

## Transformative leadership: cultivating teacher excellence through satisfaction, environment, and self-efficacy

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### ABSTRACT

Enhancing teacher performance (TP) in secondary education hinges on robust support in leadership, self-efficacy (SE), environment, and job satisfaction (JS). This article investigates how leadership influences TP, examining its intricate connection with JS, work environment, and SE. The study, encompassing 400 teachers, utilizes quantitative survey data subjected to exploratory factor analysis (EFA) for instruments. The data underwent path analysis employing Smart Partial Least Squares software, meeting the criterion of  $p > 0.70$  for validation. Key findings demonstrate that transformational leadership, SE, and the work environment significantly influence JS. Moreover, in conjunction with JS, these factors positively impact TP. Notably, SE and an inspiring work environment indirectly enhance performance through their influence on JS. In summary, this research underscores the pivotal role of transformational leadership in TP enhancement. Transformational leaders can establish an empowering context for teachers to deliver high-quality education by prioritizing JS, the work environment, and SE. This underscores the necessity for educational institutions to emphasize administrator training in transformational leadership, thereby fostering a culture that values and supports effective leadership practices. Implications for further research suggest that transformational leadership improves TP and highlights avenues for additional exploration and application within educational contexts.

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## 1. INTRODUCTION

The exploration of teacher performance (TP) remains a focal point of research, given the diverse array of performance variations observed worldwide and the necessity for robust management support. While the Indonesian government has undertaken initiatives to enhance methodologies and subject mastery, there remains a significant deficit in principle-led coaching aimed at bolstering TP. The achievement of organizational success hinges upon adeptly blending transactional and transformational leadership styles, tailored to address the unique demands of the organization. Transactional leadership, emphasizing rewards, and punishments, effectively handles changes in subordinate behavior, while transformational leadership, emphasizing empowerment and wielding significant influence on mediating factors, fosters substantial impact [1]. By integrating these two leadership styles, organizations can harness the strengths of each, mitigating their shortcomings and fostering a well-rounded leadership approach that aligns with the multifaceted nature of organizational goals. In educational institutions, where human resources play a pivotal role, teacher

empowerment emerges as a critical factor. Recognizing teachers as leaders in enhancing the quality of education [2], it becomes evident that transformational leadership, especially from school principals, has a direct impact on teachers' self-efficacy (SE). This, in turn, creates a ripple effect, indirectly empowering students to strive for and achieve academic goals, ultimately enhancing overall student achievement [3].

In the face of dynamic internal and external demands, addressing TP becomes critical to adapt and thrive in changing times. Lack of support for the interest of the younger generation in supporting the teaching profession. There is no indication of curiosity regarding the specific percentage of programme for international student assessment (PISA) participants who admit their aspirations to pursue a teaching career in adulthood [4]. The Indonesian government has provided programs to improve teacher competence in teaching material and methodology [5]. Teacher competence is the key to success in education [6]. Improving the skills of teachers in schools is essential for improving performance. Employee performance is the key to success in the performance of an organization [7]. Teachers are the most significant component in improving human resources [8]. A teacher must have confidence in starting a job because the teacher is a role model for his students, especially the teacher who has become the idol of the students; what a teacher says, the students will obey it. Several researchers have previously proven that a teacher's SE affects work satisfaction [9]–[11].

The influence of leadership style on TP has been widely acknowledged [12]. Moreover, it extends beyond individual performance, shaping the overall environment within schools [13]. TP, a cornerstone of educational success, is intricately tied to the teaching and learning process governed by structured work plans over specific periods [14]. Recognized as pivotal, TP directly impacts the attainment of educational objectives [15]. Teachers' performance encompasses the behaviors exhibited both independently and collaboratively to meet the objectives outlined in their professional capabilities, pedagogical skills, personal attributes, community engagement, mastery of subject matter, and utilization of communication technology [16]. In the contemporary educational landscape, digital proficiency has emerged as a requisite for effective teaching in the 21st century [17]. However, alongside technological adeptness, teachers must also possess a robust pedagogical foundation [18]. Attaining optimal performance necessitates the mastery of a spectrum of competencies, including professional acumen, pedagogic skill, social adeptness, and personal attributes [19]. Therefore, it is concluded that other factors can affect TP, is the principal's leadership.

