

Transformational leadership effect on teacher performance in Asia: A meta-analysis

Firmansyah Firmansyah *, Universitas Negeri Yogyakarta, Yogyakarta, Faculty of Education, 55281, Indonesia
<https://orcid.org/0000-0002-8785-795X>

Lantip Diat Prasojo, Universitas Negeri Yogyakarta, Faculty of Education, Yogyakarta, 55281, Indonesia
<https://orcid.org/0000-0001-8091-853X>

Amat Jaedun, Universitas Negeri Yogyakarta, Faculty of Engineering, Yogyakarta, 55281, Indonesia
<https://orcid.org/0000-0002-9994-2887>

Heri Retnawati, Universitas Negeri Yogyakarta, Faculty of Math and Science, 55281, Indonesia
<https://orcid.org/0000-0002-1792-5873>

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Abstract:

Transformational leadership is a leadership style that prioritizes commitment values, patterns, and performance to achieve organizational goals needed in the 21st century. This leadership style is widely applied in developing countries and has the best educational status in the world, such as in Finland and the United States. Researchers have recommended that transformational leadership is an important aspect of teacher performance; however, whether the effect varies across related studies and the robustness of the overall effect size remains unclear. A meta-analysis technique was used to synthesize the results from 65 independent studies and investigate the overall relationship between transformational school leadership and the three measures of teacher performance. This study found that, in terms of the average influence measure, transformational school leadership positively influenced teacher job satisfaction, commitment, and self-efficacy

Keywords: Transformational leadership, teacher performance, meta-analysis.

* ADDRESS OF CORRESPONDENCE: Firmansyah Firmansyah, Universitas Negeri Yogyakarta, Yogyakarta, Faculty of Education, 55281, Indonesia
Email address: firmansyah@uny.ac.id

1. Introduction

Many studies have discussed transformational leadership styles over the last three decades. Burns, in 1978, initiated the theory of transformational leadership, which was reimagined, and developed by Bass in 1985. Transformational leadership is sometimes an extension of transactional leadership (B. M. Bass & Riggio, 2006). Transactional leadership emphasizes transactions or exchanges among leaders, co-workers, and followers. This exchange is based on the leader's discussion about what is required and determining the conditions and rewards others will receive if they meet those requirements. Transformational leadership is a process in which leaders and followers help each other advance to higher levels of morale and commitment (Hunneman et al., 2022). Transformational leadership involves inspiring followers to commit to a shared vision and goals for an organization or unit, challenging them to become innovative problem-solvers, and developing followers' leadership capacities through coaching, mentoring, and providing challenge and support. Theoretically, the concept of transformational leadership redefines the vision and mission of the organization by proposing that leadership is not just a set of individual behaviors or traits but a process by which individuals relate to the organization. Transformational leadership is the process of establishing and enhancing goals and abilities to achieve significant improvement through shared interests and cooperative action.

Transformational school leadership always believes that every stakeholder in the school is rich in ideas and knowledge so that it can be utilized by encouraging their commitment to creating schools according to the goals. School members, such as teachers, can develop new roles and skills necessary for the human capital-building process in organizations by encouraging constant growth and follower participation ((Owens, 2001; Sergiovanni, 1990). Transformational leadership has a lot in common with charismatic leadership, but charisma is only part of transformational leadership (B. M. Bass & Avolio, 1993). In contrast to the charisma exhibited by pseudo-transformational leaders, transformational leaders do more with co-workers and followers than make simple exchanges or deals.

Researchers have suggested that transformational leadership is an important aspect of teacher performance; however, whether the effect varies across related studies and the robustness of the overall effect size remains unclear. The transformational leadership model was developed by Bass using the Multifactor Leadership Questionnaire (MLQ). Previous factor analytic studies (Avolio et al., 1997, 1999; Bycio et al., 1995; Howell & Avolio, 1993) have identified components of transformational leadership. The four parts include 1) idealized influence, 2) inspirational commitment, 3) intellectual stimulation, and 4) individualized consideration. The components of idealized influence and inspirational commitment are combined into one dimension of charismatic inspiration, which includes the qualities of a charismatic leader who can motivate and inspire people in an organization by providing meaning and passion for visions of the future (R. v Bass & Good, 2004).

Based on the conception of transformational leadership, this article first presents the conceptual background and beliefs of transformational leadership developed by Bass and other researchers. This is followed by a literature review on the relationship between school leaders' transformational leadership and teacher performance measures, including teacher job satisfaction, commitment, and self-efficacy. Next, specific research questions are presented, followed by an outline of the meta-analysis methodology, research findings, and a discussion of the results.

The study reported here uses a quantitative meta-analysis to estimate the effect size of transformational leadership on measures of teacher performance among multinational research reports. In an initial step toward answering the research questions, this article investigates the effects of transformational school leadership on three teacher performance measures (teacher job satisfaction, teacher commitment, and teacher self-efficacy) that were used as dependent measures in the selected

studies. The study also considers which study descriptors (such as school type) might explain any variation in effect sizes.

