# The Role of Work Motivation in Mediating the Influence of Transformational Leadership on Work Productivity at Smp Negeri 39 Medan

**Ria Andriyani, Saimara Sebayang, Yohny Anwar**

**Abstract**
This study aims to analyze the influence of transformational leadership on the work productivity of teachers, with work motivation as a mediating variable in SMP Negeri 39 Medan. This research is motivated by the importance of the leadership role of school principals in creating a work environment that is able to increase teacher motivation and productivity. The research uses a quantitative approach with a survey method. The research population is all teachers of SMP Negeri 39 Medan, as many as 46 people, with saturated sampling technique so that the entire population is used as respondents. Data collection was carried out through a questionnaire using the Likert scale, then analyzed using the Structural Equation Modeling–Partial Least Squares (SEM-PLS) method with the help of the SmartPLS application. The results of the study showed that the research instrument met the criteria for validity and reliability. Hypothesis testing showed that transformational leadership had a positive and significant effect on teachers' work productivity with an original sample value of 0.228, t-statistic of 2.872, and p-value of 0.004. Transformational leadership also had a positive and significant effect on work motivation with an original sample value of 0.388, t-statistic 4.448, and p-value of 0.000. Furthermore, work motivation had a positive and significant effect on teachers' work productivity with an original sample value of 0.520, t-statistic 6.732, and p-value of 0.000. The results of the mediation analysis showed that work motivation was able to mediate the influence of transformational leadership on teacher work productivity with an original sample value of 0.202, t-statistic 3.713, and p-value 0.000. Thus, the transformational leadership of school principals plays an important role in increasing teachers' work productivity, both directly and through increasing work motivation.

***Keywords**: Transformational Leadership, Work Motivation, Teacher Work Productivity*

Ria Andriyani
Master Management, Universitas Pembangunan Panca Budi, Indonesia
e-mail: riaandriyani1501@gmail.com

Saimara Sebayang, Yohny Anwar
e-mail: saimarasebayang@dosen.pancabudi.ac.id, yohnyanwar@dosen.pancabudi.ac.id.
2nd International Conference on the Epicentrum of Economic Global Framework (ICEEGLOF)
Theme: Navigating The Future: Business and Social Paradigms in a Transformative Era.
https://proceeding.pancabudi.ac.id/index.php/ICEEGLOF

## Introduction

Education is one of the strategic sectors in human resource development because the quality of education greatly determines the ability of a nation to face social, economic, and technological changes. The success of the implementation of education is not only determined by the availability of facilities and infrastructure, but is also greatly influenced by the quality of the human resources involved in it, especially teachers as the main implementers of the learning process. Teachers have an important role in creating an effective learning environment, improving the quality of learning, and achieving national education goals. Therefore, increasing the work productivity of teachers is one of the important aspects in the management of educational institutions.

Teachers' work productivity is not only related to the amount of work completed, but also includes the quality of task implementation, the effectiveness of time use, creativity in learning, professional responsibility, and the ability to produce performance in accordance with educational standards. According to recent research, the productivity of educators is influenced by various internal and external factors, such as the principal's leadership style, work motivation, organizational culture, competence, and work environment. These factors interact with each other in shaping teachers' work behavior in the school environment (Hidayat et al., 2022).

In the context of educational organizations, school principals have a strategic position as leaders who determine the direction of school change and development. Principals not only function as administrators, but also as leaders who are able to inspire, motivate, and develop the potential of all school residents. One of the leadership approaches that is widely studied in improving organizational effectiveness is transformational leadership. Transformational leadership emphasizes the ability of leaders to build a shared vision, provide inspiration, give individual attention to organizational members, and encourage positive change through human resource empowerment.

Transformational leadership in the school environment is becoming increasingly relevant because teachers need leadership support that is able to face various challenges of modern education, such as curriculum changes, learning technology developments, demands for professional competency improvement, and changing student needs. Principals with a transformational leadership style are able to create a work environment that encourages teachers to have high commitment, increase creativity, and demonstrate better work productivity. Studies conducted by Eliyana & Ma'arif (2021) shows that transformational leadership has a positive relationship to improving individual performance through the creation of motivation and higher work engagement.

However, the influence of transformational leadership on work productivity does not always occur directly. One of the important mechanisms that explains this relationship is work motivation. Work motivation is an internal and external drive that causes a person to strive to achieve organizational goals optimally. In the school environment, teachers who have high work motivation tend to show professional responsibility, enthusiasm in teaching, willingness to develop competencies, and commitment to achieving school goals.

Work motivation is an important variable because good leadership needs to be translated into real encouragement in individual work behavior. Principals who are able to provide inspiration, rewards, support, and opportunities for development can increase teacher motivation so that it has an impact on increasing work productivity. Research by Andriani et al. (2022) shows that work motivation plays an important role as an important factor that strengthens the relationship between transformational leadership and educator performance.

In the SMP Negeri 39 Medan environment, teachers' work productivity is an important aspect that needs attention because the success of schools in achieving educational goals is

highly dependent on the quality of performance of their educators. In facing the demands of improving the quality of education, teachers are not only required to carry out teaching duties, but also to innovate learning, develop educational administration, professional development activities, and various other supporting activities. This condition requires the leadership of the principal who is able to build teachers' work motivation so that productivity can continue to increase.

