023, 1996) are important things that affect performance Confident in their performance and recognized, the best teachers tend to feel satisfied with their jobs. On the other hand, poor performance can lead to feelings of incompetence and dissatisfaction (Berg and Smith 2018; Skaalvik and Skaalvik 2021). From what we know, research repeatedly confirms that better-performing teachers are happier in their jobs. Someone who performs his or her job in an effective way, validated by others, will have a greater sense of satisfaction and experience less anxiety when he or she performs a task (Judge and Larsen 2001). Thus, teacher performance is predicted to have a significant positive impact on teacher job satisfaction.

H1. The Effect of Principal Leadership (PL) on Teacher Job Satisfaction (TJS)

H2. The Effect of School Supervisor's Super Vision Intensity (3SV) on Teacher Job Satisfaction (TJS)

H3. The Effect of Teacher Work Climate (TWC) on Teacher Job Satisfaction (TJS)

H4. The Effect of Teacher Performance on Teacher Job Satisfaction

Development of Intervening Model Hypothesis

The relationship between leadership-supervision and teacher job satisfaction is mediated by teacher performance. Effective leadership by principals will result in higher teacher performance and satisfaction (Leithwood et al. 2023). Consequently, regular and constructive supervision by supervisors can detect weak performing teachers to make improvements in their performance which can contribute to higher satisfaction among faculty members (Ghavifekr & Ibrahim, 2021). Work climate is also very important, as in a supportive environment it is easier for teachers to collaborate and grow professionally, which increases teacher effectiveness and job satisfaction (Collie et al. 2020; Collier et al. 2018). Moderated mediation teacher performance is hypothesized to be a mediating mechanism in the relationship between leadership,

supervision intensity, work climate and teacher job satisfaction. The bulk of previous research on the relationship between these variables has focused on the direct relationship between test scores and teacher performance, instead of investigating how teacher performance mediates this process (Alexander, Entwisle, and Thompson 1987; Grayson and Alvarez 2008; Witt, Wheeless, and Allen 2004). The objective of this study is to illuminate the mechanisms that influence teacher job satisfaction, by investigating whether performance mediates these relations (Kurt, Duyar, and Çalik 2012; Song et al. 2018).

H5. Teacher Performance as Intervening Principal Leadership (PL) on Teacher Job Satisfaction (TJS)

H6. Teacher Performance as Intervening School Supervisor's Super Vision Intensity (3SV) on Teacher Job Satisfaction (TJS)

H7. Teacher Performance as Intervening Teacher Work Climate (TWC) on Teacher Job Satisfaction (TJS)

Development of External Modorating Model Hypothesis

Or regarding the impact of leadership, supervision, and work climate on teacher job satisfaction (Hiebert et al., 2008); work motivation may be a moderator. That is, motivated teachers are more likely to react constructively to leadership and supervision approaches that positively impact their performance and satisfaction levels (Stella, Theodotou, and Harvey 2023). However, motivation can also mitigate the negative consequences of a poor work climate, which tends to undermine teacher performance and well-being Collie et al. (2020), in non-pandemic situations. The approach in this study makes us begin to see the cutting edge of how leadership, supervision, work climate, and job satisfaction help get teachers en masse invested in their profession and truly ready to perform as contributing members. it becomes clear that there are two fundamental common ways to change behavior that are actually "inflationary or deflationary (longitudinal) stages" depending on what phase your teacher's exit pathway is processing, but even better. helps establish working principles by which professional drive can be intentionally identified… oh my!… everywhere. Findings imply that negative demand-driven leadership and supervision and an unconducive work climate can inhibit motivated teachers. → Suggesting that motivated teachers may benefit more from positive demand-driven L&S and may persist longer in a supportive work climate. The current study extends the existing literature by examining motivational moderating mechanisms that may impact teacher job satisfaction (Chung, Jung, and Sohn 2017; Jiang et al. 2020; Madigan and Kim 2021).

H8. Work Motivation (WM) as Moderation Principal Leadership (PL) on Teacher Job Satisfaction (TJS)

H9. Work Motivation as Moderation School Supervisor's Super Vision Intensity (3SV) on Teacher Job Satisfaction (TJS)

H10. Work Motivation as Moderation Teacher Work Climate (TWC) on Teacher Job Satisfaction (TJS)

H11. Work Motivation as Moderation Kinerja Guru on Teacher Job Satisfaction (TJS)

Research Framework Model

Primarily, principal leadership abilities and supervisor characteristics as independents and intervention in the structure with the variable (the supervision intensity of school supervisor) used to develop a changed - moderation variables model resembling self-regulation theory framework on impact teacher work system at jobsatisfaction level for testing moderation or dependent variable where that is to determine if effect by teacher performance return on the research model. This is based on Leithwood (2019), Leithwood and Jantzi (1990), model Transformational Leadership theory, and the premise that best practice leadership enhances teacher motivation and performance. Indeed, the two-factor theory advanced by Alshmemri et al. (2017), asserts that job satisfaction is dependent on both intrinsic and extrinsic aspects of the work environment such as supervision and working conditions. Specifically, the framework suggests that principal leadership, supervision intensity and work climate directly influence teacher job satisfaction, while teacher performance mediates these relationships (Karacabey, Bellibaş, and Adams 2022). In addition, work

motivation also could moderate the impacts of these factors on job satisfaction, indicating that motivated teachers tended to have high level of job satisfaction even they faced challenges (Arian et al. 2018; Toropova et al. 2021). This model provides opportunity to explore the multifaceted aspects in educational settings directly affecting teacher quality and satisfaction (Grayson and Alvarez 2008).
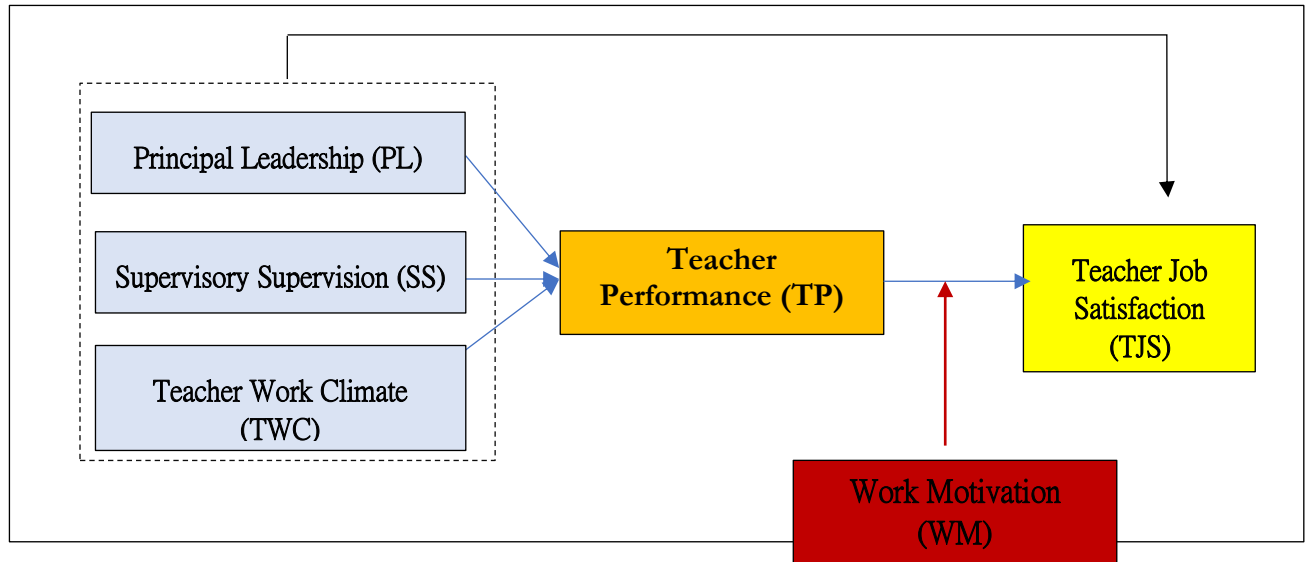