The leader plays a vital role in an organization; therefore, being a leader in a school must help teachers to improve their performance [20]. A school leader must be able to resolve school conflicts internally and externally [21]. Two types of leadership, transactional and transformational, use different characteristics, and standards [22]. Subordinates enjoy having a transformational leader because they stimulate and inspire, making work enjoyable [23]. The transformative leadership (TL) style includes three constructs: leader as a role model, individualized attention, and intellectual stimulation. That is based on social cognitive theory [24]. Likewise, appropriate leadership can increase TP [25]. The organization's success in accomplishing its objectives hinges on the leadership of the principal [26]. Likewise, a leadership style fit will provide teacher job satisfaction (JS) [27].

Teacher SE is one of the main motivations influencing professional behaviour, including work seriousness and JS [28]. SE is defined as an assessment of their ability to organize and carry out their actions [29]. Teacher SE affects JS [9]. In other words, teacher SE is the ability and self-confidence to organize and perform a task to achieve a goal, which can be seen in self-confidence, competence, work seriousness, good habits, and motivation.

A teacher with SE is confident in initiating tasks promptly, leading to personal fulfillment, and consequently, JS. When employees experience JS, their emotional needs are partially fulfilled, motivating them to work efficiently towards organizational objectives. SE influences JS [11]. SE affects JS [30], [31]. Likewise, the study's results proved that JS significantly affects TP [32], [33]. Furthermore, SE indirectly positively affected TP through JS [34].

Job environment (JE) refers to facilities, frameworks and social aspects that support workers in work performance. Members of the organization or employees who are engaged in the same work, share tasks, or are confronted with the same work need environmental factors that support their coexistence. JE is the workplace conditions, work location, and other characteristics relevant to the building, such as hazards and explosion levels [35], [36]. In other words, the JE is the presence of physical perfection, work equipment, and an atmosphere that can support the performance of work, which is expressed in the convenience of the room.

An excellent work environment fosters comfort, pleasure, and satisfaction among employees, leading to a favorable evaluation of their work. When employees perceive their work positively, it reflects their sense of pride and contentment, indicating JS. This is facilitated by supportive working conditions. In essence, a conducive workplace, characterized by comfort, mutual respect, and adequate resources, enables optimal performance. Overall, the study's findings confirm that a favorable JE positively influences JS [37], [38]. Likewise, a good JE regarding equipment and employee work relations will affect TP. The results showed that JE positively affects TP [39], [40].

JS indicates an individual's specific attitude toward their job. An employee with a high level of JS will have a positive attitude toward his or her job; On the contrary, dissatisfied people will have a negative attitude toward their work. Mullins [41] stated that JS is a complex and diverse formula that can give rise to differences in understanding among people. Another opinion states that JS is a set of people's feelings and beliefs about doing current work [42]. JS is related to salary and work conditions, and work satisfaction is related to the sense of work, the appropriateness of wages, and the sense of being valued [43]. JS, shaped by factors like happiness, appreciation, working conditions, belonging, and compensation, reflects an individual's contentment with their work. For teachers, this satisfaction often translates into diligent efforts toward achieving goals. Research consistently shows that JS positively influences work performance, particularly among educators [32], [33].

There is a discrepancy with the study's results earlier. Namely, the findings show that SE did not affect teacher work satisfaction [9]. JE did not affect TP [44]. JE does not affect TP [45] the title of this study, TL: cultivating teacher excellence through satisfaction, environment, and SE, aims to address the discrepancy. The novelty of the study lies in its comprehensive examination of the multifaceted factors influencing TP. The practical implications of this research are evident in its potential for improving educational outcomes through effective leadership practices. The analysis data employed exploratory factor analysis (EFA) and Smart-PLS methodology. The development of the research objectives is summarized through the following research questions: i) do LT, SE, and JE have a direct effect JS?; ii) do LT, SE, JE, and JS directly affect TP?; and iii) is there an indirect influence of LT, SE, and JE on TP through JE? To address the research questions, the paper describes ten hypotheses positing a direct positive effect of: LT to JS ( $H_1$ ), SE to JS ( $H_2$ ), JE to JS ( $H_3$ ), LT to TP ( $H_4$ ), SE to TP ( $H_5$ ), JE to TP ( $H_6$ ), and JS to TP ( $H_7$ ). There are also significant indirect influences of: LT to TP through JS ( $H_8$ ), SE to TP through JS ( $H_9$ ), and JE to TP through JS ( $H_{10}$ ).