Based on this phenomenon, it can be understood that the relationship between transformational leadership and work productivity is not only influenced by the leader's actions of the leader directly, but also through a psychological process in the form of teachers' work motivation. Therefore, research on the role of work motivation in mediating the influence of transformational leadership on work productivity at SMP Negeri 39 Medan is important to understand the mechanism of the relationship between these variables.

This research is expected to make a theoretical contribution to the development of education management studies, especially related to transformational leadership, work motivation, and productivity of educators. In addition, the results of this research are also expected to be practical considerations for school principals and education stakeholders in designing strategies to increase teacher work productivity through strengthening leadership and work motivation.

## Literature Review

### 2.1. Work Productivity (Y)

Work productivity is a concept that describes the ability of individuals and organizations to produce outputs optimally by utilizing available resources. Productivity is not only related to the amount of work completed, but also includes the quality of work results, the effectiveness of work processes, and the ability of individuals to achieve organizational goals.

According to Sedarmayanti (2021), work productivity is the ability of a person or group to produce goods or services by using resources effectively and efficiently. Productivity shows a comparison between the results achieved and the overall resources used during the work process.

In the context of education, teacher work productivity has special characteristics because the results of teachers' work are not only in the form of completing administrative tasks, but also in success in creating a quality learning process. Productive teachers are able to carry out teaching tasks, develop learning innovations, improve professional competence, and contribute to improving the quality of schools.

#### 2.1.1. Work Productivity Indicators (Y)

According to Sedarmayanti (2021), work productivity can be measured through several indicators, namely:

1. Ability
   Ability shows an individual's capacity to complete work based on their knowledge, skills, and competencies. In the context of teachers, abilities can be seen in mastery of learning materials, the ability to manage classes, and the ability to carry out professional tasks.
2. Increase the results achieved
   Productivity can be seen from the ability of individuals to produce better work than before. In teachers, this indicator can be seen through improving the quality of learning and achieving educational goals.
3. Work ethic
   Work ethic describes an individual's positive attitude in carrying out work as well as a desire to provide the best results.
4. Self-development

Self-development shows an individual's efforts to improve their abilities and competencies in order to be able to face the demands of work.

### 2.2. Work Motivation (Z)

Work motivation is a psychological factor that encourages a person to do work responsibly to achieve certain goals. Motivation is the basis for the emergence of work behavior because it determines a person's level of effort, perseverance, and commitment to their work.

Alrawahi et al. (2020) stated that work motivation is an impulse that arises from intrinsic factors in work that are able to increase satisfaction and encourage individuals to achieve better performance. These motivational factors include achievement, recognition, responsibility, and opportunities for advancement.

In the school environment, teachers' work motivation is an important factor because it determines the seriousness of teachers in carrying out learning, improving competence, and contributing to school progress.

Based on this opinion, work motivation can be concluded as an internal and external motivation that directs teachers' behavior to work optimally in achieving individual and organizational educational goals.

#### 2.2.1. Indicators of Work Motivation

Indicators of Work Motivation According to Alrawahi et al. (2020):

1. Achievement

   Describes the individual's drive to achieve better work results, complete tasks optimally, and achieve success at work.

2. Recognition

   Describe the need for individuals to gain appreciation or recognition for their contributions and work.

3. Responsibility

   Shows individuals' willingness to accept tasks, carry out obligations, and take responsibility for the results of their work.

4. Advancement/Growth

   Describes an individual's drive to improve their abilities, gain opportunities for growth, and improve competence in the job.

### 2.3. Transformational Leadership (X1)

Transformational leadership is a leadership style that emphasizes the leader's ability to create change through inspiration, individual development, and the formation of a shared vision.

According to Burns (2021), transformational leadership is a process in which leaders and followers increase each other's motivation and morality so that they are able to achieve higher goals.

According to Yukl (2022), transformational leadership is a leadership process that influences followers through changing values, increasing awareness of organizational goals, and providing encouragement to achieve higher performance.

Furthermore, Northouse (2022) explains that transformational leadership is a leadership approach that focuses on the relationship between leaders and followers through inspiration, motivation, and empowerment. In the context of education, the transformational leadership of school principals plays a role in creating positive change through increasing teacher motivation, professional development, and creating a school culture that supports innovation.

#### 2.4.1. Indicators of Transformational Leadership

According to Northouse (2022), transformational leadership has four indicators:

1. Idealized Influence

   Leaders become role models for the organization's members through positive values, ethics, and behavior.

2. Inspirational Motivation

   Leaders are able to build a vision and inspire organizational members to achieve common goals.

3. Intellectual Stimulation

   Leaders encourage members to think creatively and innovatively, and find solutions to problems.

4. Individualized Consideration

   Leaders pay attention to the needs, abilities, and development of each individual.

### 2.5. Research Hypothesis Development

#### 2.5.1 The Influence of Transformational Leadership on Work Motivation

Transformational leadership is a leadership approach that emphasizes the leader's ability to inspire, build trust, and encourage members of the organization to improve their abilities and commitment. In educational organizations, the principal, as a leader, has an important role in building working conditions that can increase teacher motivation.

According to Northouse (2022), transformational leadership is a leadership process that is able to increase the motivation of followers through providing vision, support, and individual empowerment. Transformational leaders not only direct work but also create relationships that encourage organizational members to grow.

Research by Andriani et al. (2022) shows that transformational leadership has a positive relationship with teacher motivation and performance. Principals who provide support, inspiration, and opportunities for self-development are able to increase teachers' morale in carrying out their professional duties.