Figure 1. Theoretical Framework Model

Method Research

Research Object

The subject of this study is all schools in Indonesia with; primary, secondary and high school. This wide variety of institutions represents a range of geographic, economic and educational settings which provides an opportunity for rich analysis on how principal leadership, school supervisor supervision, and teacher work climate are related to teacher job satisfaction. The study is intended to provide an in-depth black-box understanding of the effects upon teachers performance and satisfaction nationwide; across schools in Indonesia. Dyer, Hanges, and Hall (2005), A large number of topics covered by this multi-level approach will not only improve the generalizability of the data, but also provide opportunities for comparing different educational levels representing a substantial contribution to the existing literature on educational leadership and teacher well-being (Hascher and Waber 2021; Singal 2008).

Sampling Population Risearch

It uses a research design of quantitative study and the data is collected by Google Forms. This way is also digital, so it means that the questionnaire directly covers lots of demographic and geographic part respondent throughout the country including Indonesia. Built-in organizing tools for responses (*good for real-time data collection*) Easy export of data for analysis Because it's a google product, it also connects well online catalogs like Google Sheets and Google Drive. The utilization of this digital platform allows for accessible, and geographically boundless form of participation This online format also makes it easy and efficient for users to answer without any other respondent knowledge, which in turn leads to more respondents signing up and thus better collecting data. The same applies to education research, where digital methodologies have been found effective in reaching respondents across different socio-demographics, and speeding up the data-gathering process (Kurniawan and Nugroho 2020; Tanujaya et al. The increasing fashion for employing digital tools in the educational research corresponds with the interest of this method as refinement at the era-specific studies and remains pertinent with today data collection best practices.

Data Colletion Proces

The design of this research is intended for teachers in schools throughout Indonesia. The research seeks to distribute no less than 800 questionnaires in order to achieve a relatively large sample for analysis. Respondents will be selected using a technique of stratified sampling and from multiple school levels and regions to ensure representative data across Indonesian education spectrum. The larger the sample size, more reliable the results of study is & less are sampling errors (Andi Kusumawati 2018). In educational contexts, previous research has shown that samples with over 500 responded provided adequate power for structural equation modeling (Hair et al., 2019).

Instrumentation For Data Questionnaires

This will take place over a three-month period of data-collecting. The questionnaire will be distributed as an electronic survey using Google Forms with follow up reminders to increase response rates. The survey link will be shared via email and also via several social media, aiming at relevant teachers spread in wide regions and schools all over Indonesia. To comply with ethical standards, informed consent will be obtained from the participants and consist of a description of: purpose, confidentiality issues and their right to withdraw at any stage during the study. This holistic method of collecting data builds transparency and trust with clients, which in the long term can increase the trustworthiness and legitimacy of research outcomes. However, the use of digital platforms in data collection has been reportedly effective in several other works highlighting it as an innovative way to reach a broader scope as well as convenience for engagement purposes (González et al., 2022). Moreover, Dillman (2014) indicates in the theories of online survey methodology that clear communication and reminder at least 2 times to the respondents will have an impact on the response rates. These theoretical perspectives have been worked into the research design to enrich data collection and give a voice to varying views by teachers throughout Indonesia.

Sample data research

Table 1. Instrumentation for Variables

Variable	Definition	Measurement Scale
Principal Leadership (PL)	The ability of a principal to inspire and guide teachers.	Likert Scale (1-5)
School Supervisor Supervision Intensity (3SV)	The frequency and quality of supervisory actions by school supervisors.	Likert Scale (1-5)
Teacher Work Climate (TWC)	The overall atmosphere and working environment for teachers.	Likert Scale (1-5)
Teacher Job Satisfaction (TJS)	The level of contentment and satisfaction teachers feel in their job.	Likert Scale (1-5)
Teacher Performance (TP)	The effectiveness and productivity of teachers in their roles.	Likert Scale (1-5)
Work Motivation (WM)	The internal drive that motivates teachers to perform their duties.	Likert Scale (1-5)

Data analysis method

Sample Characteristics included a wide range of participants, ranging across different grouped rankings, as shown in Table 2. Just over half are female and the sample includes 360 men (45%) and 440 women (55%). Considering that 52.5% of the participants are in the age range between 30 and 40 years, another 25% are below this age and only 22.5% are above this age, it is possible to realize a group composed mostly of middle-aged teachers. In terms of educational level, 38.75% of the sample are primary teachers, followed by secondary teachers (36.25%) and high school teachers (25%), obtaining a natural balance in the representation of all educational levels. These are moderated somewhat by teaching experience, as 52.5%

of participants have between 5 and 10 years of experience, but with another 28.75% having less than 5 years and only another 18.75% having more than a decade of experience, indicating that more experienced educators comprise most of the respondents, thus making being newer to the profession a confound in interpreting the results for how one performs better over time (I hope this grammar does not make your head spin). Finally, a geographic location analysis was also performed, with 62.5% of the population in urban areas and 37.5% in rural areas, showing a large imbalance in the distribution of qualifiers. These socio-demographic insights generally enrich the sampling context as a whole.

Table 2. Demographic Characteristics of the Sample

Characteristic	Category	Frequency	Percentage (%)
Gender	Male	360	45%
	Female	440	55%
Age	<30 years	200	25%
	30-40 years	420	52.5%
	>40 years	180	22.5%
School Level	Primary School	310	38.75%
	Secondary School	290	36.25%
	High School	200	25%
Teaching Experience	<5 years	230	28.75%
	5-10 years	420	52.5%
	>10 years	150	18.75%
Geographic Location	Urban	500	62.5%
	Rural	300	37.5%

Data Analysis Method

SmartPLS is very common PLS path modeling tool and it will be used to carry out analysis on the data collected in this study. SmartPLS was particularly appropriate for this study as it is designed for use on multivariable models, such as those used in the present analysis of principal leadership, supervisory intensity, school climate, teacher performance and job satisfaction. This method is established as powerful in presence of non-normal data distributions and for smaller sample sizes (Sarstedt et al., 2017). SmartPLS has the function to test both direct effects and indirect effects, which might be able to provide a more comprehensive picture of mediating role of teacher performance and moderating role of work motivation. More education based studies also used SmartPLS with achieve good relationship between leadership, job satisfaction and performance too (Hair et al., 2019). The analysis will apply tests of validity, reliability and model fit (where relevant) and hence endows the findings with credibility and scientific strictness.

Research Findings and Discussions

Description of Principal Leadership Variables

The results of the Principal Leadership (PL) variable analysis, as presented in Table 3, indicate that all indicators fall within the "High" category. The index values for the indicators range from 678.6 to 689.6, with an overall average index of 684.4. Specifically, indicators such as PL.1 (683.6), PL.2 (681.0), PL.3 (686.0), and others consistently exhibit high scores. The highest index score was observed in PL.9 (689.6), while the lowest was found in PL.10 (678.6). This suggests that the leadership practices of the school principal are perceived positively across all evaluated aspects, reinforcing the overall strong leadership performance.