## 2. METHOD

### 2.1. Sample size analysis

The sample size of this study included high school teachers from DKI Jakarta and Banten Provinces, amounting to 400 respondents. The data collection technique is simple random sampling, which gives equal opportunity to each representative of the population [46]. The sample size analysis saw in Table 1.

Table 1. Sample size analysis

No	Composing	Gender		Total
		Male	Female	
1	Competence	142 (35.5%)	258 (67.00%)	400 (100%)
	BA	82 (20.50%)	178 (44.50%)	250 (62.50%)
	MA	58 (14.50%)	87 (21.75%)	145 (36.25%)
	Doctor	2 (0.50%)	3 (0.75%)	5 (1.25%)
2	Teaching participation			
	0-5.99	22 (5.50%)	37 (9.25%)	59 (14.75%)
	6-11.99	31 (7.75%)	56 (14%)	87 (21.75%)
	12-17.99	41 (10.25%)	64 (16%)	105 (26.25%)
	18-23.99	24 (6%)	50 (12.5%)	74 (18.50%)
	24-29.99	18 (4.5%)	36 (9%)	54 (13.50%)
	>30	6 (1.5%)	15 (3.75%)	21 (5.25%)
3	Age			
	21-27.99	30 (7.50%)	69 (17.25%)	84 (24.75%)
	28-34.99	43 (10.75%)	60 (15%)	90 (25.75%)
	35-41.99	32 (8%)	56 (14%)	84 (22%)
	42-48.99	23 (5.75%)	35 (8.75%)	55 (14.50%)
	49-55.99	11 (2.75%)	30 (7.50%)	23 (10.24%)
	>56	3 (0.75%)	8 (2%)	4 (2.75%)
4	Staffing level			
	First grade	0	0	0
	Second grade	0	0	0
	Third grade	92 (23%)	165 (41.25%)	165 (64.25%)
	Fourth grade	50 (12.50%)	93 (23.25%)	195 (35.75%)

### 2.2. Measurement variable

This quantitative study examines the impact of four external variables (LT, SE, JE, and JS) on an internal variable (TP), using path analysis. Research instruments were developed based on variable indicators and operational definitions. A master plan was created as a guide before drafting instrument statements. Indicators were compiled and repositioned through EFA in SPSS-24. Data were then analyzed using Smart-

PLS. The research instrument comprised 100 items in total, with 20 items for each variable. Data were collected using a Likert scale ranging from 1 to 5, indicating levels of disagreement to agreement. Tables 2 to 6 provide the framework for instrument creation across the five variables.

Table 2. TL framework

No	Dimension	Code item number	Sum
1.	Role model	LT11; LT12; LT13; LT14	4
2.	Individual consideration	LT21; LT22; LT23; LT24	4
3.	Intellectual stimulation	LT31; LT32; LT33; LT36	4
4.	Capability	LT41; LT42; LT43; LT44	4
5.	Trust in subordinates	LT51; LT52; LT53; LT54	4
	Sum		20

Table 3. SE framework

No.	Dimension	Code item number	Sum
1.	Self-confidence	SE <sub>11</sub> ; SE <sub>12</sub> ; SE <sub>13</sub> ; SE <sub>14</sub>	4
2.	Competence	SE <sub>21</sub> ; SE <sub>22</sub> ; SE <sub>23</sub> ; SE <sub>24</sub>	4
3.	Seriousness of the work	SE <sub>31</sub> ; SE <sub>32</sub> ; SE <sub>33</sub> ; SE <sub>34</sub>	4
4.	Job satisfaction	SE <sub>41</sub> ; SE <sub>42</sub> ; SE <sub>43</sub> ; SE <sub>44</sub>	4
5.	Motivation.	SE <sub>51</sub> ; SE <sub>52</sub> ; SE <sub>53</sub> ; SE <sub>54</sub>	4
	Sum		20