In addition, research by Andriani et al. (2022) found that leadership and work motivation have an influence on teacher performance. These results show that the behavior of leaders who are able to build organizational support can increase the work drive of educators.

Based on this description, the research hypothesis is formulated as follows:

H1: Transformational leadership has a positive and significant effect on the work motivation of teachers at SMP Negeri 39 Medan.

#### 2.5.2 Effect of Work Motivation on Work Productivity

Work motivation is an important factor that determines a person's level of effort, perseverance, and commitment in carrying out work. Teachers who have high motivation will show greater responsibility, strive to improve competence, and produce better quality work. According to Mangkunegara (2022), work motivation is a condition that moves a person to achieve organizational goals through conscious and directed efforts. Strong motivation will encourage individuals to improve the quality of work results and achieve better achievements.

Research by Paais and Pattiruhu (2021) shows that work motivation has a positive relationship with individual performance. High motivation encourages a person to show greater involvement and effort in completing work. In the context of education, research by Paais & Pattiruhu (2021) shows that motivation is one of the main factors related to performance. Motivation acts as a link between organizational factors and performance achievement. Teachers who have high work motivation will be more motivated to increase productivity by

improving the quality of learning, innovating teaching methods, and completing assignments effectively. Based on this description, the research hypothesis is formulated as follows:

H2: Work motivation has a positive and significant effect on the work productivity of teachers at SMP Negeri 39 Medan.

### 2.5.3 The Influence of Transformational Leadership on Work Productivity

The transformational leadership of the principal has an important role in increasing the work productivity of teachers because the leader is able to create a work environment that supports professional development and improves the quality of work.

According to Khan et al. (2021), transformational leadership can increase individual effectiveness by providing motivation, support, and increased involvement of organizational members.

In the school environment, principals who apply transformational leadership can encourage teachers to be more innovative, increase professional responsibility, and be oriented towards improving the quality of learning.

Research by Rizkie et al. (2022) shows that the transformational leadership of school principals has an influence on teacher performance both directly and through other organizational factors. This shows that the leadership characteristics of school principals play a role in building conditions that support the improvement of teachers' work outcomes.

Recent research has also shown that transformational leadership is associated with increased teacher motivation, commitment, and quality of work in an educational setting.

Based on this description, the research hypothesis is formulated as follows:

H3: Transformational leadership has a positive and significant effect on the work productivity of teachers at SMP Negeri 39 Medan.

### 2.5.4 The Role of Work Motivation in Mediating the Influence of Transformational Leadership on Work Productivity

Transformational leadership not only has a direct influence on work productivity, but it can also work through increased work motivation as a psychological mechanism in the organization.

When principals apply transformational leadership through inspiration, individual attention, competency development support, and creativity stimulation, teachers will experience increased work motivation. This motivation then encourages teachers to improve their work quality and productivity.

Research by Kaya et al. (2024) shows that transformational leadership is associated with an improvement in teachers' positive psychological conditions, including job satisfaction and creativity, through certain mediation mechanisms.

Furthermore, research by Jabbour et al. (2025) shows that transformational leadership and the work environment are related to teacher performance, with psychological factors of work being an important part in explaining this relationship.

Based on this description, work motivation can be seen as an intervening variable that explains how the transformational leadership of school principals can increase teacher work productivity.

So the research hypothesis is formulated as follows:

H4: Work motivation mediates the influence of transformational leadership on teacher work productivity at SMP Negeri 39 Medan.

## 2.6. Conceptual Framework

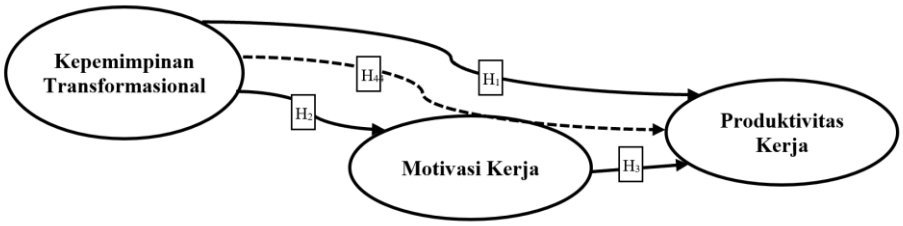



**Figure 1. Conceptual Framework**

## Research Methodology

### 3.1. Types and Approaches to Research

This study applies a quantitative approach with a survey method. The quantitative approach was chosen because this study focuses on testing the relationship between variables through numerical data obtained from the results of measurements on respondents. The research data were collected using an instrument in the form of a questionnaire, which was then statistically analyzed to obtain an overview of the relationship and influence between the variables studied.

According to Sugiyono (2022), quantitative research is a research method based on the positivism paradigm, which is used to study a certain population or sample by utilizing research instruments as a data collection tool. The data obtained is then analyzed using statistical techniques with the aim of testing previously formulated hypotheses.

This research is included in the type of explanatory research, which is research that aims to explain the pattern of relationships between variables and identify the influence of independent variables on dependent variables, either directly or through intermediate variables (mediation). In this study, explanatory research is used to analyze the influence of transformational leadership on work productivity through the role of work motivation as a mediating variable.

### 3.2. Research Location and Time

This research was conducted at SMP Negeri 39 Medan, which is located on Jalan Young Panah Hijau, Gang Tambak, Ward 9, Labuhan Deli Village, Medan Marelan District, Medan City. The location of the study was chosen because the school is relevant to the research problem, especially related to the transformational leadership of the principal, teacher work motivation, and teacher work productivity, which is the focus of the study in this study.