Table 3. Description Principal Leadership (PL)

Indicator	Indicator					In total	Indeks	Category
	STS	TS	N	S	SS			
PL.1	-	-	106 (318)	370 (1480)	324 (1620)	800 (3418)	683,6	High
PL.2	-	-	99 (297)	397 (1588)	304 (1520)	800 (3405)	681,0	High
PL.3	-	-	105 (315)	360 (1440)	335 (1675)	800 (3430)	686,0	High
PL.4	-	-	109 (327)	337 (1348)	354 (1770)	800 (3445)	689,0	High
PL.5	-	-	105 (315)	370 (1480)	325 (1625)	800 (3420)	684,0	High
PL.6	-	-	96 (288)	386 (1544)	318 (1590)	800 (3422)	684,4	High
PL.7	-	-	105 (315)	368 (1472)	327 (1635)	800 (3422)	684,4	High
PL.8	-	-	116 (348)	352 (1408)	332 (1660)	800 (3416)	683,2	High
PL.9	-	-	110 (330)	332 (1328)	358 (1790)	800 (3448)	689,6	High
PL.10	-	-	111 (333)	385 (1540)	304 (1520)	800 (3393)	678,6	High
Index Average							**684,4**	**High**

Data source; Author's observation with SmartPLS 2024

Description of Supervisory Supervision Variables

1), according to Table 4, analysis of the individual SS variable accompanied by the characteristic are in a "High" CATEGORY for all variables. Indicator index values fall in between 679.4 and 691.4, with an average index value of 685.8. Specifically, indicator SS. Supervisory Practices has the highest index level of 691.4 which suggests relatively robust perceptions as an outcome, however SS. 3: Bottom end of high at 679.4 Other indicators, such as SS. 1 (689.8) and SS. 2 (688.2) also demonstrate very strong scores, reflecting positive ratings received in all areas of the quality of supervision provision described. This high index overall reflects the good support of monitoring that contributes to constructing an appropriate educational atmosphere.

Table 4. Description Supervisory Supervision (SS)

Indicator	Indicator					In total	Indeks	Category
	STS	**TS**	**N**	**S**	**SS**			
SS.1	-	-	90 (270)	361 (1444)	347 (1735)	800 (3449)	689,8	High
SS.2	-	-	86 (258)	387 (1548)	327 (1635)	800 (3441)	688,2	High
SS.3	-	-	107 (321)	389 (1556)	304 (1520)	800 (3397)	679,4	High
SS.4	-	-	107 (321)	362 (1448)	331 (1655)	800 (3424)	684,8	High
SS.5	-	-	103 (306)	373 (1492)	325 (1625)	800 (3425)	684,6	High
SS.6	-	-	110	358	332	800	684,4	High

		(330)	(1432)	(1660)	(3429)		
SS.7	-	-	102 (306)	367 (1468)	331 (1665)	800 (3028)	685,8	High
SS.8	-	-	120 (360)	343 (1371)	337 (1685)	800 (3417)	683,4	High
SS.9	-	-	94 (282)	355 (1420)	351 (1755)	800 (3457)	691,4	High
SS.10	-	-	95 (285)	379 (1516)	326 (1630)	800 (3431)	686,2	High
Rerata Indeks							**685,8**	**High**

Data source; Author's observation with SmartPLS 2024

Description of Teacher Work Climate Variables

The analysis of the Teacher Work Climate (TWC) variable, as illustrated in Table 5, shows that all indicators are classified as "High." The index scores for the indicators range from 602.0 to 687.2, with an average index of 684.6. The highest index score of 687.2 is recorded for indicator TWC.3, indicating a strong perception of a positive work climate among teachers. Indicator TWC.9 has the lowest score at 679.4 but still falls within the high category. Other indicators, such as TWC.1 (685.4) and TWC.2 (685.6), also demonstrate high values, reflecting a supportive and conducive environment for teachers. This overall high coverage suggests that the teacher work climate is perceived positively, contributing significantly to teacher satisfaction and performance.

Table 5. Description of Teacher Work Climate (TWC)

Indicator	Indicator					In total	Indeks	Category
	STS	TS	N	S	SS			
TWC.1	-	-	105 (315)	363 (1452)	332 (1660)	800 (3427)	685,4	High
TWC.2	-	-	96 (288)	380 (1520)	324 (1620)	800 (3428)	685,6	High
TWC.3	-	-	103 (309)	358 (1432)	339 (1695)	800 (3436)	687,2	High
TWC.4	-	-	100 (300)	374 (1496)	326 (1630)	800 (3426)	685,2	High
TWC.5	-	-	95 (285)	373 (1492)	332 (1660)	800 (3437)	602,0	High
TWC.6	-	-	107 (321)	353 (1412)	340 (1700)	800 (3433)	686,6	High
TWC.7	-	-	116 (348)	350 (1400)	334 (1670)	800 (3418)	683,6	High
TWC.8	-	-	114 (342)	366 (1464)	320 (1600)	800 (3406)	681,2	High
TWC.9	-	-	116 (348)	371 (1484)	313 (1565)	800 (3397)	679,4	High
Coverage							**684,6**	**High**

Data source; Author's observation with SmartPLS 2024

Description of Teacher Work Motivation Variable

Table 6 summarizes that all indicators of the Teacher Work Motivation (WM) variable are "High," with index scores varied from 602.0 to 694.6. Motivation climate among teachersThe Teacher Work Motivation

was strong in our data (average index score 689.9). Indicator WM. Work motivation All dogs This list The place 8, with the next highest score of 694.6 is an indispensable height which also indicated that No. Similarly, indicators WM. 2 (691.4) and WM. The specific items for question no.3 (691.8) also reveal very positive perceptions about motivation. Although with WM (602.0) a notch lower than that of our new top ranking, the Kirin 990 convincingly trails behind it by nearly 200 points. 5, is yet within the high category ensuring that overall motivation at work can be considered good and thereby influences beneficial on both teacher performance as well as satisfaction.

Table 6. Description of Teacher Work Motivation (WM)

Indicator	Indicator					In total	Indeks	Category
	STS	TS	N	S	SS			
WM.1	-	-	93 (279)	381 (1524)	326 (1630)	800 (3433)	686,6	High
WM.2	-	-	98 (294)	347 (1388)	355 (1775)	800 (3457)	691,4	High
WM.3	-	-	100 (300)	341 (1364)	359 (1795)	800 (3459)	691,8	High
WM.4	-	-	104 (312)	333 (1332)	363 (1815)	800 (3444)	688,8	High
WM.5	-	-	96 (288)	359 (1436)	344 (1720)	800 (3010)	602,0	High
WM.6	-	-	99 (297)	347 (1388)	354 (1770)	800 (3455)	691,0	High
WM.7	-	-	96 (288)	361 (1444)	343 (1715)	800 (3447)	689,4	High
WM.8	-	-	105 (315)	317 (1268)	378 (1890)	800 (3473)	694,6	High
WM.9	-	-	89 (267)	392 (1568)	319 (1595)	800 (3430)	686,0	High
WM.10	-	-	112 (336)	337 (1348)	351 (1755)	800 (3439)	687,8	High
Rerata Indeks							**689,9**	**High**

Data source; Author's observation with SmartPLS 2024

Description of Teacher Performance Variable

The Teacher Performance (TP) variable in Table 7 showed uniform high performance across all indicators, and an average index score of 689.5. Indicators TP. 8 (702.6) and TP. Figure 2: Teachers in Lessons with Manager Ratings 10 (701.4)The portions in the outer thin black line, % of teachers by work output and effectiveness score reflect predicted teacher performance levels that show properties of complete sorting. Almost all others, whether it be TP. 1 (697.4) and TP. For it and all engines, solidly return in their category at 5 (693.0) However, TP. This shows some potential for improvement-despite the still "High" percentile, area 3 is relatively lower than other areas on a 605.6 score. In sum, the data indicate a reinforcing culture of work and an even strain of high performing teachers throughout schools.

