# The Effect of Participatory Leadership on Performance through Psychological Empowerment and Trust-in-Supervisors

Helmi Buyung Aulia Safrizal<sup>1</sup>, Anis Eliyana<sup>2\*</sup>, Muhammad Firdaus<sup>3</sup>, Pinky Dwi Rachmawati<sup>2</sup>

<sup>1</sup>Universitas Airlangga, Indonesia & Universitas Trunojoyo, Indonesia

<sup>2</sup>Universitas Airlangga, Indonesia

<sup>3</sup>Universitas 17 Agustus 1945, PT Usaha Mulia Digital Indonesia (PT UMDI)

Corresponding Author: Anis Eliyana Email: anis.eliyana@feb.unair.ac.id

#### **ABSTRACT**

The rapid development of technology and information in an organization is inseparable from the role of human resources in carrying out company operations. The leadership of the organization will guide and motivate human resources to carry out operational activities, to produce good quality work, and lead to the achievement of organizational goals. The leader's ability to motivate and influence his members will affect the performance of his employees. Research conducted at PT. Petrokimia Gresik focuses on participatory leadership relationships to performance through psychological empowerment and trust-in-supervisors. Participatory leadership styles. psychological empowerment, and trust-in-supervisors will show an increase in a performance marked by high profits and make the company develop sustainably. The purpose of this study was to determine the effect of participatory leadership, psychological empowerment, and trust-insupervisors on performance, either directly or indirectly. The approach in this study uses a quantitative approach, and the data in this study were obtained through interviews and distributing questionnaires to 38 employees of PT. Petrokimia Gresik in the Human Resources Development section. The testing technique used in this research is SEM-PLS.

**Keywords:** Participative Leadership, Psychological Empowerment, Trust-In-Supervisor, Performance, Quality Job, Corporate Sustainability

#### **Correspondence:**

Anis Eliyana Universitas Airlangga, Indonesia Email: <u>anis.eliyana@feb.unair.ac.id</u>

# **INTRODUCTION**

In realizing national food security, fertilizer industry development companies continue to be encouraged in developing the domestic fertilizer industry. Fertilizer is one of the important products from the agricultural sector which can contribute 20% to the success of increasing agricultural production and contribute 15-30% to the cost structure of rice farming. Minister of Industry Airlangga Hartato emphasized that to develop the national fertilizer industry, it has been formulated as a supporting policy. One of the policies proposed is the revitalization of the fertilizer industry. Airlangga Hartato said, given the competition in the international fertilizer business (especially urea products), revitalization is very urgent to be done. So far, the national urea production capacity has reached 8 million tons per year, while the existing demand is higher, which is 9 million tons per

The intense competition in the fertilizer industry has resulted in the holding company of state-owned company PT. Pupuk Indonesia (Persero) has formulated many strategies. This can be caused by the number of new factories that have sprung up abroad and benefit from cheap gas prices so that overseas factory prices are more competitive. President Director of PT. Pupuk Indonesia (Persero) Aas Sadikin has also said that the current price of gas as a raw material for fertilizer is around the US \$ 6-7 per million metric British thermal units (MMBTU). Meanwhile, competitors' gas prices are below this price. That way the smooth distribution of fertilizers must be maintained by the fertilizer industry because the stability of gas raw material prices also affects other stability. Based on Presidential Instruction No. 2/2010 regarding the revitalization of the fertilizer industry, PT. Pupuk Indonesia (Persero) carried out the revitalization in two stages for five fertilizer factories in Indonesia and one of them is PT. Petrokimia Gresik. PT. Petrokimia Gresik is not only tasked with providing and distributing subsidized fertilizers but also acts as an accelerator of progress in the food sector in Indonesia. The increasingly diverse business challenges are driving forces for PT. Petrokimia Gresik is transforming to maintain its existence and continue to improve its competitiveness. To win a business competition, PT. Petrokimia Gresik needs to anticipate matters related to non-subsidized products through efforts such as more aggressive promotions, bringing products closer to consumers, and improving product quality and cost-effectiveness.