The selection of the research location was based on the results of initial observations (pre-survey) which showed the existence of phenomena related to the application of leadership, the level of work motivation, and the productivity of teachers in supporting the achievement of educational goals in schools. Therefore, SMP Negeri 39 Medan is considered suitable as a place to obtain empirical data regarding the relationship between research variables.

The implementation of the research was carried out in the 2025/2026 academic year, which included several stages of research activities, ranging from the preparation and testing of research instruments, the process of collecting data from respondents, analyzing and processing data, to the preparation of research results reports.

### 3.3. Population and Research Sample

#### 3.3.1. Research Population

The research population is the entire element that is the target of the research and has certain characteristics in accordance with the focus of the study that has been set by the researcher. The population is the basis for determining the data source that will be used to obtain information related to the phenomenon being studied.

According to Sugiyono (2022), population is a generalized area that includes objects or subjects with certain characteristics and qualities that have been determined by researchers to be studied so that they can produce research conclusions.

The population in this study is all teachers of SMP Negeri 39 Medan, which is 46 people. All of these teachers are part of the population because they are directly related to the research variables, namely the transformational leadership of the principal, work motivation, and the work productivity of teachers.

### 3.3.2. Research Sample

Samples are part of the population that is selected to obtain research data and describe the characteristics of the entire population. The determination of the sample needs to be adjusted to the conditions of the population so that the data obtained can provide a picture that is in accordance with the research objectives.

Given that the number of population in this study is relatively small, namely 46 teachers, the sampling technique used is saturated sampling or the census method. According to Sugiyono (2022), saturated sampling is a sample determination technique that is carried out using all members of the population as a research sample if the population is relatively limited.

Based on this technique, all teachers of SMP Negeri 39 Medan, totaling 46 people, were designated as research respondents. The use of all population members as a sample is expected to be able to provide a more comprehensive picture of the relationship between transformational leadership, work motivation, and teacher work productivity.

## 3.4. Data Types and Sources

### 3.4.1. Data Primer

Primary data is the main information obtained directly from the first source that is the object of research. This data is used to obtain an empirical picture of the variables being studied based on real conditions in the field.

In this study, primary data were obtained through the distribution of questionnaire instruments to all teachers of SMP Negeri 39 Medan as research respondents. The data obtained from the questionnaire was used to measure respondents' perceptions of the principal's transformational leadership, work motivation, and teacher work productivity.

### 3.4.2. Secondary Data Seconds

Secondary data is supporting data obtained not directly from respondents, but through various sources of documentation that are relevant to research needs.

In this study, secondary data were obtained through various supporting sources such as school documents, profiles of SMP Negeri 39 Medan, data on the number of teachers, scientific literature, reference books, and previous research results related to transformational leadership variables, work motivation, and work productivity.

## 3.5. Data Collection Techniques

The main data collection technique in this study is a questionnaire. The questionnaire is compiled based on the indicators of each research variable. Respondents are asked to provide answers according to the perceived conditions. Measurement uses a Likert scale with five categories.

## 3.7. Data Analysis Techniques

This study uses the Structural Equation Modeling analysis method based on Partial Least Squares (SEM-PLS) with the help of SmartPLS software. SEM-PLS is used because this study has a complex model with latent variables and mediating relationships.

The stages of analysis are carried out through several stages:

1. Measurement Model Analysis (Outer Model)
   Outer model analysis is carried out to evaluate the relationship between the indicators and the latent variables studied. This test aims to ensure that the research instrument has a good level of validity and reliability. The stages of outer model testing include:
   a) Convergent Validity Test
      The convergent validity test is carried out by looking at the outer loading value of each indicator and the Average Variance Extracted (AVE) value. An indicator is declared to meet the convergent validity if it has an outer loading value of ≥ 0.70 and an AVE value of ≥ 0.50.
   b) Construct Reliability Test
      The reliability test aims to determine the consistency of indicators in measuring latent variables. The test is carried out by looking at Cronbach's Alpha and Composite Reliability (CR) values. Constructs are said to be reliable if they have Cronbach's Alpha and Composite Reliability values ≥ 0.70.
2. Structural Model Analysis (Inner Model)
   Internal model analysis is carried out to test the relationships between latent variables that have been formulated in the research model. Structural model testing includes:
   a) Coefficient of Determination (R-Square/$R^2$)
      The $R^2$ value is used to determine how much the independent variables explain the variation of the dependent variable. The greater the $R^2$ value, the greater the model's ability to explain the research phenomenon.
   b) Effect Size ($f^2$)
      Effect size testing was used to determine the magnitude of the influence of each exogenous variable on the endogenous variable in the research model.
3. Pengujian Hypothesis (Bootstrapping)
   Hypothesis testing was carried out using the bootstrapping method on SmartPLS to obtain path coefficients, t-statistics, and p-value values. The research hypothesis was accepted if the t-statistic value met the test criteria and the p-value was less than the significance level used (generally $\alpha = 0.05$).
   a) Direct Effect
      Direct influence is used to test the direct relationship between exogenous and endogenous variables without going through intermediate variables (mediators).
   b) Indirect Effect
      Indirect influence is used to test the relationship between variables involving mediator/intermediary variables.
4. Evaluation of the Overall Model (Model Fit)
   Model evaluation is carried out to see the level of suitability of the research model. Testing can be carried out through several indicators such as the Standardized Root Mean Square Residual (SRMR) value and other model feasibility indicators available on SmartPLS.