Table 7. Description of Teacher Performance (TP)

Indicator	Indicator					In total	Indeks	Category
	STS	TS	N	S	SS			
TP.1	-	-	110 (330)	293 (1172)	397 (1985)	800 (3487)	697,4	High
TP.2	-	-	120	315	365	800	689,0	High

				(360)	(1260)	(1825)	(3445)		
TP.3	-	-	82 (246)	308 (1232)	310 (1550)	800 (3028)	605,6	High
TP.4	-	-	116 (348)	335 (1340)	349 (1745)	800 (3433)	686,6	High
TP.5	-	-	114 (342)	307 (1228)	379 (1895)	800 (3465)	693,0	High
TP.6	-	-	119 (357)	351 (1404)	330 (1650)	800 (3411)	682,2	High
TP.7	-	-	116 (348)	374 (1496)	310 (1550)	800 (3394)	678,8	High
TP.8	-	-	105 (315)	277 (1108)	418 (2090)	800 (3513)	702,6	High
TP.9	-	-	117 (351)	363 (1452)	320 (1600)	800 (3403)	680,6	High
TP.10	-	-	104 (312)	285 (1140)	411 (2055)	800 (3507)	701,4	High
Rerata Indeks							**689,5**	**High**

Data source; Author's observation with SmartPLS 2024

Description of Teacher Job Satisfaction Variable

The Teacher Job Satisfaction (TJS) variable in Table 8 is described systematically across the three indicators, with a composite index (mean score = 682.7; "High"). TJS has the highest satisfaction score of them all. It was the fourth best with an Index of 692.2 which could hint at certain aspects related to working conditions or job roles being particularly satisfying. TJS. 7 (686.6) and TJS. 9 (685.2) are also doing very well in terms of satisfaction levels. However, indicators like TJS. 6 (678.0) and TJS. The 2 (673.8) are a little closer to among the best ways of indicating high satisfaction, but they DO fall in that ballpark range with still definitely some room for improvement in various aspects of job contentment. In general, the data describes a positive perspective where teachers tend to be happy with the work they do.

Table 8. Description of Teacher Job Satisfaction (TJS)

Indicator	Indicator					In total	Indeks	Category
	STS	TS	N	S	SS			
TJS.1	-	3 (6)	108 (324)	360 (1440)	329 (1645)	800 (3415)	683,0	High
TJS.2	-	-	100 (300)	431 (1724)	269 (1345)	800 (3369)	673,8	High
TJS.3	-	-	103 (309)	397 (1588)	300 (1500)	800 (3397)	679,4	High
TJS.4	-	-	102 (306)	335 (1340)	363 (1815)	800 (3461)	692,2	High
TJS.5	-	-	118 (354)	351 (1404)	331 (1655)	800 (3413)	682,6	High
TJS.6	-	-	110 (330)	3903\ (1560)	300 (1500)	800 (3390)	678,0	High
TJS.7	-	-	103 (309)	361 (1444)	336 (1680)	800 (3433)	686,6	High
TJS.8	-	-	97 (291)	432 (1828)	271 (1355)	800 (3374)	674,8	High
TJS.9	-	-	113 (339)	348 (1392)	339 (1695)	800 (3426)	685,2	High

TJS.10	-	-	107 (321)	328 (1312)	365 (1825)	800 (3458)	682,7	High
Average Index							**682,7**	**High**

Data source; Author's observation with SmartPLS 2024

Analysis of Observation Data

This description applies the three-box method to derive the response index, and top and lower scores by calculating these types of range. Expected, normalized monoexponential and stretched-exponential decays as well as the injected Gd curves in this example case. Results Triple-exponential model resultsIf one performs an unconstrained variable fit to a curve measured during longitudinal (in utero) relaxation with no Gd present, the upper bound will be calculated as percentF5/5 = 800 and the lower bound is calculated as perecentF1/5 = 160. This range of 160-800 was further classified into three categories from which one benefited at intervals of 213. According to this classification, the scores are as follows: low (140-373), moderate (374-587), and high (588-800). This strategy gives a concise presentation of the response distribution at different levels, and hence helps highlight the respondents' beliefs and actions (Hair et al., 2019; Sarstedt et al., 2020). To calculate the respondent's index, the following formula was applied:

Index Value = (%F1x1)+(%F2x2)+(%F3x3)+(%F4x4)+(%F5x5) ÷ 5. ....(1)

Outer Model Tests

Figure 1 illustrates the results of the outer model testing, containing factor loadings for each indicator and proves that the model fits with reliability and validity requirements. Outer Model Testing: external model testing, which assesses the reliability of the scales and their convergent validity by investigating relationships between latent variables and their observed indicators. This aspect is critical to evaluating whether the measurement model really speaks well for the constructs under consideration. However, the outer model was tested following several conditions: indicator reliability, internal consistency reliability, convergent validity and discriminant validity (Hair et al., 2019). To confirm an indicator, each one should have a loading factor higher than the threshold (usually >0.7). The composite reliability examines internal consistency (with a cutoff of 0.7), the AVE ascertains the amount variance explained by a construct (should be greater than 0.5) (Fornell & Larcker, 1981). We assessed discriminant validity with the Fornell-Larcker criterion or heterotrait-monotrait correlations (HTMT) for each construct.
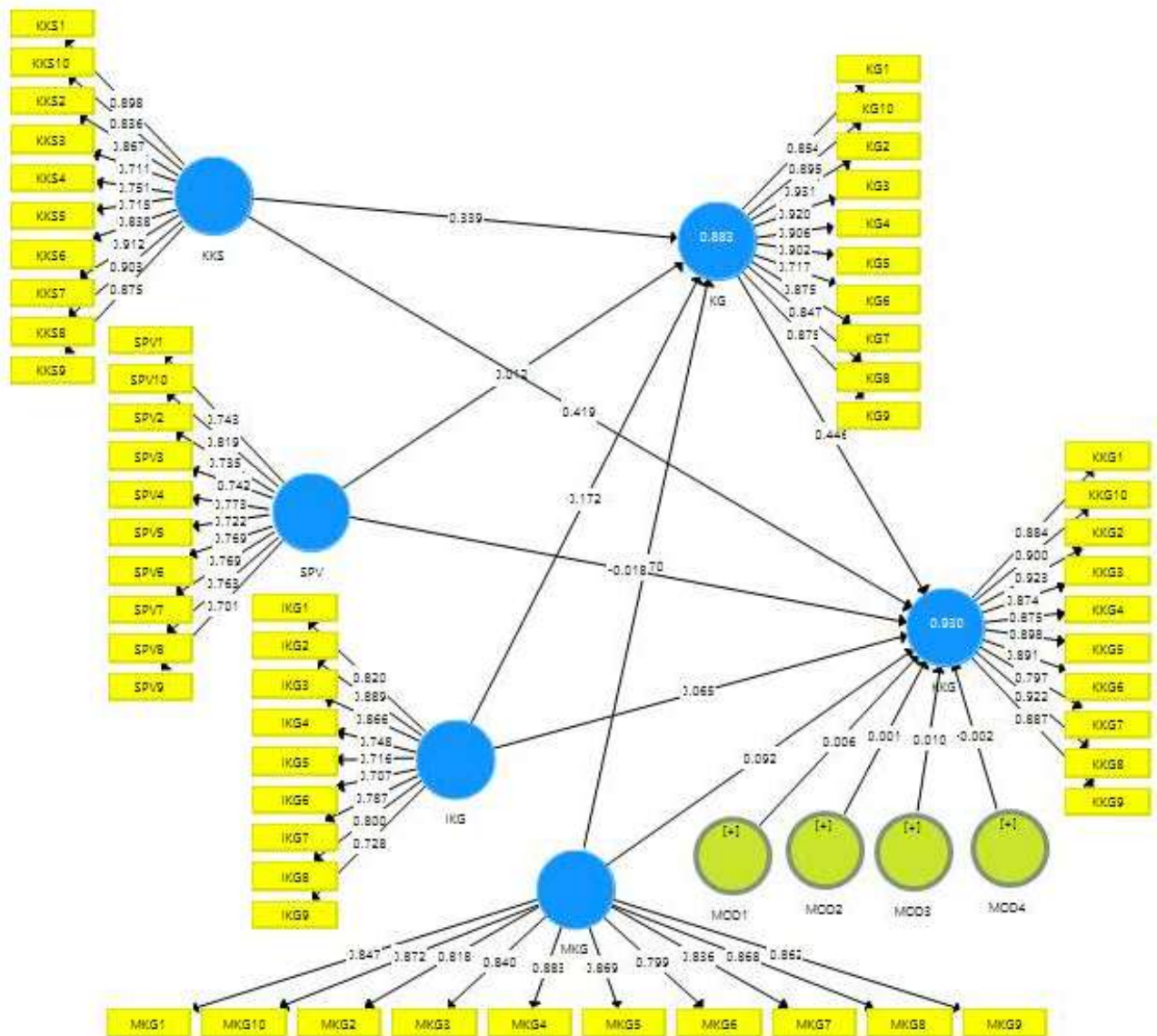
Figure 2. Results of Outer Model