The intense competition in the fertilizer industry has been in the holding company of state-owned company PT. Pupuk Indonesia (Persero) has formulated many strategies. This can be caused by the number of new factories that have sprung up abroad and benefit from cheap gas prices so that overseas factory prices are more competitive. President Director of PT. Pupuk Indonesia (Persero) Aas Sadikin has also said that the current price of gas as a raw material for fertilizer is around the US \$ 6-7 per million metric British thermal units (MMBTU). Meanwhile, competitors' gas prices are below this price. That way the smooth distribution of fertilizers must be maintained by the fertilizer industry because the stability of raw material gas prices also affects other stability. Based on Presidential Instruction No. 2/2010 regarding the revitalization of the fertilizer industry, PT. Pupuk Indonesia (Persero) carried out the revitalization in two stages for five fertilizer factories in Indonesia and one of them is PT. Petrokimia Gresik. PT. Petrokimia Gresik is not only tasked with providing and distributing subsidized fertilizers but also acts as an accelerator of progress in the food sector in Indonesia. The increasingly diverse business challenges are driving forces for PT. Petrokimia Gresik is transforming to maintain its existence and continue to improve its competitiveness. To win a business competition, PT. Petrokimia Gresik needs to anticipate matters related to non-subsidized products through efforts such as more aggressive promotions, bringing products closer to consumers, and improving product quality and cost-effectiveness.

Participatory leadership is defined as behavior that refers to a leadership style in which supervisors encourage their subordinates to take certain responsibilities at work (Newman et al., 2016). Through the provision of support, encouragement, and influence from participatory leaders, will facilitate the involvement of subordinates in the decision-making process. Participatory leadership is known to be participatory when consulting with subordinates, when getting ideas and opinions and when integrating their suggestions into decisions about how the organization will work (Rana et al., 2019).

The application of participatory leadership will involve employees in making decisions by generating feelings in employees that employees have a role in the organization. Psychological empowerment conceptualized as a form of intrinsic motivation to do this work. Psychological empowerment is a process that triggers a feeling of self-efficacy among employees in which formal organizational practices and informal techniques in providing effective information eliminate all factors that amplify powerlessness (Iqbal et al., 2020). Psychological empowerment will be related to employee attitudes which are relatively based on the needs of employees who are increasingly empowered. This tends to encourage psychological empowerment in the sense of equality, justice, and accountability. In other words, employees who feel empowered at work will develop an active rather than passive orientation towards their job roles (Guerrero et al., 2018).

Referring to the exchange-based model proposed by Huang et al., (2010), it is clear that participatory leadership has a positive impact on performance which is focused on the reciprocal relationship between leaders and employees. The exchange-based model emphasizes that participatory leadership behavior gives a message that supervisors have self-confidence and respect for their employees. Through supervisors, it is hoped that employees can grow trust so that employees can carry out their work well. Trust is important for stable social relationships and trust in supervisors for employees will directly affect service quality (Birkenmeier & Sanséau, 2016). Additionally, according to Silla et al., (2020) trust can also allow employees to feel free to speak honestly because trust involves the risk that other parties may not meet these expectations. This research focuses on trust in supervisors, including direct leaders and executive management. as a target of trust. It will also refer to employees who can create good quality work and support companies that grow sustainably. Because sustainability is very important for organizations related to ecological, social, and economic performance (Pislaru et al., 2019).

To accelerate sustainable growth and win the competition in the free market, particularly in the fertilizer industry, PT. Petrokimia Gresik is committed to building a highly competitive advantage. Therefore, PT. Petrokimia Gresik is committed to improving the quality of human resources to form a productive and

professional workforce that can create added value and pass the challenges that will occur. Through the influence of participatory leadership, psychological empowerment, trust-in-supervisors are expected to create a high performance which is an important aspect for the company. The existence of this research requires a persuasive role of the leader to motivate employees and convey that no matter how small the employee's contribution, in the end, it will still affect the overall performance of the company so that employees will feel that they are valued and their work becomes meaningful.