2. Literature Review

2.1. Transformational leadership

Transformational leadership is a leader who inspires his followers to put aside their interests for the organization's good and can tremendously influence their followers. They pay attention to the self-development needs of their followers (Bayram & Dinc, 2015), changing followers' awareness of the issues at hand by helping others view old problems in new ways (Choi et al., 2016) and able to inspire followers to work hard to achieve common goals (Suparna et al., 2021). Transformational leadership defines the need for change, creates a new vision, mobilizes commitment to carry out the idea, and transforms followers individually and as a team (Qamaruddin et al., 2020).

The dimensions of transformational leadership include 1) idealized influence, 2) intellectual stimulation, 3) individual considerations, and 4) inspirational commitment (Alkhoori et al., 2021). Of the four dimensions, it is explained that transformational leadership is a leader who has the charisma to show conviction; emphasizes trust; shows the most important values; emphasizes the importance of goals, commitment, and ethical consequences of decisions, and has a vision and sense of mission. Thus, the leader will be imitated and arouse subordinates' pride, loyalty, respect, enthusiasm, and trust.

Transformational leadership is a leader who encourages followers to be more creative and eliminates the reluctance to issue ideas and solve existing problems using new approaches that require critical thinking and rational reasons instead of mere assumptions (Tourish, 2013). This kind of leader develops the competence of his followers by providing challenges and questions so that his followers are always trying to find new ways of doing a job. Thus, his followers do not only do work as a routine but interpret it as a place to hone skills to achieve a tenacious and tough personality continuously.

Transformational leadership is a leader who can treat others as individuals, consider individual needs and aspirations, listen, educate, and train subordinates (Al-Husseini et al., 2021). Thus, this kind of leader gives personal attention to his associates and offers special attention to developing his followers to achieve good performance. The nature of a leader who inspires work invites followers to realize a common goal so that they are more meaningful (Jeong, 2021). Such a leader has an attractive vision for the future, sets high standards for followers, is optimistic and enthusiastic, and gives encouragement and meaning to his actions.



Figure 1. Dimensions of transformational leadership (B. M. Bass & Riggio, 2006)

2.2. Effect of transformational leadership

Several previous studies have discussed the effect of transformational leadership on teacher performance. According to several studies, transformational leadership influences teacher performance (Ahmad, Muhammad Shafiq; Bakhsh, Khuda; Rasool, 2019; Andriani et al., 2018; Kartika et al., 2022; Muliati et al., 2022; Saptono et al., 2021). The characteristics of transformational leadership include ideal influence, inspirational motivation, individual considerations, and intellectual stimulus. Staff sees their leader as a figure who inspires and is motivated to achieve better goals by showing superior performance to achieve organizational goals (Jyoti & Bhau, 2015).

Research through mediating variables regarding transformational leadership significantly affects teacher performance in schools and teacher satisfaction (Firmansyah et al., 2022). Other research shows that transformational leadership affects teacher self-efficacy through the various roles of principals as role models for their staff (Gkolia et al., 2018). Teachers with high self-efficacy are more resistant to pressure, motivate themselves to improve their students' academic success by following the desired goals, and ensure their students receive learning materials. In addition, teachers are also more likely to be able to control behavior that interferes with students learning in class.

Commitment to achieving goals is vital in improving and maintaining organizational performance. Teachers with high commitment are needed in the school environment because they directly interact with students and are responsible for providing them with knowledge and constructive character (Firmansyah et al., 2020). This is supported by research conducted by Porter and Steers (1982), which states that employees with a high commitment will voluntarily behave positively and have a strong desire to achieve organizational goals. Other studies in supporting statements regarding employee commitment to their performance have a significant correlation value through transformational leadership (Ismail & Mydin, 2019).

3. Method

3.1. Meta Procedure

Meta-analysis can be used as a secondary analysis, providing additional information by statistically integrating the quantitative results of the preliminary study (Rosenthal, 1991). The essence of the meta-analysis is the conversion of the various outcome measures into a common standard scale that can be combined for analysis. The results can be meaningfully combined in statistical analysis. To allow for comparability across studies, the results of each study were converted to standard effect sizes. Hedges and Olkin (1985) refer to effect sizes derived from different measurement scales as scale-independent indices of effect sizes. This study's software used for analysis was Comprehensive Meta-Analysis version 3 (Borenstein et al., 2021).

Lipsey and Wilson (2001) have provided a list of forms of research findings that effect size statistics can represent. They include central tendencies, pre-post contrasts, group contrasts, and relationships between variables. In this study, all selected studies fall into the category of correlational research that examines the covariation between two continuous variables (e.g., transformational school leadership and teacher commitment) to determine whether there is a relationship between the two variables. The Fisher Z_r transformation of the correlation coefficient was used to investigate the influence of transformational school leadership. When the research findings involve a bivariate relationship in which the two variables are continuous, the product-moment correlation coefficient is an appropriate effect size statistic (Lipsey & Wilson, 2001). The correlation coefficient is already a standard index and can be used as an effect size statistic in its raw form even if the correlated variables are operationalized differently. The Fisher Z_r transformation can be defined as follows:

$$ES_{Zr} = 0.5 \log \frac{1 + ES_r}{1 - ES_r}$$

Where r is the correlation coefficient, and ES_{Zr} is the individual fit or correlation of the average Z_r transformations. Expressed in the form we have used for other effect size statistics, and correlation coefficients can be presented as effect size statistics. From a statistical perspective, effect size values based on a larger sample are more precise estimates of the corresponding population values than those based on a smaller sample. After Fisher's Z_r is calculated, the next step is to measure the actual weight based on the reciprocal of the standard error value of the square to produce the inverse variance weight. For convenience in performing multiple analyses, the researcher can use *the* Z_r transformed version of this effect size statistic, then convert the results back into regular correlation coefficients for interpretation.