Validity Test of its Convergent Value Method

The convergent validity test results demonstrate that all constructs, including Teacher Work Climate, Teacher Performance, Teacher Job Satisfaction, Principal Leadership, Teacher Work Motivation, and Supervisory Supervision, exhibit strong validity with indicator loadings exceeding the threshold of 0.70. This indicates that each set of indicators effectively measures their respective constructs, ensuring the reliability of the data for further analysis. The interaction terms between Principal Leadership, Supervisory Supervision, and Teacher Work Motivation also demonstrate high convergent validity, further supporting the robustness of the constructs within the model. Overall, the high loading values reflect the constructs' capacity to capture the intended variables in the study.

Table 9. Convergent Value

Construct	Construct	Construct	Construct
Teacher Work Climate	TWC1	0.820	Valid
	TWC2	0.889	Valid
	TWC3	0.866	Valid
	TWC4	0.748	Valid
	TWC5	0.716	Valid
	TWC6	0.707	Valid
	TWC7	0.787	Valid
	TWC8	0.800	Valid
	TWC9	0.728	Valid
Teacher Performance	TP1	0.854	Valid
	TP2	0.931	Valid
	TP3	0.920	Valid
	TP4	0.906	Valid
	TP5	0.902	Valid
	TP6	0.717	Valid
	TP7	0.875	Valid
	TP8	0.847	Valid
	TP9	0.875	Valid
	TP10	0.895	Valid
Teacher Job Satisfaction	TJS1	0.884	Valid
	TJS2	0.923	Valid
	TJS3	0.874	Valid
	TJS4	0.875	Valid
	TJS5	0.898	Valid
	TJS6	0.891	Valid
	TJS7	0.797	Valid
	TJS8	0.922	Valid
	TJS9	0.887	Valid
	TJS10	0.900	Valid
Principal Leadership	PL1	0.898	Valid
	PL2	0.867	Valid
	PL3	0.711	Valid
	PL4	0.751	Valid
	PL5	0.715	Valid
	PL6	0.838	Valid
	PL7	0.912	Valid
	PL8	0.903	Valid
	PL9	0.875	Valid
	PL10	0.836	Valid
Teacher Work Motivation	TWM1	0.847	Valid
	TWM2	0.818	Valid

Construct	Construct	Construct	Construct
	TWM3	0.840	Valid
	TWM4	0.883	Valid
	TWM5	0.869	Valid
	TWM6	0.799	Valid
	TWM7	0.836	Valid
	TWM8	0.868	Valid
	TWM9	0.862	Valid
	TWM10	0.872	Valid
Supervisory Supervision	SS1	0.743	Valid
	SS2	0.735	Valid
	SS3	0.742	Valid
	SS4	0.773	Valid
	SS5	0.722	Valid
	SS6	0.769	Valid
	SS7	0.769	Valid
	SS8	0.763	Valid
	SS9	0.701	Valid
	SS10	0.819	Valid
PL * TWM		1.355	Valid
SS * TWM		1.257	Valid
TWC * TWM		1.395	Valid
TP * TWM		1.342	Valid

Data source; Author's observation with SmartPLS 2024

Test Data for Discriminant Value

Results of the Cross Loading in Table 10 show that all factor loadings are greater than 0.30 on average, and that there is discriminant validity between constructs (i.e., factor loadings of indicators belonging to the same construct should be significantly greater than those on other constructs). For instance, as seen in the article, the loadings are consistently higher within these own-indicators (TWC1-TWC9) of TWC than with those from other constructs TP, TJS and PL; e.g. for example; again TWC1(0.820), and TWC2(0.889). For instance, constructs of TP shown by strong loadings on their indicators such as 0.931 for TP2 and 0.920 for TP3 are all distinctive compared with the other constructs. These patterns simply reveal that each construct is measuring different aspects, a clear demonstration of discriminant validity.

Table 10. Cross Loading Result

VAR	TWC	TP	TJS	PL	TWM	MOD1	MOD2	MOD3	MOD4	SPV
TWC1	0.820	0.668	0.685	0.650	0.671	-0.385	-0.254	-0.406	-0.401	0.554
TWC2	0.889	0.713	0.695	0.660	0.675	-0.397	-0.257	-0.397	-0.406	0.581
TWC3	0.866	0.686	0.686	0.649	0.640	-0.414	-0.273	-0.415	-0.442	0.608
TWC4	0.748	0.493	0.489	0.485	0.467	-0.293	-0.216	-0.315	-0.291	0.589
TWC5	0.716	0.478	0.471	0.483	0.437	-0.261	-0.160	-0.272	-0.250	0.605
TWC6	0.707	0.493	0.486	0.504	0.445	-0.288	-0.191	-0.294	-0.296	0.583
TWC7	0.787	0.655	0.647	0.597	0.591	-0.400	-0.249	-0.368	-0.409	0.442