Table 4. JE framework

No.	Dimension	Code item number	Sum
1.	Comfortable working atmosphere	JE <sub>11</sub> ; JE <sub>12</sub> ; JE <sub>13</sub> ; JE <sub>14</sub>	4
2.	Convenience of communication	JE <sub>21</sub> ; JE <sub>22</sub> ; JE <sub>23</sub> ; JE <sub>24</sub>	4
3.	Room comfort	JE <sub>31</sub> ; JE <sub>32</sub> ; JE <sub>33</sub> ; JE <sub>34</sub>	4
4.	Completeness of the working equipment	JE <sub>41</sub> ; JE <sub>42</sub> ; JE <sub>43</sub> ; JE <sub>44</sub>	4
5.	Information technology tools.	JE <sub>51</sub> ; JE <sub>52</sub> ; JE <sub>53</sub> ; JE <sub>54</sub>	4
	Sum		20

Table 5. JS framework

No.	Dimension	Code item number	Sum
1.	A sense of enjoyment while working	JS <sub>11</sub> ; JS <sub>12</sub> ; JS <sub>13</sub> ; JS <sub>14</sub>	4
2.	Appreciated taste	JS <sub>21</sub> ; JS <sub>22</sub> ; JS <sub>23</sub> ; JS <sub>24</sub>	4
3.	Harmonious cooperation	JS <sub>31</sub> ; JS <sub>32</sub> ; JS <sub>33</sub> ; JS <sub>34</sub>	4
4.	Work condition	JS <sub>41</sub> ; JS <sub>42</sub> ; JS <sub>43</sub> ; JS <sub>44</sub>	4
5.	Salary	JS <sub>51</sub> ; JS <sub>52</sub> ; JS <sub>53</sub> ; JS <sub>54</sub>	4
	Sum		20

Table 6. TP framework

No.	Dimension	Code item number	Sum
1.	Professional	TP <sub>11</sub> ; TP <sub>12</sub> ; TP <sub>13</sub> ; TP <sub>14</sub>	4
2.	Pedagogic	TP <sub>21</sub> ; TP <sub>22</sub> ; TP <sub>23</sub> ; TP <sub>24</sub>	4
3.	Social	TP <sub>31</sub> ; TP <sub>32</sub> ; TP <sub>33</sub> ; TP <sub>34</sub>	4
4.	Personal	TP <sub>41</sub> ; TP <sub>42</sub> ; TP <sub>43</sub> ; TP <sub>44</sub>	4
5.	Digital competence	TP <sub>51</sub> ; TP <sub>52</sub> ; TP <sub>53</sub> ; TP <sub>54</sub>	4
	Sum		20

### 2.3. Variable master instrument plan

The following is each variable of the framework instrument, consisting of TL, SE, JE, JS, and TP. Each variable comprises five dimensions, and each dimension is represented by four statements, resulting in a total of 100 statements for this research instrument. The distribution of this dimension is the initial stage as a benchmark for instrument arrangement, further analysis will be through EFA.

### 2.4. Procedure and groundwork of the study

The instruments used in the research were after going through EFA. The study was in force from January 2023 to January 2024. The research sample size was 400 out of 20,000 senior high school teachers in Jakarta and Banten. Thus, the minimum sample size of up to 20,000 respondents in the study is 384, with 95%

truthfulness [47]. To disseminate the research instrument, the researchers coordinated with ten school superintendents from Jakarta and Banten's five administrative city areas. The instrument was distributed to 500 respondents via a Google Form. 400 complete responses were received and will be analyzed according to the research framework depicted in Figure 1.