#### LITERATURE REVIEW

#### **Theoretical Basis**

#### Participatory Leadership

Leadership can encourage or persuade followers to achieve common goals by creating a more authoritative, effective, targeted, and controlled work environment (Abadiyah et al., 2020). A leader's influence can also help employees achieve company goals. Therefore, the influence activity of the leader is an ability that a leader must have in changing the way of thinking, attitudes, behavior, views, and the willingness of employees to achieve the company's vision and mission. This research will focus on participatory leadership. Participatory leadership is defined as behavior that refers to a leadership style in which supervisors encourage their subordinates to take certain responsibilities at work (Newman et al., 2016). Through the provision of support, encouragement, and influence from participatory leaders, will facilitate the involvement of subordinates in the decision-making process. Participatory leadership is known to be participatory when consulting with subordinates, when getting ideas and opinions and when integrating their suggestions into decisions about how the organization will work (Rana et al., 2019). Participatory leadership can also increase the intrinsic valence of work and thus satisfaction for subordinates with a high need for achievement and autonomy, because participatory leadership will be appropriate in circumstances where followers want to be involved and because their level of competence is high (Buttenschon, 2016). This approach is characterized by consulting at the direction of the leader and focusing on employees managing themselves, rather than being the locus of control (Eva et al., 2019). Under participatory leaders, responsibility is delegated to followers, who are actively involved in problem-solving (Lam et al., 2015).

# Psychological Empowerment

Another empowerment approach known as psychological empowerment is known to refer to employees' feelings of strength and intrinsic motivation to do their job tasks psychological empowerment (Knezovic & Musrati, 2018). Empowerment will be described as the creation of strength through collaboration with others and the ability to influence one's ideology (self-empowerment) (Iqbal et al., 2020). So that empowerment is essential for employees and is free from management policies and practices. Iqbal et al., (2020) also argue that psychological empowerment is a process that triggers feelings of self-efficacy among employees in which formal organizational practices and informal techniques in providing effective information eliminate all factors that amplify powerlessness. According to Qing et al., (2019) the concept of psychological empowerment is the perception of meaning, the perception of competence, and the perceived impact and self-determination of themselves and increasing selfesteem in the workplace. Psychological empowerment will be related to employee attitudes which are relatively based on the needs of employees who are increasingly empowered. This tends to encourage psychological empowerment in the sense of equality, justice, and accountability. In other words, employees who feel empowered at work will develop an active rather than passive orientation towards their job roles (Guerrero et al., 2018). These employees will feel like and feel able to shape and control their roles and work context. Because psychological empowerment can increase their sense of autonomy and self-determination and they feel they can control well over the given task and the overall working environment (Tripathi et al., 2020).

#### Trust-In-Supervisor

Trust can be defined as a psychological state consisting of the intention to accept vulnerability based on positive expectations of the intentions or behavior of others (Eva et al., 2019). The concept of trust has been studied in various disciplines (for example, sociology, management, and economics) at the individual or institutional level (Birkenmeier & Sanséau, 2016). The researcher also stated that trust is important for stable social relations and trust in supervisors for employees will directly affect service quality (Birkenmeier & Sanséau, 2016). Besides, according to Silla et al., (2020) trust can also allow employees to feel free to speak honestly because trust involves the risk that other parties may not meet these expectations. This research focuses on trust in supervisors, including direct leaders and executive management. as a target of trust. Trust in the supervisor will refer to the employee's willingness to rely on promises, actions, words, or intentions towards his direct supervisor (Ji & Jan, 2020). Affective trust will refer to what arises from the emotional bond between two parties in a relationship. This type of trust develops when one party believes the other is acting in their best interest. While cognitive trust refers to what emerges from an assessment by one party about the personal characteristics that stand out from another party as competence, integrity, reliability, dependability. (Eva et al., 2019).

#### Performance

Work performance is defined as productivity, effectiveness, and efficiency when employees maximize their work behavior and resources (Qing et al., 2019). The performance will be based on activities related to formal duties and responsibilities outlined in employee job descriptions. So that performance will refer to employee behavior as determined by the job description and contribute to the technical core of the organization. Performance can also be expressed as the result of job completion which also represents the level of achievement of each job and the fulfillment of expectations, policies, or requirements for the official role of the organization (Wardani & Eliyana, 2020). Performance is also defined as productivity which represents the quality, quantity, and contribution of work which assumes that when productivity is high, the overall performance of the organization will also be high. In addition, according to Eliyana et al., (2019) performance is a stage of achievement in completing certain jobs. This means that work performance is a stage of achievement as a work achievement carried out by individuals from the organization. It is also strongly influenced by three main factors, namely organizational support, management ability or effectiveness, and the ability of every individual who works in the organization.