Once the effect size values (mean r) have been calculated, the next step is to put the effect size into some interpretable context. There are various ways to do this, but none are entirely satisfactory. In this study, the widely used convention for assessing the magnitude of effect sizes is defined by Cohen (1988). Cohen reports the general observation that the correlation effect sizes fall into the following three ranges: (1) small, when $r \leq 0.10$; (2) moderate, when $r = 0.25$; and (3) large, when $r \geq 0.40$.

Once the r -value has been estimated, the next question is whether the various effect sizes averaged to the mean all estimate the same population effect size (Borenstein et al., 2021). Statistically, this is a question of the homogeneity of the effect size distribution. In a homogeneous distribution, the individual effect sizes differ from the population mean only by sampling error (Retnawati et al., 2018). On the other hand, if the statistical test rejects the null hypothesis of homogeneity, such a result indicates that each effect size does not predict the same population means. In other words, there are differences among effect sizes that have multiple sources other than subject-level sampling error, possibly related to differences in study descriptors.

In this article, two study descriptors, school type (elementary, secondary, and high level) and country of study in Asia (ex. Central Asia because there are no related studies found in that region) were tested, followed by a Q -value significance test. The rejection of homogeneity, a significant value of Q , meant that the variability across effect sizes was greater than expected from sampling error (Lipsey & Wilson, 2001). In this study, excess variability was assumed to be zero or completely systematic, i.e., related to the study descriptor in the meta-analysis (fixed- or random-effects model). Since the study descriptors analyzed were categorical variables, methods analogous to analysis of variance (ANOVA) were used to model systematic variance in effect sizes.

3.2. The criterion of the study

The main function of meta-analysis is to convert the various outcome measures from different studies into a standard scale that can be combined for analysis (Borenstein et al., 2021). Studies can present results from various statistical tests, such as mean, variance, and correlation. The study used in this meta-analysis is a study that uses a quantitative design that focuses on the effect of transformational leadership on teacher performance. The inclusion criteria in this study are as follows:

1. Quantitative outcomes of transformational school leadership and teacher performance measures include teacher job satisfaction, teacher commitment, and self-efficacy.
2. The use of MLQ as an instrument to measure school transformational leadership.
3. The minimum sample size is 40 subjects.

4. Study release date in the last ten years.
5. Statistical data includes sample size, Pearson's *r* or *t*-values, or *F*-values for effect size calculations.
6. The study was conducted in a country that belongs to the Asian region (ex. Central Asia).

A database search containing abstracts and contents of empirical studies related to transformational leadership and teacher performance was conducted. The keywords used in the study search were 'transformational leadership,' 'job satisfaction,' 'teacher commitment,' 'teacher self-efficacy,' and 'teacher performance.' Rosenthal (1984) has shown that the effect size in favor of experimental treatment is larger among published studies. Therefore, special efforts need to be made to find unpublished research. In this study, both published and unpublished, electronic database searches and manual searches were performed. Unfortunately, only a small number of published papers met the criteria for inclusion in this meta-analysis due to inadequate reporting of statistics, such as Pearson's *r*-values or correlation matrices, required for effect size calculations.

In this study, by searching a database containing the contents of empirical studies related to transformational leadership and teacher performance, it was found that teacher job satisfaction, teacher commitment, and teacher self-efficacy were the three most used variables to assess teacher performance. Therefore, the studies analyzed in this study were collected mainly from electronic databases, i.e., articles published in Scopus journals and students' final projects through data searches in ProQuest. The studies were collected from several countries in Asia.

4. Result

Three separate meta-analyses were conducted to explore the relationship between transformational school leadership and teacher performance. The studies in **Appendix 1** analyzed 25 effect sizes representing the relationship between school transformational leadership and teacher job satisfaction. The mean of the 25 effect sizes (*r*) was 0.571, with a range of 0.030–0.910. From the studies in **Appendix 2**, 23 effect sizes represent the relationship between transformational school leadership and teacher commitment, with a mean of 0.485 and a range of 0.070–0.910. **Appendix 3** includes 17 effect sizes associated with the relationship between school transformational leadership and teacher self-efficacy, with a mean of 0.498 and a range of 0.384–0.611.