Based on all these stages, the results of the SEM-PLS analysis are used to test the relationship between variables, test the research hypothesis, and explain the research model that has been built empirically.

## Results

### 4.1. Outer Model Analysis

Outer Model analysis using the PLS Algorithm, yielding:

1) Validity Test

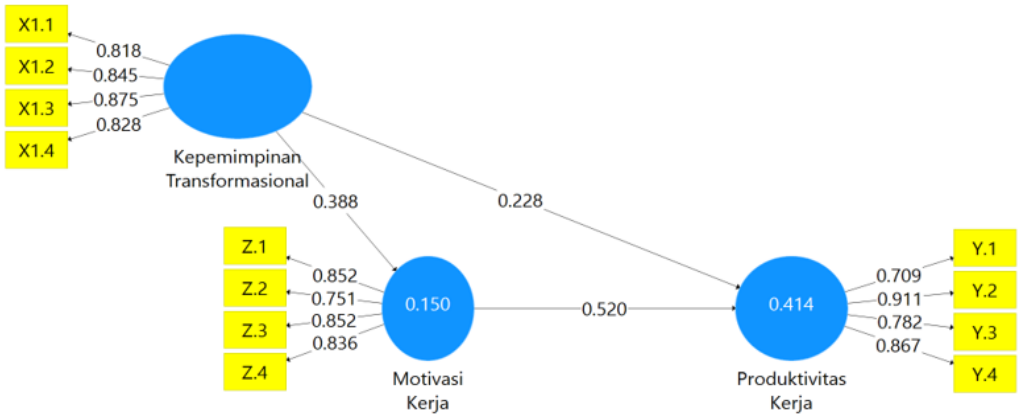
The validity test aims to find out the extent to which the indicator or statement item is able to accurately measure the variables being studied. The instrument is said to be valid if the questions in the questionnaire really represent the research concept. The validity test in this study is seen from the value of outer loadings in the following table.

**Table 4.1. Nilai *Outer Loadings***

| | Transformational Leadership | Work Motivation | Work Productivity |
|---|---|---|---|
| X1.1 | 0,818 | | |
| X1.2 | 0,845 | | |
| X1.3 | 0,875 | | |
| X1.4 | 0,828 | | |
| Y.1 | | | 0,709 |
| Y.2 | | | 0,911 |
| Y.3 | | | 0,782 |
| Y.4 | | | 0,867 |
| Z.1 | | 0,852 | |
| Z.2 | | 0,751 | |
| Z.3 | | 0,852 | |
| Z.4 | | 0,836 | |

Source: SmartPLS data processing results, 2026

Based on the values in Table 1 above, the results of the outer model testing through the loading factor/outer loadings values show that all indicators in each variable have a loading value ≥ 0.70. This shows that each indicator is measured validly and robustly. Therefore, it can be concluded that all items in the questionnaire have met the validity criteria, and can be seen in the following image.




**Picture 2. Outer Loading**

2) Reliability Test

The reliability test aims to determine the consistency of the research instrument. A reliable instrument means that it provides stable and consistent results when used repeatedly. In SmartPLS, reliability is tested using:

a) Cronbach's Alpha
   Measures the internal consistency between indicators in a single variable. Good value ≥ 0.70

b) Composite Reliability (CR)

Measures construct reliability more accurately in PLS-SEM. A good value is ≥ 0.70. The higher the reliability value, the more consistent the indicator is in measuring the research variables.

c) Average Variance Extracted (AVE)

Measures the extent to which an indicator is integrated with its construct in the SmartPLS or SEM measurement model. This value indicates how much of the percentage of variance in its indicators that is successfully explained by the latent variable. For more details, the reliability test in this study is shown in the following table.

Table 4.2. Test *Construct Reliability and Validity*

| | *Cronbach's Alpha* | *Composite Reliability* | *Average Variance Extracted (AVE)* |
|---|---|---|---|
| Transformational Leadership | 0,862 | 0,907 | 0,708 |
| Work Motivation | 0,842 | 0,894 | 0,678 |
| Work Productivity | 0,837 | 0,891 | 0,674 |

Source: SmartPLS data processing results, 2026

Based on Table 4.2, the results of the Construct Reliability and Validity test show that all research variables have met the criteria for construct reliability and validity of the construct. Cronbach's Alpha value for the variables of Transformational Leadership is 0.862, Work Motivation is 0.842, and Work Productivity is 0.837. All of these values are above the minimum limit of 0.70, thus indicating that all constructs have a good level of internal consistency.

Furthermore, the Average Variance Extracted (AVE) value shows that the variables of Transformational Leadership are 0.708, Work Motivation is 0.678, and Work Productivity is 0.674. All AVE values have met the minimum criterion of 0.50, which means that each construct is able to explain more than 50% of the variance of its indicators and meet the convergent validity.

Thus, it can be concluded that all research variables, namely Transformational Leadership, Work Motivation, and Work Productivity, have met the requirements for reliability and validity of the construct, making them suitable for structural model analysis (inner model) at the next stage.

## 4.2. Structural Model Testing (Inner Model)

### 4.2.1. Coefficient of Determination ($R^2$)

In assessing a model with PLS, it starts by looking at the R-square for each dependent latent variable. The table below is the result of estimating R-square using SmartPLS.