VAR	TWC	TP	TJS	PL	TWM	MOD1	MOD2	MOD3	MOD4	SPV
TWC8	0.800	0.648	0.624	0.582	0.618	-0.400	-0.266	-0.379	-0.400	0.395
TWC9	0.728	0.593	0.571	0.564	0.599	-0.378	-0.296	-0.361	-0.388	0.406
TP1	0.636	0.854	0.799	0.776	0.805	-0.460	-0.301	-0.392	-0.457	0.407
TP10	0.700	0.895	0.887	0.833	0.830	-0.536	-0.344	-0.438	-0.542	0.509
TP2	0.679	0.931	0.865	0.840	0.832	-0.469	-0.296	-0.394	-0.475	0.516
TP3	0.673	0.920	0.864	0.825	0.815	-0.500	-0.311	-0.416	-0.508	0.486
TP4	0.671	0.906	0.831	0.813	0.821	-0.462	-0.310	-0.388	-0.466	0.482
TP5	0.686	0.902	0.843	0.802	0.818	-0.498	-0.317	-0.410	-0.498	0.499
TP6	0.708	0.717	0.667	0.653	0.677	-0.396	-0.306	-0.375	-0.406	0.450
TP7	0.682	0.875	0.809	0.808	0.795	-0.467	-0.279	-0.367	-0.463	0.466
TP8	0.696	0.847	0.817	0.785	0.806	-0.562	-0.357	-0.459	-0.570	0.503
TP9	0.670	0.875	0.845	0.827	0.833	-0.394	-0.254	-0.324	-0.402	0.476
TJS1	0.691	0.850	0.884	0.843	0.832	-0.446	-0.288	-0.376	-0.465	0.483
TJS10	0.693	0.881	0.900	0.836	0.801	-0.490	-0.323	-0.425	-0.513	0.505
TJS2	0.666	0.849	0.923	0.871	0.859	-0.437	-0.287	-0.382	-0.449	0.486
TJS3	0.688	0.856	0.874	0.864	0.869	-0.450	-0.288	-0.377	-0.452	0.477
TJS4	0.726	0.820	0.875	0.814	0.818	-0.522	-0.329	-0.421	-0.524	0.512
TJS5	0.729	0.872	0.898	0.847	0.824	-0.469	-0.310	-0.389	-0.493	0.530
TJS6	0.684	0.819	0.891	0.823	0.782	-0.442	-0.286	-0.375	-0.468	0.482
TJS7	0.563	0.714	0.797	0.725	0.716	-0.429	-0.255	-0.351	-0.439	0.407
TJS8	0.664	0.844	0.922	0.866	0.852	-0.430	-0.279	-0.377	-0.443	0.483
TJS9	0.675	0.841	0.887	0.827	0.814	-0.475	-0.324	-0.408	-0.491	0.440
PL1	0.687	0.836	0.872	0.898	0.889	-0.460	-0.307	-0.397	-0.480	0.484
PL10	0.671	0.809	0.835	0.836	0.801	-0.416	-0.276	-0.351	-0.441	0.436
PL2	0.594	0.757	0.815	0.867	0.831	-0.467	-0.333	-0.427	-0.504	0.413
PL3	0.503	0.604	0.617	0.711	0.587	-0.368	-0.237	-0.289	-0.365	0.559
PL4	0.503	0.667	0.675	0.751	0.672	-0.383	-0.237	-0.323	-0.407	0.362
PL5	0.533	0.642	0.644	0.715	0.620	-0.379	-0.248	-0.298	-0.374	0.586
PL6	0.622	0.741	0.786	0.838	0.790	-0.436	-0.285	-0.372	-0.464	0.450
PL7	0.647	0.816	0.850	0.912	0.842	-0.467	-0.314	-0.415	-0.502	0.470
PL8	0.674	0.859	0.875	0.903	0.877	-0.450	-0.307	-0.405	-0.492	0.481
PL9	0.673	0.830	0.815	0.875	0.826	-0.497	-0.341	-0.427	-0.524	0.469
TWM1	0.592	0.764	0.784	0.787	0.847	-0.451	-0.304	-0.404	-0.476	0.386
TWM10	0.658	0.790	0.842	0.839	0.872	-0.484	-0.330	-0.419	-0.496	0.454
TWM2	0.566	0.788	0.750	0.782	0.818	-0.403	-0.239	-0.322	-0.420	0.356
TWM3	0.652	0.771	0.788	0.798	0.840	-0.463	-0.308	-0.389	-0.485	0.431
TWM4	0.666	0.802	0.801	0.805	0.883	-0.495	-0.320	-0.419	-0.509	0.453
TWM5	0.664	0.822	0.804	0.808	0.869	-0.474	-0.306	-0.396	-0.489	0.465
TWM6	0.560	0.735	0.714	0.725	0.799	-0.440	-0.270	-0.373	-0.455	0.390
TWM7	0.589	0.777	0.781	0.780	0.836	-0.458	-0.306	-0.392	-0.478	0.386
TWM8	0.669	0.806	0.802	0.821	0.868	-0.504	-0.341	-0.420	-0.522	0.452
TWM9	0.638	0.763	0.773	0.799	0.862	-0.508	-0.328	-0.425	-0.523	0.430

VAR	TWC	TP	TJS	PL	TWM	MOD1	MOD2	MOD3	MOD4	SPV
SPV1	0.487	0.379	0.392	0.408	0.351	-0.228	-0.205	-0.245	-0.249	0.743
SPV10	0.607	0.486	0.486	0.491	0.450	-0.291	-0.276	-0.279	-0.297	0.819
SPV2	0.444	0.286	0.283	0.312	0.227	-0.143	-0.154	-0.155	-0.148	0.735
SPV3	0.408	0.321	0.330	0.357	0.304	-0.202	-0.164	-0.150	-0.201	0.742
SPV4	0.547	0.531	0.519	0.512	0.493	-0.288	-0.264	-0.248	-0.292	0.773
SPV5	0.566	0.504	0.484	0.479	0.472	-0.314	-0.265	-0.250	-0.319	0.722
SPV6	0.438	0.329	0.327	0.354	0.273	-0.186	-0.225	-0.127	-0.187	0.769
SPV7	0.379	0.267	0.262	0.295	0.216	-0.160	-0.202	-0.125	-0.165	0.769
SPV8	0.437	0.331	0.333	0.357	0.286	-0.197	-0.214	-0.156	-0.200	0.763
SPV9	0.535	0.481	0.470	0.469	0.432	-0.291	-0.254	-0.240	-0.289	0.701
PL * TWM	-0.461	-0.544	-0.518	-0.520	-0.551	1.000	0.619	0.779	0.970	-0.323
SPV * TWM	-0.309	-0.351	-0.336	-0.348	-0.360	0.619	1.000	0.694	0.621	-0.306
TWC * TWM	-0.458	-0.453	-0.438	-0.447	-0.466	0.779	0.694	1.000	0.820	-0.278
TP * TWM	-0.471	-0.548	-0.535	-0.549	-0.572	0.970	0.621	0.820	1.000	-0.329

Data source; Author's observation with SmartPLS 2024

Discriminant Validity (AVE) test results data

The results of the discriminant validity test measured with an average variance extracted (AVE) greater than 0.50 demonstrate that all constructs in the model have got satisfactory values. AVE values for TWC (0.619), TP (0.764), TJS (0.784), PL (0.696, TWM (0.722) and SPV (0.569) show that more than 50% of the variance in their observed variables can be explained by their underlying constructs. Further, the moderating variables MOD1, MOD2, MOD3 and MOD4 have perfect AVE of 1.000 which may indicate single items constructs or perfectly reliable measures. And the results taken together indicate that the constructs have acceptable discriminant validity, which is necessary for differentiation of construct from one another in terms of latent variables in the model. These results are in line with discriminant validity requirements held as standard within international academic publication expectations, like Elsevier journals.