Table 1. *Egger's regression intercept*

Variables	Intercept	Standard error	95% lower limit (2-tailed)	95% upper limit (2-tailed)	<i>t</i> -value	<i>df</i>	<i>p</i> -value (1-tailed)	<i>p</i> -value (2-tailed)
Teacher Job Satisfaction	3.938	2.534	-1.304	9.180	1.553	23	0.067	0.134
Teacher Commitment	-1.467	1.446	-4.474	1.539	1.014	21	0.161	0.321
Teacher Efficacy	-6.262	2.458	-11.50	-1.023	2.548	15	0.011	0.022

Table 2. *Results of the homogeneity analysis*

Variables	<i>k</i>	\overline{ES}_r	<i>Q</i>
Teacher Job Satisfaction	25	0.571*	1007.735*
Teacher Commitment	23	0.485*	293.882*

Teacher Efficacy	17	0,498*	336.301*
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* $p < 0.01$.

Table 3. ANOVA for the type of school

Variables	Q_B	Q_W	Q_{total}	Primary	Secondary	High
				$\overline{ES}_r (k)$	$\overline{ES}_r (k)$	$\overline{ES}_r (k)$
Teacher Job Satisfaction	818.693	189.042	1,007.735*	0.549* (14)	0.257* (8)	0.561* (3)
Teacher Commitment	10.497	283.385	293.882*	0.446* (9)	0.486* (12)	0.500* (2)
Teacher Efficacy	275.293	61.009	336.301*	0.575* (7)	0.497* (8)	0.354* (2)

* $p < 0.01$.

The effect size estimation results from the three meta-analyses in terms of r indicate that transformational school leadership has a positive and significant effect on teacher job satisfaction ($r = 0.571$) and teacher commitment to work ($r = 0.485$), and teacher self-efficacy ($r = 0.498$). It can be concluded that the overall relationship between school transformational leadership and teacher performance appears to be quite strong. In Cohen's terminology, the values of the three mean effect sizes all show a high effect. The results also showed that 97.61%, 92.514%, and 95.24% variances in teacher job satisfaction, commitment, and self-efficacy were related to differences in transformational school leadership. Thereby indicating the significant heterogeneity within the studies taken for the present review. Thus, random effects are more suitable for estimating the mean effect size of the 65 analyzed studies. These results indicate the potential to investigate moderating variables that affect variable Y.

Figures 2–4 show the forest plots for teacher performance. Six of the 25 studies on teacher satisfaction have a less significant effect size, with a p -value > 0.05 . Meanwhile, only 1 of the 23 studies on teacher commitment had a less significant effect size, with a p -value > 0.05 . Meanwhile, 2 of the 17 studies on teacher efficacy had a less significant effect size, with a p -value > 0.05 . Thus, most research on the relationship between transformational school leadership and teacher performance produces consistent effect sizes.