Table 4.3. Hasil *R Square*

| | R Square | R Square Adjusted |
|---|---|---|
| Work Motivation | 0,150 | 0,142 |
| Work Productivity | 0,414 | 0,402 |

Source: SmartPLS data processing results, 2026

In Table 4.3, there is an R-squared value for both dependent variables. For the work motivation variable, there is an R-squared value of 0.150; this means that the influence of transformational leadership is 0.150, or 15%. The rest is in other variables outside the model. The R-squared value of work productivity is 0.414, meaning the influence of transformational leadership and work motivation is 0.414 or 41.4%; the rest is in other variables outside the model.

### 4.2.2. Effect Size ($f^2$) Model Struktural

Effect Size ($f^2$) The Structural Model is used to determine the magnitude of the influence or contribution of exogenous variables on endogenous variables in the research model. The value of $f^2$ indicates the strength of the effect of one construct on another construct.

Table 4.4. Effect Size ($f^2$) Test Results of Structural Models

| Hubungan Antar Variabel | Value $f^2$ | Interpretasi |
|---|---|---|
| Transformational Leadership → Work Motivation | 0,177 | Medium |
| Transformational Leadership → Work Productivity | 0,075 | Small |
| Work Motivation → Work Productivity | 0,393 | Large |

Source: SmartPLS data processing results, 2026

Based on the results of the Effect Size ($f^2$) test, the relationship between transformational leadership and work motivation had an $f^2$ value of 0.177, which indicated a medium effect. Furthermore, the influence of transformational leadership on work productivity obtained an $f^2$ value of 0.075, which was included in the category of small effects. Meanwhile, the relationship between work motivation and work productivity obtained an $f^2$ value of 0.393 which indicates a large effect.

These results show that work motivation has the strongest contribution in explaining teachers' work productivity, while transformational leadership plays a greater role in increasing work motivation compared to its direct influence on work productivity.

## 4.3. Hypothesis Testing

### 4.3.1. Direct Influence Between Variables

The direct influence between variables can be seen in the value of path coefficients. The results of data processing show that the value of direct influence can be seen in the following table.

Table 4.5. Path Coefficients (Direct Influence)

| | *Original Sample* | *T Statistics* | *P Values* | Conclusion |
|---|---|---|---|---|
| Transformational Leadership -> Work Productivity | 0,228 | 2,872 | 0,004 | Accepted |
| Transformational Leadership -> Work Motivation | 0,388 | 4,448 | 0,000 | Accepted |
| Work Motivation - > Work Productivity | 0,520 | 6,732 | 0,000 | Accepted |

Source: SmartPLS data processing results, 2026

In the results of Table 4.5, the following direct influence values are shown:

1. The influence of transformational leadership on work productivity

   The results showed that transformational leadership had a positive and significant effect on work productivity with a t-statistic value of 2.872 (>1.96) and a significance value of 0.004 (<0.05). This shows that the better the implementation of transformational leadership by school principals, the more teacher work productivity will increase.

   This positive influence shows that school principals who are able to provide inspiration, motivation, attention to teachers' needs, and encourage innovation are able to create a work environment that supports improving the quality of teachers' work. Transformational leadership encourages teachers to have a higher commitment, increase creativity in learning, and carry out tasks more effectively.

   The results of this study are in line with the research of Muliati (2022), which shows that the transformational leadership of school principals has a significant influence on teacher performance. In addition, Berek et al.'s (2024) research also found that transformational leadership has a positive effect on teacher performance, which shows that the role of school

leaders is an important factor in encouraging increased work outcomes for educators. Furthermore, the research of Aditya et al. (2024) and Reza et al. (2026) strengthens these results by showing that transformational leadership contributes to increasing teacher work productivity through the creation of a work environment that supports innovation and collaboration.

Thus, it can be concluded that the transformational leadership of the principal is one of the important factors that can increase the work productivity of teachers at SMP Negeri 39 Medan.

2. The Influence of Transformational Leadership on Work Motivation

   The results showed that transformational leadership had a positive and significant effect on work motivation with a t-statistical value of 4.448 (>1.96) and a significance value of 0.000 (<0.05). This shows that the better the implementation of transformational leadership by school principals, the higher the teachers' work motivation.

   These positive influences show that school principals who are able to provide inspiration, support, individual attention, and encourage the development of teachers' abilities can increase teachers' motivation and work spirit in carrying out their professional duties. Transformational leadership is also able to create a positive work environment so that teachers feel valued, have attachment to the organization, and are encouraged to achieve school goals.

   The results of this study are in line with the research of Andriani et al. (2022), which shows that transformational leadership has a positive influence on work motivation and teacher performance. In addition, Khan et al.'s (2021) research also explains that transformational leadership is able to increase individual motivation through inspiring, supporting, and empowering organizational members.

   Thus, it can be concluded that the transformational leadership of school principals is one of the important factors that can increase teachers' work motivation at SMP Negeri 39 Medan.

3. The Effect of Work Motivation on Work Productivity

   The results showed that work motivation had a positive and significant effect on work productivity with a t-statistical value of 6.732 (>1.96) and a significance value of 0.000 (<0.05). This shows that the higher the work motivation of teachers, the more work productivity increases.