Table 11. Discriminant Validity (AVE)

Variable	AVE
TWC	0.619
TP	0.764
TJS	0.784
PL	0.696
TWM	0.722
SPV	0.569
MOD1	1.000
MOD2	1.000
MOD3	1.000
MOD4	1.000

Data source; Author's observation with SmartPLS 2024

Testing for discriminant validity

On the other hand, discriminant validity was tested by applying the Fornell-Larcker criterion based on checking each construct's square root of AVE in relation to its correlations with all the other constructs from Hair et al. [] In Table 11, the diagonal values are square roots of AVE for each variable while TWC, TP, TJS does not have discriminant validity. PLC, PLM and SPV shows better discriminant validity. The correlation square roots of the AVEs for TWC, TP, TJS, PL, TWM and SPV are 0.787; 0.874; 0.886; 0.834; 0.850 and 0.754 respectively (above diagonals) greater than their inter-correlations with other constructs which are lower than these values (below diagnostics), indicating that they are distinct from each other Table_EVT-15). The moderating variables (MOD1, MOD2, MOD3, and MOD4) are in relation too separated from the main constructs but values suggest that they might behave differently than what is being expected between each of the primary constructs. In conclusion, the results through these two mathods give great evidence that model constructs establish suitable discriminant validity, a crucial aspect for conducting structural model analysis.

Table 11. Fornell Larcker Criteria Results

VAR	TWC	TP	TJS	PL	TWM	MOD1	MOD2	MOD3	MOD4	SPV
TWC	0.787									
TP	0.777	0.874								
TJS	0.767	0.944	0.886							
PL	0.737	0.913	0.940	0.834						
TWM	0.737	0.921	0.923	0.936	0.850					
MOD1	-0.461	-0.544	-0.518	-0.520	-0.551	1.000				
MOD2	-0.309	-0.351	-0.336	-0.348	-0.360	0.619	1.000			
MOD3	-0.458	-0.453	-0.438	-0.447	-0.466	0.779	0.694	1.000		
MOD4	-0.471	-0.548	-0.535	-0.549	-0.572	0.970	0.621	0.820	1.000	
SPV	0.664	0.549	0.543	0.558	0.495	-0.323	-0.306	-0.278	-0.329	0.754

Data source; Author's observation with SmartPLS 2024

Composite Reliability Test

Table 12 presents the results of the construct composite reliabilities. The internal consistency and reliability were high for the variables as evidenced by their composite reliability coefficients. Figure 1 shows the standardized factor loadings of TWC, TP, TJS, PL; TWM and SPV were satisfactory with composite reliability values of 0.936, 0.970, 0.973, 0.958, 0.963 and 0.929 respectively (all > This means that this constructs have a high reliability and redundancy in measuring intended latent variable. Also the moderating variables (MOD1-MOD4) were reliable with a Cronbach alpha of $\alpha = 1.000$, making it unlikely to measure errors for these constructs as well. On the whole, this points to the strength of the measurement model and reinforces confidence in our belief in its validity for later analyses.

Table 12. Composite Reliability

Variable	Composite Reliability
TWC	0.936
TP	0.970
TJS	0.973
PL	0.958
TWM	0.963
SPV	0.929

Variable	Composite Reliability
MOD1	1.000
MOD2	1.000
MOD3	1.000
MOD4	1.000

Data source; Author's observation with SmartPLS 2024

Results of Cronbach alpha

Table 13 presents the results of the Cronbach's Alpha test, showing internal consistency of the constructs in this study. All MAIN constructs showed high reliability with a Cronbach's Alpha >0.70, the recommended threshold from the literature (see Table 1). The values are shown to be respectively; TWC 0.923, TP 0.965, TJS 0.969, PL 0.950, TWM 0.957 and SPV 0.917 If the items in a scale are significantly co-related then they have very good internal reliability, so factor analyses are telling us that these variables however measured do measure something similar. The moderating variables (MOD1, MOD2, MOD3 and MOD4) attained perfect reliability scores of 1.000 which mean that they are very reliable instruments for measurement. These findings, by and large, endorse the reliability of the measurement model and thus strengthening the validity of subsequent analyses.

Table 13. Cronbach Alpha

Variable	Cronbach's Alpha
TWC	0.923
TP	0.965
TJS	0.969
PL	0.950
TWM	0.957
SPV	0.917
MOD1	1.000
MOD2	1.000
MOD3	1.000
MOD4	1.000

Data source; Author's observation with SmartPLS 2024

Measurement of Inner Model Coefficient Of Determination (R-square)

Table 14 displays the Coefficient of Determination (R^2) results to show how well the model explains the variation in the dependent variables. As 1 = TP, etc., this results in an R^2 value for DNA of 0.883 meaning that about the 88.3% of the variance can be explained by the independent model variables. This implies high predictive probabilities on the TP factors. Also, the R2 for TJS = 0.930 so that about 93.0 percent of the variance in TJS explained by independent variable This gives a high R^2 value indicating that the model is representing the observed data extremely well and thus we can be confident that the factors considered are ample in explaining variation in TJS. In general, the results validate that the model is able to capture what we thought were dynamics at play.

Table 14. Coefficient of Determination

Var	R Square
TP	0.883
TJS	0.930

Data source; Author's observation with SmartPLS 2024

Data Analysis Path Coefficient

The results of the hypothesis tests, summarized in Table 15, reveal significant relationships among the variables studied. Specifically, the impact of school leadership on teacher job satisfaction was found to be positive and significant, with a t-statistic of 11.120 and a p-value of 0.000, leading to the acceptance of H1. Conversely, the influence of supervisor oversight on teacher job satisfaction was not significant, as indicated by a t-statistic of 0.889 and a p-value of 0.374, resulting in the rejection of H2. Furthermore, the work climate's effect on teacher job satisfaction was confirmed as positive and significant (t-statistic of 2.405, p-value of 0.017), thereby accepting H3. Lastly, the performance of teachers was shown to have a strong positive and significant impact on their job satisfaction, with a t-statistic of 9.885 and a p-value of 0.000, leading to the acceptance of H4. These findings underscore the critical roles that leadership, work climate, and teacher performance play in enhancing job satisfaction among educators.

Table 15. Hypothesis Test Results Based on Path Coefficient

Variable	(O)	(M)	STDEV	T Statistics (STDEV|)	P Values
TWC -> TP	0.172	0.173	0.021	8.076	0.000
TWC -> TJS	0.065	0.066	0.027	2.405	0.017
TP -> TJS	0.446	0.442	0.045	9.885	0.000
PL -> TP	0.339	0.338	0.041	8.367	0.000
PL -> TJS	0.419	0.419	0.038	11.120	0.000
TWM -> TP	0.470	0.471	0.043	10.996	0.000
TWM -> TJS	0.092	0.093	0.041	2.255	0.025
MOD1 -> TJS	0.006	0.006	0.054	0.106	0.916
MOD2 -> TJS	0.001	0.003	0.017	0.085	0.932
MOD3 -> TJS	0.010	0.009	0.020	0.493	0.623
MOD4 -> TJS	-0.002	-0.004	0.058	0.039	0.969
SS -> TP	0.012	0.011	0.019	0.643	0.521
SS -> TJS	-0.018	-0.017	0.020	0.889	0.374

Data source; Author's observation with SmartPLS 2024

Intervening or Mediation Test

FindingsThe mediation test results (Table 16) are particularly useful in understanding indirect effects of several variables on teacher job satisfaction. Table 6 shows that the t-statistic of school leadership impact on teacher job satisfaction through teacher performance is 6.784 and p-value urges to accept hypothesis5 (two-tailed sig.< By contrast, the effect of supervisor oversight on teacher job satisfaction by way of teacher performance was not statistically significant (t = 0.642, p = 0.521) and Hypothesis 6 has been rejected as shown in Table A7. In addition, the work climate has a significant and positive impact on teacher performance indirectly through teacher job satisfaction with t-statistics 5.625 and p-value of 0.000 then hypothesis 7 is accepted. These outcomes contribute to further emphasis on the need for effective teacher

leadership performance in increasing teachers' job satisfaction based on the influence of school leadership and work climate.