Figure 2. Forest Plots From 25 Studies About Teacher Satisfaction

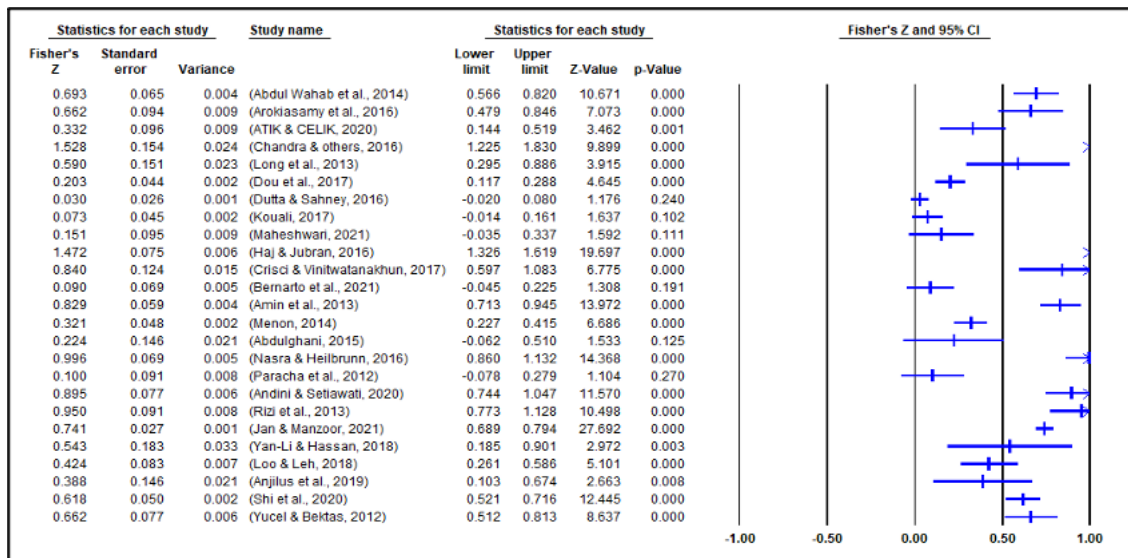


Figure 3. Forest Plots From 23 Studies About Teacher Commitment

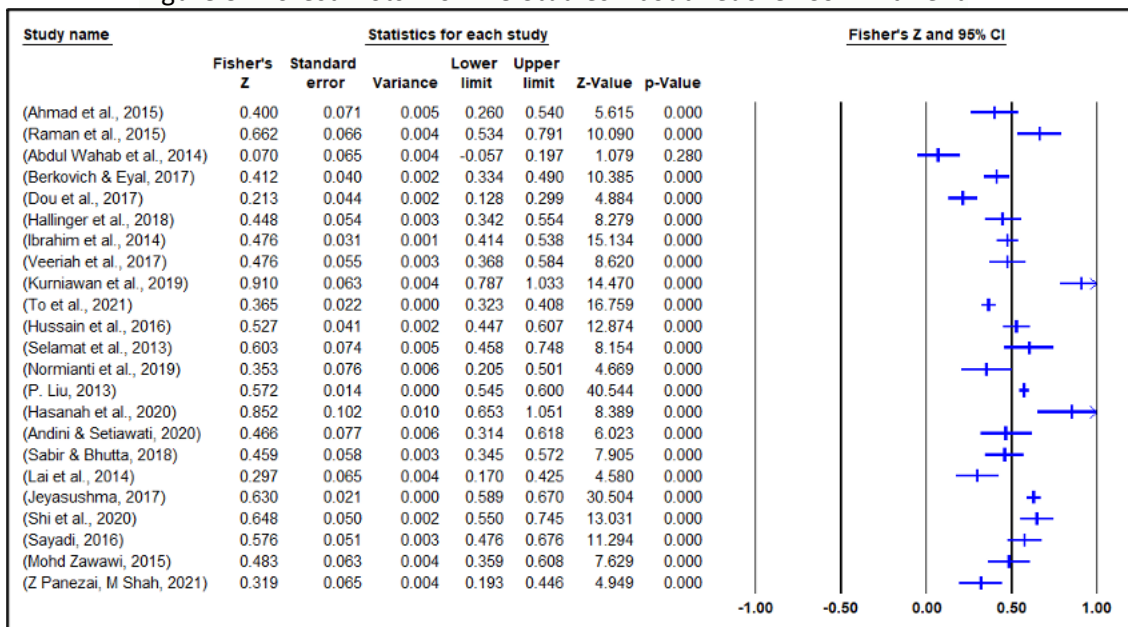
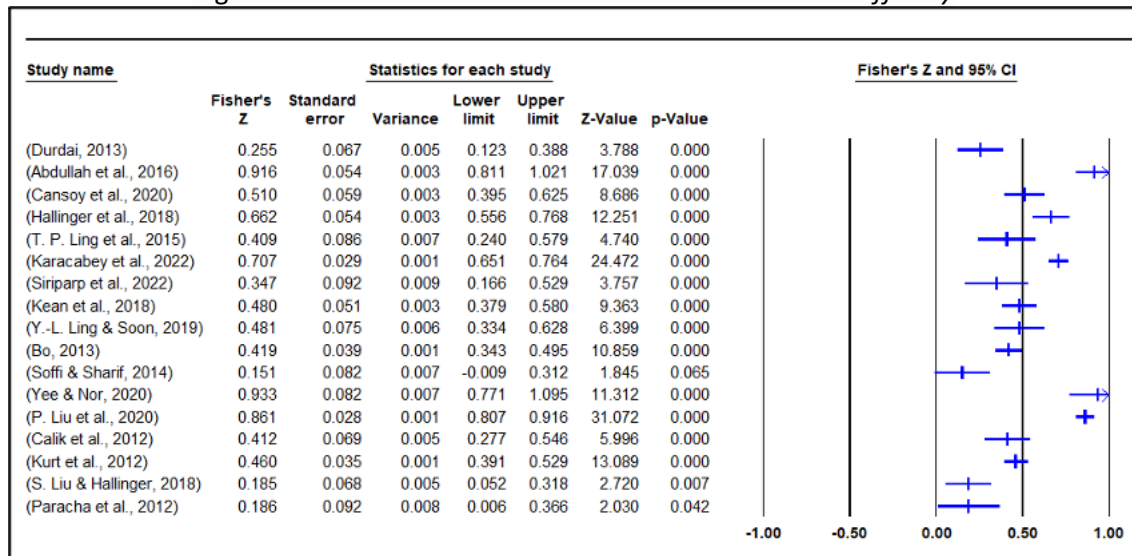
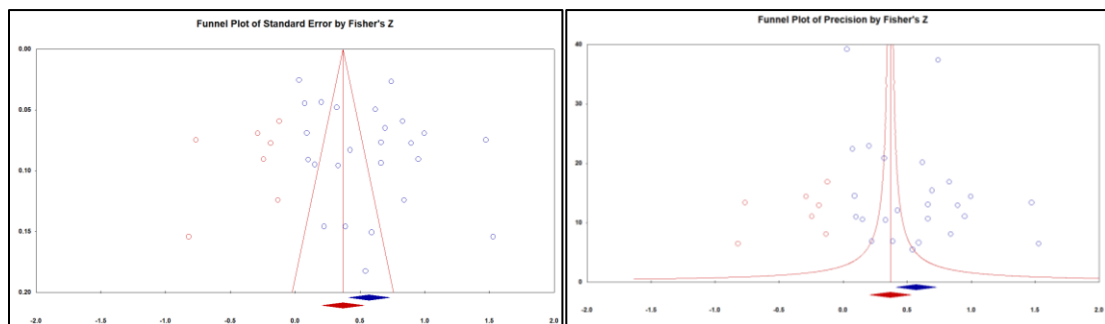