   This positive influence shows that teachers who have internal motivation, work spirit, and a strong commitment to carrying out their duties will be better able to produce optimal work. High work motivation encourages teachers to improve the quality of learning, carry out responsibilities effectively, develop professional competence, and strive to achieve school goals to the maximum.

   The results of this study are in line with the research of Paais and Pattiruhu (2021) which shows that work motivation has a positive influence on individual performance. High motivation is able to increase a person's involvement and effort in completing work. In addition, Riyanto et al.'s (2021) research also found that work motivation has an effect on improving employee performance, which shows that work motivation is an important factor in producing better productivity.

   Thus, it can be concluded that work motivation is one of the main factors that play a role in increasing teacher work productivity. The higher the motivation that teachers have, the greater the tendency of teachers to produce quality performance in supporting the achievement of school goals.

### 4.3.2. Indirect Influence Between Variables

The indirect influence between variables can be seen in the value of specific indirect effects. The results of data processing show that the value of indirect influence can be seen in Table 5 below.

Table 4.6. Specific Indirect Effects

| | Original Sample | T Statistics | P Values | Conclusion |
|---|---|---|---|---|
| Transformational Leadership -> Work Motivation -> Work Productivity | 0,202 | 3,713 | 0,000 | Accepted |

Source: SmartPLS data processing results, 2026

In Table 4.6, there is an indirect influence between variables, namely the influence of transformational leadership on work productivity through work motivation. The results of the study show that transformational leadership has a positive and significant effect on work productivity through work motivation with a t-statistical value of 3.713 (>1.96) and a significance value of 0.000 (<0.05). This shows that work motivation plays a role as an intervening variable that is able to strengthen the relationship between transformational leadership and work productivity.

This influence shows that the transformational leadership of school principals not only directly affects teachers' work productivity, but also through increased work motivation. Principals who are able to provide inspiration, support, awards, and development opportunities to teachers can increase teachers' work motivation. This increased motivation then encourages teachers to carry out their duties more effectively, improve the quality of learning, and produce more optimal work productivity.

The results of this study are in line with the research of Khan et al. (2021), which found that transformational leadership has an influence on individual performance through psychological mechanisms such as work motivation and work involvement. In addition, the research of Andriani et al. (2022) also shows that transformational leadership plays a role in increasing teachers' work motivation, which then has an impact on improving the performance of educators.

Thus, it can be concluded that work motivation has an important role as a mediating variable in the relationship between transformational leadership and teacher work productivity. The more effective the implementation of transformational leadership by the principal, the higher the teacher's work motivation, which will ultimately increase the work productivity of teachers at SMP Negeri 39 Medan.

### 4.4. Evaluation of the Overall Model (Model Fit)

The evaluation of the fit model was carried out to determine the level of suitability of the overall research model with the data used.

Table 4.7. Model Fit

| Indicator | Saturated Model | Estimated Model |
|---|---|---|
| SRMR | 0,086 | 0,086 |
| d_ULS | 0,579 | 0,579 |
| d_G | 0,247 | 0,247 |
| Chi-Square | 147,670 | 147,670 |
| NFI | 0,785 | 0,785 |

Source: SmartPLS data processing results, 2026

Based on Table 4.7, the results of the Model Fit test showed an SRMR (Standardized Root Mean Square Residue) value of 0.086 in the Saturated Model and Estimated Model. This value showed that the model had an acceptable level of suitability because it was close to the general criterion limit of 0.08–0.10 in the evaluation of the PLS-SEM model.

The d_ULS value of 0.579 and the d_G of 0.247 indicate the size of the difference between the empirical correlation matrix and the correlation matrix generated by the model. The value is used as a supporting indicator in assessing the suitability of the model.

Furthermore, the Chi-Square value of 147.670 shows the magnitude of the difference between the estimated model and the observed data. Meanwhile, the NFI (Normed Fit Index) value of 0.785 indicates that the model's suitability level reaches 78.5% compared to the null model.

Thus, based on the results of the Model Fit test, the research model can be stated to have a fairly good level of fit and is suitable for testing the relationship between variables, namely Transformational Leadership, Work Motivation, and Work Productivity.

## Conclusion

### 5.1. Conclusion

Based on the results of data analysis using Structural Equation Modeling–Partial Least Squares (SEM-PLS), the following conclusions were obtained:

1. Transformational leadership has a positive and significant effect on teachers' work productivity with an original sample value of 0.228, a t-statistic value of 2.872 (>1.96), and a p-value of 0.004 (<0.05).
2. Transformational Leadership has a positive and significant effect on Teacher Work Motivation with an original sample value of 0.388, a t-statistic value of 4.448 (>1.96), and a p-value of 0.000 (<0.05).
3. Work Motivation has a positive and significant effect on Teacher Work Productivity with an original sample value of 0.520, a t-statistic value of 6.732 (>1.96), and a p-value of 0.000 (<0.05).
4. Transformational Leadership has a positive and significant effect on Teacher Work Productivity through Work Motivation with an original sample value of 0.202, a t-statistic value of 3.713 (>1.96), and a p-value of 0.000 (<0.05). This shows that Work Motivation plays a role as an intervening variable.

### 5.2. Suggestions

Based on the results of the research on the influence of transformational leadership on work productivity through teachers' work motivation, the suggestions that can be given are as follows:

1. Transformational Leadership

   School principals are expected to continue to improve the implementation of transformational leadership by providing inspiration, support, and attention to teachers' needs. School principals also need to improve effective communication, provide appreciation for teacher performance, and encourage innovation in the learning process to create a work environment that can increase teacher motivation and productivity.
2. Work Motivation

Teachers are expected to continue to increase work motivation through competency development, increased responsibility, and commitment to their duties as educators. In addition, schools need to create supportive working conditions, provide awards, and build a positive work atmosphere so that teacher motivation is maintained and increased.