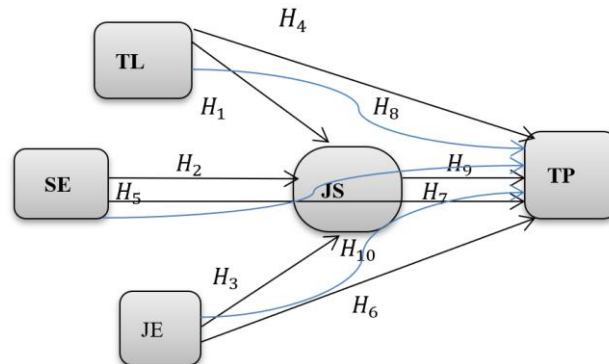


Figure 1. Research design model

### 3. RESULTS AND DISCUSSION

The study's outcomes are elucidated in this segment alongside a thorough discussion. The findings may be depicted through figures, graphs, tables, and other illustrative means to enhance reader comprehension [48], [49]. The discourse may be structured into various sub-sections for a more detailed examination.

#### 3.1. Exploratory factor analysis

After the instrument's preparation is complete, the following process is to reposition the indicators in the dimension of the questionnaire through EFA, which used 200 respondents outside the research sample. The researchers designed an instrument that produced 100 items. Then, the researcher identifies common factors based on the similarity of items in the variable to be measured through EFA [50]. EFA analysis uses SPSS-24 to derive item repositioning and generate new variable dimensions. All variables achieved a Kaiser-Meyer-Olkin sampling adequacy (KMO) measure >0.50 with significant <0.05. Changes in the total size of a variable are given in Table 7.

Table 7. Dimension changes

No	Variable	Dimension sum pre-EFA	Dimensions sum post-EFA	Information
1	TL	5	3	Encode elements to the new size
2	SE	5	3	Encode elements to the new size
3	JE	5	4	Encode elements to the new size
4	JS	5	4	Encode elements to the new size
5	TP	5	4	Encode elements to the new size

#### 3.2. Validity and reliability

The results of statistical calculations using the PLS algorithm indicate that out of 100 data points, 91 were deemed valid with an r-value greater than 0.70. These valid data points will undergo further analysis, while the remaining nine invalid data points were excluded from the study. The reliability test results, presented in Table 8, display cronbach's alpha and composite reliability values exceeding 0.70, along with average variance extracted (AVE) values surpassing 0.50. This consistency across all indicators demonstrates the reliability of their measurements, thereby facilitating the progression of the study [51], [52].

Table 8. Reliability test result

No	Variable	Sum valid data	Cronbach's alpha	Composite reliability	AVE
1	TL	18	.969	.971	.628
2	SE	17	.969	.971	.628
3	JE	18	.965	.968	.601
4	JS	19	.965	.968	.603
5	TP	19	.964	.967	.592

### 3.3. Direct and indirect effect analysis result

The direct and indirect impacts of exogenous variables on endogenous variables were evaluated through coefficient tests conducted on each substructure. Additionally, a hypothesis is deemed valid when the partial least squares (PLS) bootstrapping analysis yields a p-value below 0.05, as depicted in the Table 9. This indicates that the exogenous variables exert a statistically significant influence on the endogenous variables.

Table 9. Direct and indirect effect between variable

Hypotheses	Org. sample	Std. dev	T-statistics	P-values	Result
TL → JS (p41)	0.495	0.027	18.279	0.000	Confirmed
SE → JS (p42)	0.203	0.034	6.013	0.000	Confirmed
JE → JS (p43)	0.321	0.035	9.281	0.000	Confirmed
TL → TP (p51)	0.149	0.024	6.166	0.000	Confirmed
SE → TP (p52)	0.509	0.038	13.317	0.000	Confirmed
JE → TP (p53)	-0.278	0.023	12.267	0.000	Confirmed
JS → TP (p54)	0.585	0.042	13.838	0.000	Confirmed
TL → JS → TP (p541)	0.290	0.021	14.038	0.000	Confirmed
SE → JS → TP (p542)	0.119	0.024	4.923	0.000	Confirmed
JE → JS → TP (p543)	0.188	0.024	7.772	0.000	Confirmed