Figure 4. Forest Plots From 17 Studies About Teacher Efficacy

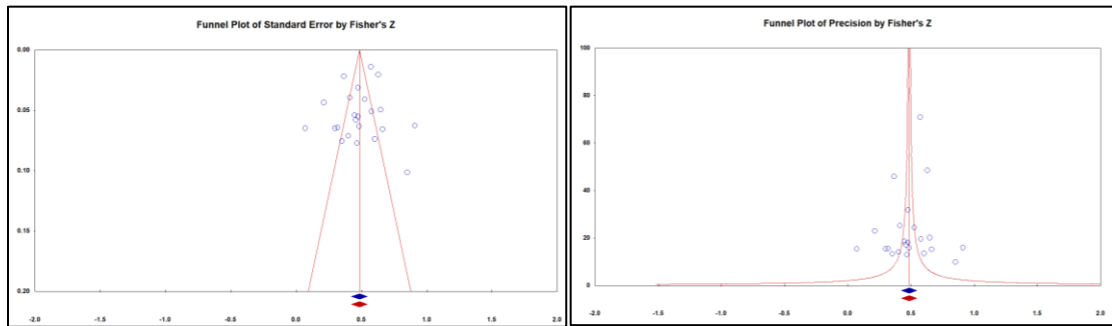


The rejection of the homogeneity null hypothesis indicates differences associated with different study descriptors (heterogenic). In other words, there may be an independent variable that has a significant influence on the estimated effect size. Following the rejection of homogeneity, analyses relating to the bivariate relationship between study descriptors (school type and study country region) were performed. The results and the effect sizes of transformational school leadership on teacher job satisfaction, commitment, and self-efficacy are presented in **Tables 1 and 2**, respectively. The results from Table 2 show that the three Q-values are significant.

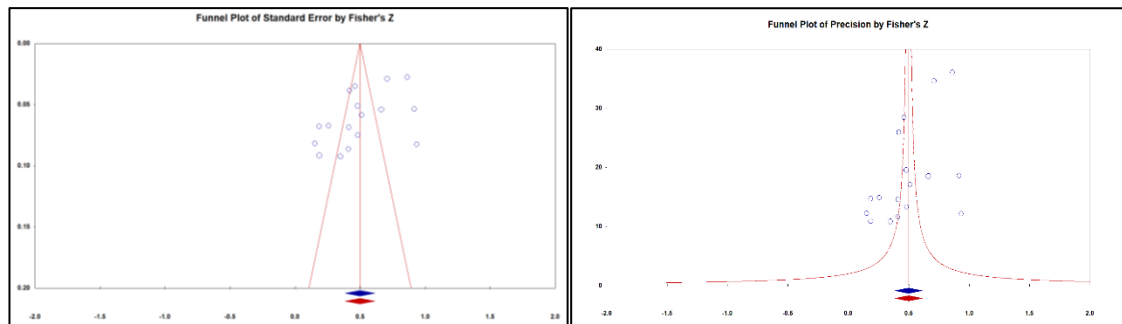
Figure 5 shows the funnel plots for the teacher performance. The assessment of funnel plots indicates the relatively symmetrical distribution of effect estimates around the central line. This suggests the probable inclusion of relevant trials. The funnel plot results make it difficult to conclude whether they are on the symmetrical axis. Egger's test is required for further testing. The regression test results indicate a significant deviation from zero, although less pronounced. Here also, $p > 0.05$ for one-tailed test and $p > 0.05$ for two-tailed test. The researcher will consider the two-tailed p-value, which leads to the rejection of the null hypothesis and indicates the presence of significant symmetry. The study used in this meta-analysis is not influenced by bias (ex. in teacher efficacy with p -value < 0.05).



Teacher Satisfaction



Teacher Commitment



Teacher Efficacy

Figure 5. *Teacher Performance Bias analysis*

If study descriptors can explain significant variability, then the mean effect sizes across categories differ more than the sampling error. Statistically, an analogous approach to ANOVA was used in this study to test the ability of categorical variables (such as the type of school in this study) to explain excess effect size variability. The total variability was divided into the part explained by the categorical variable (Q_B) and the residual part (Q_W). Both are distributed as chi-square. The first is the index of variability between the group means with the degrees of freedom of the number of categories minus 1; the last is the in-group variability index with the number of degrees of freedom and the number of effect sizes minus the number of categories.

Tables 3 and 4 show that the influence of the principal's leadership on teacher job satisfaction is the lowest in the secondary school type and the highest in the high school type. Concerning the influence of the principal's leadership on teacher commitment, the lowest is in the primary school type and the highest in the high school type. The influence of the principal's leadership on teacher efficacy is the lowest in the high school type and the highest in the primary school type.

Meanwhile, the influence of principals' leadership on teacher job satisfaction is the lowest in the countries of the East Asia region and the highest in the countries of the southeast Asian region. The influence of the principal's leadership on teacher commitment is the lowest in the countries of the West Asia region and the highest in the countries of the southeast Asian region. The influence of the principal's leadership on teacher efficacy is the lowest in the countries of the South Asia region and the highest in the countries of the East Asia region.