# Hypothesis Development Participatory Leadership for Performance

Leaders with a participatory leadership style will always consult with subordinates to get ideas and opinions and integrate their suggestions into decisions about how the organization will run (Rana et al., 2019). Participatory leadership, including managers and employees, will work together with a common goal in decision making and problem-solving. Participatory managers in decision making will support staff with the necessary resources to achieve goals and lead to better performance and understanding in the organizational environment (Sheshi & Kercini, 2017). It will be more effective if the subordinates are highly trained and involved in their work. Participatory leaders will invite their employees to provide input and share in the decision-making process (Yukl, 2015). That way there will be a process of joint influence in decision making, which also refers to the influence of leaders who apply participatory leadership styles on employee performance. Newman et al., (2016) found that some workers (especially new employees or interns) want to be given more opportunities by their supervisors to participate in challenging jobs and be involved in decision making and project coordination. Furthermore, participatory leadership in supervisors will be an important factor behind individual performance in these work settings. Because participatory leaders will be more able to do this.

Participatory leadership also refers to employee motivation as the foundation for producing superior employee performance in leadership effectiveness that leads to high productivity (Lumbasi et al., 2016). Polston-Murdoch, (2013) states that leaders who use a participatory style will have better employee performance than those who don't. Negron quoted by Lumbasi et al., (2016) also stated that the participatory leadership style will show an increase in employee performance which is characterized by high profits. In addition, Danladi Mohammed et al., (2014) found a significant relationship between participatory leadership style and employee performance in an organization. This can occur because a participatory leader's behavior will be effective in achieving high employee performance. After all, the leader consults with subordinates in clarifying, setting, and achieving goals and will also show that there is a significant correlation to performance. Furthermore, according to Sheshi & Kercini, (2017) through performance achievement will refer to the ability of a company to achieve goals such as a large market share, good product, and work quality, high profits, good financial results, and survival at a predetermined time using relevant strategies for action. So that participatory leaders will be very important in terms of business performance. Thus, this study hypothesizes that:

H1: Participatory leadership affects the performance of employees of PT. Petrokimia Gresik.

# Participatory Leadership on Performance through Psychological Empowerment

Empowerment is very important in promoting certain attitudes and behaviors among the workforce from a practical point of view, and as a very interesting variable from a research point of view (Knezovic & Musrati, 2018). Psychological empowerment refers to employee attitudes that are relatively based on the needs of employees who are increasingly empowered (Qing *et al.*, 2019). Through the influence of the impact of participatory leadership

behavior which is one form of empowerment practice on employee psychological empowerment, it will show that the behavior of the leader plays an important role in giving subordinates an empowering experience, contributes directly to feelings of self-esteem and final determination of self-esteem (X. Huang et al., 2006). Participatory leadership will be able to increase follower participation by giving followers greater attention, flexibility, support, influence, information, and other resources, and thus solving problems in consultation with followers before making decisions. Furthermore, employees will experience psychological empowerment because it refers to the employee's needs which are fulfilled with more empowerment (Guerrero et al., 2018). Koberg, Boss, Senjem, & Goodman quoted by (X. Huang et al., 2006) have also found a leader approach (participatory leadership style) that is positively related to psychological empowerment.

When the term psychological empowerment was coined, researchers paid attention to the relationship with the resulting performance (TETIK, 2016). Because the final goal of learning psychological empowerment is to improve performance. Performance is significantly influenced by the dimensions of psychological empowerment in the form of meaning and self-determination based on the theory of job characteristics (Hackman & Oldham quoted by (Iqbal et al., 2020)). In such a scenario, employees will feel encouraged in the assigned task, and they will exert themselves to work well and are determined to complete it efficiently (Tripathi et al., 2020). According to Guerrero et al., (2018) psychological empowerment will act as a driver that guides behavior and improves employee performance. Empowered employees will persistence and resourcefulness, can increase task effort, and feel intrinsically motivated by their tasks (Orth et al., 2015), which tends to improve their performance in the workplace. Psychological empowerment also changes the level of commitment (Waheed et al., 2018), where the loss of psychological empowerment is so important that it cannot be canceled to be replaced with new induction. Employees increased their efforts to complete their continuously with assignments psychological empowerment. Furthermore, employees will predict problems and act proactively and independently (Ugwu et al., 2014) to lead to optimal sustainable performance.