The significant direct and indirect effects in Table 9 confirm that all hypotheses have strong impacts, regardless of dependent variables, with p-values <0.05. Therefore, all hypotheses are supported by the bootstrapping results of Smart-PLS. Additionally, the analysis results have addressed the research question: firstly, there was a positive direct effect of TL, SE, and JE on JS. Previous research has proven that TL positively affects JS [53], [54]. SE directly influence JS [55], and JE positively influences JS [38], [56]. The conclusions of our study are relevant to previous research, which showed that TL, SE, and JE positively affect JS. That shows that in the school environment in Jakarta and Banten areas, the principal's transformational leadership is very suitable to be applied, thus causing JS for teachers. If we consider t-statistics =18.279, then TL significantly influences JS more than SE and JE (see Table 9).

Second, based on statistics conclusions, there was a direct influence of TL SE, JE, and JS on TP. Prior research has proven that TL positively affects TP [57], [58]; SE significantly affects TP [31], [59]; JE had a positive effect on TP [36], [60], and prior research has proven JS significantly affect TP [61], [62]. Thus, our study conclusions are relevant to preceding research that TL, SE, JE, and JS significantly affect TP. Based on the conclusions of the statistical analysis, in schools around Jakarta and Banten, three variables, namely TL, JE, and JS, directly affect TP. However, JS is the most dominant in influencing TP. With a t-statistic =13.838, JS significantly impacts TP more than TL, SE, and JE. Therefore, creating JS in the school environment is an indicator of the success of school management in achieving the quality of education. However, their study found that the impact of external factors is larger than ours, likely because they had fewer external variables compared to our study

Third, the TL, SE, and JE indirectly influence TP over JS. Comparison of the degree of direct and indirect influences: the degree of the influence of TL → TP is  $(p51)^2=0.0222$  or 2.22% while SE → JS → TP  $(p541) = p41 \times p54 = 0.2896$  or 28.96%, then the magnitude of influence  $(p541) > p51$ , therefore, JS as a mediator variable has an influential contribution to TP; The degree of the influence of SE → TP is  $(p52)^2=0.2591$  or 25.91% while SE → JS → TP  $(p542) = p42 \times p54 = 0.1188$  or 11.88% then the magnitude of influence  $(p542) < p52$ , therefore, JS as a mediator variable has no influence contribution to TP; Furthermore JE → TP is  $(p53)^2=0.0773$  or 7.73% while JE → JS → PP  $(p543) = p43 \times p54 = 0.1878$  or 18.78% then the magnitude of the influence  $(p543) > p53$ , therefore, JS as a mediator variable has an influential contribution to TP.

Relevance to the results of other studies that use work satisfaction as a variable mediator is that TL had an indirect effect on TP through JS [63]. Work satisfaction contributes to teacher SE on performance [53], and the JE indirectly affects employee performance through JS [64]. Employees with high JS tend to positively influence their performance, showing confidence in their work. Similarly, in Jakarta and Banten Provinces, the government has introduced regional performance allowances for teachers, particularly in numeracy.

## 4. CONCLUSION

The results of this study robustly affirm the substantial impact of TL, SE, JE, and JS on TP, both directly and indirectly, thus addressing uncertainties surrounding prior research findings. This revelation underscores several pivotal observations. Initially, it underscores the profound influence of JS on TP, underscoring the significance of teachers' self-assurance in their competencies and fostering a positive work environment. Moreover, JS significantly correlates with TL and JE, further shaping TP outcomes. Secondly,

the research delineates specific focal points for targeted interventions by local and central authorities, particularly in enhancing school infrastructure. Enhancing the JE equips teachers with the necessary resources for effective teaching, fostering psychological satisfaction and professional service delivery to students. Lastly, the research underscores the critical role of JS in enhancing TP. Maintaining or improving JS is vital, as satisfied teachers are more motivated and better able to meet students' learning needs. Educational authorities and policymakers should heed these findings, focusing on improving JEs and promoting JS to enhance educational effectiveness. However, certain limitations should be noted, such as the subjectivity of responses and the limited sample size. Future studies should consider broader sample sizes and additional variables to further explore TP dynamics in various contexts.

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