5. Discussion

Research on the leadership styles of principals and teacher performance has shown conflicting results. While some researchers found that school leadership had a significant effect on teacher performance, others showed no effect of leadership on teacher performance. However, statistical results from the meta-analysis in this study indicate that the direct effects of transformational leadership on teacher performance, including teacher job satisfaction, teacher commitment, and teacher efficacy, are significant and positive. In other words, high levels of transformational leadership are seen as superior by school teachers in promoting satisfaction with primary leadership, increasing teacher commitment to work, and impacting teacher efficacy.

This finding is consistent with the results of other studies (Avolio et al., 1999; Erez, 1987), which showed that leaders, who demonstrated individual understanding and interest in teachers, and who were proactive produced positive outcomes for teachers, such as greater satisfaction and performance, as perceived by teachers. Based on these findings, principals wishing to influence school outcomes should assess their leadership style and set goals for higher-level dimensions (such as influence ideal, inspirational motivation, intellectual stimulation, and individualized judgment) of transformational leadership as identified by the MLQ.

Demonstrating transformational leadership behaviors will help principals establish constant and sustainable reforms in their schools. As Leithwood (1992) has pointed out, transformational leaders are sensitive to organizational building, developing a shared vision, distributing leadership, and building the school culture necessary to achieve the effects of current school restructuring. Leithwood and Jantzi (1999) also found that transformational leaders work with teachers in groups to develop better solutions to immediate problems, stimulate greater commitment to school goals and contribute to the long-term growth of students' problem-solving capacities.

In practice, because teacher performance measures and transformational leadership are positively related, there is strong support for teaching and training in transformational leadership behaviors as part of professional development that can be justified for current and prospective principals. Such preparation could increase teacher performance that would benefit from the principal's transformational leadership. Moreover, it seems appropriate to emphasize the transformational leadership literature in college and university training courses for all educational administrators.

The analysis in which cross-country differences are modeled provides a consistent indication that transformational leadership is less important in South Asia than in the southeast Asian region. Bass (1998) has found that transformational leadership is more likely to emerge in unstable, uncertain, and turbulent settings. This finding may explain why the study conducted in the South Asia region had a smaller mean effect size than the study conducted in southeast Asia. As mentioned earlier, education and school systems have been highly centralized in the last half-century. At the same time, transformational leadership is a relatively new phenomenon in educational settings in the South Asia region. Compared to its Southeast Asian counterparts, the homogeneous nature of the school setting in South Asia may be a contributing factor to the smaller mean effect size.

In this study, the effect of transformational leadership on teacher commitment was smaller than teacher satisfaction and teacher efficacy when contextual factors, such as teacher SES and community attitudes, played a positive role. Where a stable educational environment exists, and school education is valued by society, the effects of transformational leadership on teacher performance are more measurable and gradual. Statistically, the homogeneity of contextual factors between studies analyzed in the meta-analysis might influence the effect size between transformational leadership and teacher performance.

This study's limitation is the limited access to several studies that examine the correlation between teacher satisfaction, teacher commitment, and teacher efficacy on school transformational leadership at ProQuest. Thus, the data used on average comes from indexed international journals that can be accessed for free by researchers. There need to be more accessible, especially at the dissertation level, if researchers can access them in the future through ProQuest.

Finally, it should be remembered that the correlation coefficient between the transformation and other dependent variables, such as teacher job satisfaction, is measured and calculated based on the teacher's perception. Suppose teachers' perceptions are somehow tied to the surrounding environment (such as school culture). In that case, the Pearson correlation may have underestimated or overestimated the relationship between transformational school leadership and the associated dependent variable. Further research is recommended to include situational factors to provide a complete picture of school transformational leadership and how it affects others involved in the functioning of the teacher's performance.

6. Conclusion and Recommendation

Based on the results of the meta-analysis conducted in this article, it can be concluded that the principal's transformational leadership affects the performance of teachers in schools, from primary, secondary, and high schools. Teacher commitment was relatively smaller than teacher satisfaction and efficacy of the three variables measured to show teacher performance. The analysis in which cross-country differences are modeled provides a consistent indication that transformational leadership is less important in the south than in the Southeast Asia region. Further research is recommended to include situational factors to provide a complete picture of school transformational leadership and how it affects others involved in the functioning of the teacher performance

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APPENDIX

A1. Correlations Of Transformational Leadership and Teacher Job Satisfaction In The Meta-Analysis