Table 16. Results of Mediation Test Data

	Original Sample (O)	(M)	(STDEV)	(|O/STDEV|)	P Values
PL -> TP -> TJS	0.151	0.149	0.022	6.784	0.000
SS -> TP -> TJS	0.005	0.005	0.008	0.642	0.521
TWC -> TP -> TJS	0.077	0.076	0.014	5.625	0.000
TWC -> TP -> TJS	0.210	0.208	0.028	7.527	0.000

Data source; Author's observation with SmartPLS 2024

Moderation Test Development Result

According to the moderation tests, we find from Table 17 that teacher work motivation does not act as a moderator for all other factors onto job satisfaction. That is, the t-statistic for the impact of principal leadership on both had p-value > 0.05 at a.05 level and respective values of 0.106 and 0.916 (and as such required that null Hypothesis 8 be rejected). Hence Hypothesis 9 was rejected in terms of the effect of supportive supervision over frequency of monitoring and evaluation on teacher job satisfaction (t-value=0.085, p-value = 0.932) Table 8). Teacher work climate had a t-statistic value of 0.493 and p=0.623 which is insignificant so, Hypothesis 10 was rejected. H11: We finally rejected the hypothesis that Teacher Performance and Job Satisfaction will have a relationship as it was develop with t-statistic : 0.039p-value=0.969 The findings of this study show that teachers work motivation as a moderating factor in improving job satisfaction from these particular effects is not supporting.

Table 17. Moderation Test Data Results

Variable	(O)	(M)	(STDEV)	(|O/STDEV|)	P Values
MOD1 -> TJS	0.006	0.006	0.054	0.106	0.916
MOD2 -> TJS	0.001	0.003	0.017	0.085	0.932
MOD3 -> TJS	0.010	0.009	0.020	0.493	0.623
MOD4 -> TJS	-0.002	-0.004	0.058	0.039	0.969

Data source; Author's observation with SmartPLS 2024

Discusion

This research was designed to determine the effects on teacher job satisfaction of principal leadership, supervisory oversight, work climate, and performance on the part of teachers as well as mediating (mediation) and moderating (moderation) roles in these individual relationships. Results revealed a meaningful positive impact of principal leadership and teaching climate on teacher job satisfaction similar to what has suggested by current theories, by which strong leadership along with positive working atmosphere can lead to higher employee satisfactions. It is consistent with Leithwood and Jantzi (1990) Niessen et al. (2017), which stressed that strong school leadership establishes a climate for teachers to learn and grow & offers a sense of fulfillment. This study is consistent with Bacha and Kosa (2024), Fernet et al. (2016), Hulpia (2009), Liu et al. (2020) who investigated that supportive leadership enhances teachers' job satisfaction by fostering feelings of belonging and professional community.

Results of the mediation analysis indicated that teacher job satisfaction was significantly mediated by principal leadership and teacher work climate through teacher performance. This is important, as per

Bandura (1978) social cognitive theory where the ability to be performant (kinetics) also had a great impact on overall job satisfaction (Horwitz and Cooke 2020). This suggests that improving teacher performance with proper leadership practices and by providing a conducive work climate, can support the emergence of higher job satisfaction in teachers. In addition, research by Kuvaas et al. This is discussed through catching factor or job satisfaction improves while teachers feel supported in their roles (Kinman, Wray, and Strange 2011). It is, therefore, essential for educational institutions to develop professional development programs that boost teacher competencies so they can perform better and enjoy a job well done (Avalos 2011; Lawless and Pellegrino 2007).

We did not find the same moderation using the teacher work motivation variable to test if it moderates the relationships between independent variables and teacher job satisfaction. This challenges earlier conducted research, like Ryan and Deci (2020), stating that employee intrinsic motivation could leverage leadership and other work environment factors for increasing job satisfaction. Nonetheless, it is possible that the lack of moderation found in this study is peculiar to a specific context like an educational setting and may depend on the measures used to assess motivation. In the future, it may be possible to specify other dimensions of motivation or use alternative research strategies in order to capture a more detailed picture regarding teacher motivation. For example, Chen et al. Importantly, Lee and Raschke (2016), Michael T. Lee a (2023), also made clear that any discussion of motivation in organizations needs to account for different types of motivation (intrinsic vs. extrinsic) and their differential effects on employee satisfaction (Kuvaas et al. 2017; Rhoades, Eisenberger, and Armeli 2001).

However, supervisor oversight was not significantly associated with teacher job satisfaction which is intriguing and requires to be investigated further. This is in opposition to the perspective of certain academics, like Glickman (1981), Among them would who claimed that teacher development and satisfaction are necessary to have effective supervision of the teachers (Desta 2014; Ehsan et al. 2010). The gap may be due to the nature of supervision practices in the context where the study was set. Future research might benefit from parsing out different forms of supervision to provide insight into the components that could foster or frustrate teachers (Corley 2013; Schneeberger McGugan et al. 2023). This can also help to highlight how teachers perceive their supervisory roles and what implications it has on their job satisfaction (Alonderiene and Majauskaite 2016; Hulpia, Devos, and Rosseel 2009; Somech and Drach-Zahavy 2000).

Second, these findings carry policy and practice implications. Efforts of school leaders and policymakers to improve teaching should structure work roles in ways that support effective leadership practices that lead to teacher performance. Collaborative decision-making and professional development initiatives which support ways for teachers to own their work are needed to facilitate this (Butler et al. 2004). In addition, the results emphasize the need to facilitate such as workloads and professional relationships among teachersand access in teacher job satisfaction (Shen et al., 2018). Teachers should be fully supported with resources that make their job easier and help them grow professionally. The study is an important reminder that principal leadership and teacher work climate are dominant predictors of a teacher's satisfaction with their job; the performance of teachers, however, partially mediates these relationships. But, the absence of moderation effects brings up some questions about intricacies involved in motivation among teachers and its interplay with leadership and work place characteristics. Efforts to increase satisfaction with and performance on the part of teachers to ultimately benefit student outcomes would be best served by targeting changes at the organizational level, such as improvement in leadership practices and a supportive work climate within educational institutions.

Conclusion

In summary, this study demonstrates that principal leadership and teacher work climate positively influence teacher job satisfaction, with teacher performance serving as a significant mediator in this relationship. The findings suggest that effective leadership and a supportive work environment are critical in enhancing teacher satisfaction. However, the study also reveals the complexity of teacher motivation, as no moderating effects were found. Therefore, educational institutions should prioritize professional development and supportive leadership practices to foster an environment that promotes teacher satisfaction and

performance. Future research should further investigate the intricacies of motivation and its effects on job satisfaction to provide deeper insights into enhancing teacher well-being and effectiveness in educational settings.

Author Contribution

All authors made equal contributions to the development, planning, and execution of the study. Each author participated in data collection, analysis, and the writing of the manuscript..

Conflict Interest

The authors declare that they have no known financial conflicts of interest or personal relationships that could have appeared to influence the work reported in this paper.

Ethical Statement

No ethical approval was required for this study, as it does not contain any studies involving human or animal subjects.

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