Several studies have revealed that psychological empowerment significantly mediates the relationship between participatory leadership and the resulting performance (J. T. Huang, 2012). Participatory leadership management styles are considered to be able to improve the work results of appropriate subordinates through induced psychological empowerment (Qing et al., 2019). When a leader has empowered his employees, from the point of view of social exchange theory, the employee will replicate into positive behavior by being more responsive to the leader which refers to the resulting positive job performance. Participatory leadership will integrate their employees' suggestions into decisions about how the organization will run (Rana et al., 2019). Furthermore, employees will feel they have the opportunity to participate in decision making and make them get a bigger intrinsic reward from their work and a high level of psychological empowerment, which will result in better performance. Thus, this study is hypothesized:

- H2: Participatory Leadership has an effect on Psychological Empowerment in employees of PT. Petrokimia Gresik.
- H3: Psychological Empowerment affects the performance of employees of PT. Petrokimia Gresik.
- H4: Participatory Leadership has an effect on performance through Psychological Empowerment in employees of PT. Petrokimia Gresik.

#### Participatory Leadership for Performance through Trust-in-supervisor

Participatory leadership is known to facilitate the social exchange process by fostering trust (Eva et al., 2019). As the relationship between supervisors and employee members matures, a reciprocal social exchange process develops in which positive behavior from supervisors is reciprocated by employee members (Newman et al., 2016). Meanwhile, trust-in-supervisor will be used to capture this social exchange relationship. Through the influence of participatory leadership will trigger employees to feel trust-in-supervisor. Leaders or supervisors will implement policies, practices, and procedures that have been developed or encouraged by executive management and can thus foster trust (Silla et al., 2020). Participatory leadership behavior will make employees feel that their leader has treated them with respect, fairness, and pride. That way, they will reciprocate by showing a high level of trust in the leader.

According to Birkenmeier & Sanséau, (2016) trust-insupervisor is a link that connects human resource management with the work performance that will be produced. The supervisor's role is very important to ensure that employees are competent in their work (Abrell et al., 2011). For employees, this means that they must be able to trust their superiors because it ensures that they will receive adequate training so that it will also refer to high-quality work performance. In addition, the superior's perception can also influence the trust relationship (Birkenmeier & Sanséau, 2016). Trust-insupervisor will show employees' willingness to rely on the supervisor's actions (Ji & Jan 2020). Abusive supervisor behavior is likely to harm employees and vice versa. In the workplace, the trust-in-supervisor will be the belief in an employee that their supervisor will provide work-related assistance to assist in improving their job performance. In other words, a high level of employee trust in supervisors can increase the likelihood that they will get help in contributing to providing information and trying to solve a problem together.

Eva et al., (2019) argue that in order for companies to be supervisor not only need to inspire confidence in themselves to improve performance, but they also need to facilitate trust in employees. This is important to make employees believe that they can become leaders who help them in doing their job. Apart from that Huang et al. (2010) have also had growing evidence showing that participatory leadership affects subordinates' through higher levels of trust-inperformance supervisor, especially for employees in non-managerial positions. By providing support and opportunities to assume responsibility and participate in decisionmaking, participatory leaders must gain emotional trust in their subordinates by building close emotional bonds between the two parties (Newman et al., 2016). This will

make employees more willing to provide advice and participate in the decision-making process and guide them to retaliate through participating in work-related behaviors (such as performance) that their superiors expect. Trust-in-supervisors tend to improve employee job performance because they have greater confidence that participatory leaders will influence them to be seen as more competent and fairer and then make decisions for the benefit of the business (Eva *et al.*, 2019). Thus, this study hypothesizes:

- H5: The Effect of Participatory Leadership on Trust-in-supervisors for employees of PT. Petrokimia Gresik.
- H6: The influence of Trust-in-supervisor on the performance of PT. Petrokimia Gresik.
- H7: The Influence of Participatory Leadership on Performance through Trust-insupervisors for employees of PT. Petrokimia Gresik.