Studies	N	Area	Type of School	Teacher Job Satisfaction	
				ES _r	ES _{zr}
(Abdul Wahab et al., 2014)	240	Souteast	Primary	0.600	0.693
(Arokiasamy et al., 2016)	117	Souteast	Primary	0.580	0.662
(ATIK & CELIK, 2020)	112	West	Primary	0.320	0.332
(Chandra & others, 2016)	45	Souteast	Secondary	0.910	1.528
(Long et al., 2013)	47	Souteast	High	0.530	0.590
(Dou et al., 2017)	528	East	Secondary	0.200	0.203
(Dutta & Sahney, 2016)	1539	South	Secondary	0.030	0.030
(Kouali, 2017)	504	West	Primary	0.073	0.073
(Maheshwari, 2021)	114	Souteast	High	0.150	0.151
(Haj & Jubran, 2016)	182	West	Primary	0.900	1.472
(Crisci & Vinitwatanakhun, 2017)	68	Souteast	Primary	0.686	0.840
(Bernarto et al., 2021)	213	East	Primary	0.090	0.090
(Amin et al., 2013)	287	South	High	0.680	0.829
(Menon, 2014)	438	West	Secondary	0.310	0.321
(Abdulghani, 2015)	50	West	Primary	0.220	0.224
(Nasra & Heilbrunn, 2016)	211	West	Secondary	0.760	0.996
(Paracha et al., 2012)	124	South	Primary	0.100	0.100
(Andini & Setiawati, 2020)	170	Souteast	Primary	0.714	0.895
(Rizi et al., 2013)	125	West	Secondary	0.740	0.950
(Jan & Manzoor, 2021)	1398	South	Primary	0.630	0.741
(Yan-Li & Hassan, 2018)	33	Souteast	Secondary	0.495	0.543
(Loo & Leh, 2018)	148	Souteast	Primary	0.400	0.424
(Anjilus et al., 2019)	50	Souteast	Primary	0.370	0.388
(Shi et al., 2020)	408	East	Primary	0.550	0.618
(Yucel & Bektas, 2012)	173	West	Secondary	0.580	0.662

A2. Correlations Of Transformational Leadership and Teacher Commitment In The Meta-Analysis

Studies	N	Area	Type of School	Teacher Job Commitment	
				ES _r	ES _{zr}
(Ahmad et al., 2015)	200	South	High	0.380	0.400

Studies	N	Area	Type of School	Teacher Job Commitment	
				ES _r	ES _{zr}
(Raman et al., 2015)	235	Southeast	Secondary	0.580	0.662
(Abdul Wahab et al., 2014)	240	West	Elementary	0.070	0.070
(Berkovich & Eyal, 2017)	639	West	Elementary	0.390	0.412
(Dou et al., 2017)	528	East	Secondary	0.210	0.213
(Hallinger et al., 2018)	345	West	Elementary	0.420	0.448
(Ibrahim et al., 2014)	1014	Southeast	Secondary	0.443	0.476
(Veeriah et al., 2017)	331	Southeast	Primary	0.443	0.476
(Kurniawan et al., 2019)	256	Southeast	Secondary	0.721	0.910
(To et al., 2021)	2106	East	Primary	0.350	0.365
(Hussain et al., 2016)	600	South	Secondary	0.483	0.527
(Selamat et al., 2013)	186	South	Secondary	0.539	0.603
(Normianti et al., 2019)	178	Southeast	Elementary	0.339	0.353
(P. Liu, 2013)	5023	East	Secondary	0.517	0.572
(Hasanah et al., 2020)	100	Southeast	High	0.692	0.852
(Raman et al., 2015)	235	Southeast	Secondary	0.580	0.662
(Andini & Setiawati, 2020)	170	Southeast	Primary	0.435	0.466
(Sabir & Bhutta, 2018)	300	South	Secondary	0.429	0.459
(Lai et al., 2014)	240	Southeast	Secondary	0.289	0.297
(Jeyasushma, 2017)	2348	Southeast	Primary	0.558	0.630
(Shi et al., 2020)	408	East	Elementary	0.570	0.648
(Sayadi, 2016)	387	West	Secondary	0.520	0.576
(Mohd Zawawi, 2015)	252	Southeast	Secondary	0.449	0.482
(Z Panezai, M Shah, 2021)	243	South	Secondary	0.309	0.319

A3. Correlations of Transformational Leadership and Teacher Self-Efficacy in the Meta-Analysis

Studies	N	Area	Type of School	Teacher Efficacy	
				ES _r	ES _{zr}
(Durdai, 2013)	223	West	Primary	0.250	0.255
(Abdullah et al., 2016)	349	Southeast	Secondary	0.724	0.916
(Cansoy et al., 2020)	293	West	Secondary	0.470	0.510
(Hallinger et al., 2018)	345	West	Elementary	0.580	0.662
(T. P. Ling et al., 2015)	137	Southeast	Secondary	0.388	0.409

Studies	N	Area	Type of School	Teacher Efficacy	
				ES _r	ES _{zr}
(Karacabey et al., 2022)	1200	West	Primary	0.609	0.707
(Siriparp et al., 2022)	120	Southeast	Primary	0.334	0.347
(Kean et al., 2018)	384	Southeast	Secondary	0.446	0.480
(Y.-L. Ling & Soon, 2019)	180	Southeast	Secondary	0.447	0.481
(Bo, 2013)	675	East	High	0.396	0.419
(Soffi & Sharif, 2014)	152	Southeast	High	0.150	0.151
(Yee & Nor, 2020)	150	Southeast	Secondary	0.732	0.933
(P. Liu et al., 2020)	1304	East	Primary	0.697	0.861
(Calik et al., 2012)	215	West	Primary	0.390	0.412
(Kurt et al., 2012)	813	West	Primary	0.430	0.460
(S. Liu & Hallinger, 2018)	219	East	Secondary	0.183	0.185
(Paracha et al., 2012)	122	South	Secondary	0.184	0.186