3. Teacher Work Productivity

   Schools need to make efforts to increase teachers' work productivity through periodic performance evaluations, providing support for professional development, and providing facilities that support learning activities. Teachers are also expected to be able to improve the quality of work, discipline, and effectiveness in carrying out their duties so that educational goals can be achieved optimally.

4. For the Next Researcher

   Further research is expected to develop this research by adding other variables that have the potential to affect teachers' work productivity, such as organizational culture, job satisfaction, competence, work environment, or organizational commitment. In addition, research can be conducted on different research objects in order to obtain broader and deeper results.

## References

[1] Aditya, D. Y., Setyaningsih, S., & Laihad, G. H. (2024). Optimizing teacher work productivity through transformational leadership, organizational climate, and teamwork. Jurnal Iqra': Kajian Ilmu Pendidikan, 9(2). https://doi.org/10.25217/ji.v9i2.5258

[2] Alrawahi, S., Sellgren, S. F., Altouby, S., Alwahaibi, N., & Brommels, M. (2020). The application of Herzberg's two-factor theory of motivation to job satisfaction among healthcare workers in Oman. SAGE Open Medicine, 8, 1–9. https://doi.org/10.1177/2050312120964887.

[3] Andriani, S., Kesumawati, N., & Kristiawan, M. (2022). The influence of transformational leadership and work motivation on teacher performance in educational organizations. International Journal of Educational Review, 4(1), 1–12.

[4] Berek, Y. T., Irsan, & Lubis, J. (2024). The influence of school culture, transformational leadership, and teacher motivation on teacher performance. Randwick International of Education and Linguistics Science Journal, 5(3). https://doi.org/10.47175/rielsj.v5i3.1072

[5] Burns, J. M. (2021). Leadership. New York: Harper & Row.

[6] Eliyana, A., & Ma'arif, S. (2021). The effect of job satisfaction and organizational commitment on employee performance under transformational leadership. European Research on Management and Business Economics, 27(1), 100–120.

[7] Hidayat, R., Patras, Y. E., & Rosita, T. (2022). Improving teacher productivity through leadership and organizational factors in educational institutions. Journal of Educational Management and Instruction, 2(2), 85–96.

[8] Jabbour Al Maalouf, N., El Achi, S., Barakat, H., & Mawad, J. L. (2025). The impact of transformational leadership and work environment on teachers' performance in crisis-affected educational settings. Administrative Sciences, 15(7), 256. https://doi.org/10.3390/admsci15070256.

[9] Kaya, A. (2024). The association between transformational leadership and teachers' creativity: Professional resilience and job satisfaction as mediators. Frontiers in Psychology, 15, Article 1514621. https://doi.org/10.3389/fpsyg.2024.1514621

[10] Khan, H., Rehmat, M., Butt, T. H., Farooqi, S., & Asim, J. (2021). Impact of transformational leadership on work performance, burnout, and social loafing: A mediation model. Future Business Journal, 7, Article 40.
[11] Mangkunegara, A. P. (2022). Manajemen Sumber Daya Manusia Perusahaan. Bandung: Remaja Rosdakarya.
[12] McClelland, D. C. (2021). Human Motivation. Cambridge University Press.
[13] Muliati, A. (2022). Pengaruh kepemimpinan transformasional terhadap motivasi dan kinerja guru yang dimoderasi oleh iklim sekolah di MTsN 1 Medan. Islamic Education, 2(1), 25–30. https://doi.org/10.57251/ie.v2i1.368
[14] Northouse, P. G. (2022). Leadership: Theory and practice (9th ed.). Thousand Oaks, CA: Sage Publications.
[15] Paais, M., & Pattiruhu, J. R. (2021). Effect of Motivation, Leadership, and Organizational Culture on Satisfaction and Employee Performance. The Journal of Asian Finance, Economics and Business, 7(8), 577–588. https://doi.org/10.13106/JAFEB.2020.VOL7.NO8.577.
[16] Reza, M., Sebayang, S. A., & Anwar, Y. (2026). The Influence of Transformational Leadership And Organizational Culture On Employee Performance at PT Pelindo Multi Terminal. Social Sciences Journal, 3(2), 351-358.
[17] Riyanto, S., Endri, E., & Herlisha, N. (2021). Effect of work motivation and job satisfaction on employee performance: Mediating role of organizational commitment. Problems and Perspectives in Management, 19(3), 162–174.
[18] Sebayang, S. A. M., Sukiman, & Agus, R. (2024). Unraveling determinants of risk culture in Islamic banking: Perspectives from Importance-Performance Matrix Analysis. IQTISHODUNA: Jurnal Ekonomi Islam, 13(2), 797–812. https://doi.org/10.54471/iqtishoduna.v13i2.3446
[19] Sedarmayanti. (2021). Sumber daya manusia dan produktivitas kerja. Bandung: CV Mandar Maju.
[20] Sugiyono. (2022). Metode penelitian kuantitatif, kualitatif, dan R&D. Bandung: Alfabeta.
[21] Yukl, G. (2022). Leadership in organizations (9th ed.). New York: Pearson.