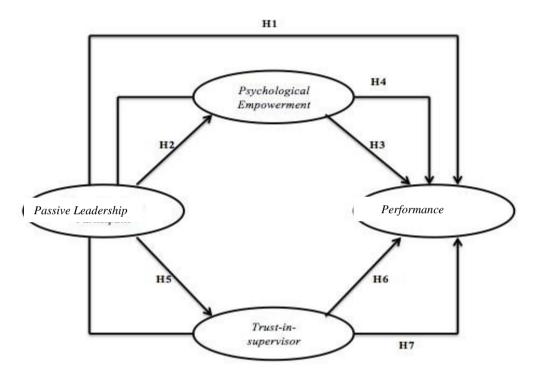


Figure 1. Research Model

#### **RESEARCH METHODS**

#### Research Approach

The method used in this research is the quantitative method, and the data obtained will then be given a score, so that the data obtained can be measured and analyzed using PLS (Partial Least Square) analysis techniques. The exogenous variable in this study was participatory leadership, the mediating variable in this study was psychological empowerment and trust-in-supervisor, while the endogenous variable in this study was performance. Measurement of the independent variable, mediating variable, and the dependent variable will refer to the respondent's answer to the statements in the questionnaire using a Likert scale. Each indicator on each variable in this study is measured using a 5-level Likert scale provided that the value 1 represents Strongly Disagree (STS), Value 2 represents Disagree (D), Value 3 represents Neutral (N), Value 4 represents Agree (A), and Value 5 represents Strongly Agree (SA).

#### Measurement

# Participatory Leadership

Participatory leadership in the human resource development division of PT. Petrokimia Gresik is defined as leadership behavior in which the leader of the PSDM division of PT. Petrokimia Gresik will involve its members to convey ideas and suggestions on an issue related to the organization in the context of making decisions taken by

the leader. Participatory leadership measurement indicators according to Arnold et. al., (2000).

# Psychological Empowerment

Psychological empowerment is a belief that arises from within a person who has the ability to carry out work activities related to skills and competencies. Psychological empowerment in the human resource development division of PT. Petrokimia Gresik is a psychological statement that appears on employees which shows that employees can complete their work. Indicators for measuring psychological empowerment according to Spreitzer, G.M. (1995).

#### Trust-In-Supervisor

Trust-in-supervisor is a psychological statement that appears in employees and the form of trust in their leaders for positive behavior carried out by leaders following employee expectations. Trust-in-supervisor at the human resource development division of PT. Petrokimia Gresik will also demonstrate the trust that comes from within the employees in their leaders that their leaders have high integrity. The indicator of trust-in-supervisor measurement according to Rosseau and Robinson (1994).

#### **Performance**

Performance refers to a contribution made by employees to work effectively. The definition of performance applied to the human resource development division of PT.

Petrokimia Gresik is the performance of employees as measured by the work standards set by PT. Petrokimia Gresik. Performance appraisal indicators according to Mathis and Jackson (2006:376).

# **Data and Sample Collection Techniques**

The data collection method used in this research will be through a preliminary survey and a questionnaire. The population used in this study were employees of PT. Petrokimia Gresik with 3,384 employees. While the research sample used in this study at PT. Petrokimia Gresik is in the human resource development division with 38 employees. The sampling technique in this research is quota sampling which is the determination of the sample from the population with certain characteristics or the number desired by the researcher. Therefore, the sample

used in this study were 38 employee respondents in the human resource development division at PT. Petrokimia Gresik.

#### **Data Analysis Technique**

This research is known to use the Partial Least Square (PLS) analysis technique which is used to confirm the theory and to find out the relationship that has no theoretical foundation.

#### **Data Analysis**

The path analysis model for all latent variables in the Partial Least Square (PLS) consists of two sets of relationships, namely measurement models and structural models. In addition, using Partial Least Square (PLS) requires data to pass through the outer model evaluation and inner model evaluation.

**Table 1**. Respondent Characteristics

Characteristics	Classification	Amount	Percentage	Total%
Gender	Male	24	63,16%	63,16
	Female	14	36,84%	100
Ages	< 25 yo	2	5,26%	5,26
	25 - 30 yo	17	44,74%	50
	31 - 35 yo	1	2,63%	52,63
	36 - 40 yo	5	13,16%	65,79
	> 40 yo	13	34,21%	100
Education	Senior High School	8	21,05%	21,05
	Bachelor	23	60,53%	81,58
	Post Bachelor	7	18,42%	100
Length of Work	< 5 years	12	31,58%	31,58
	5 - 10 years	8	21,05%	52,63
	10 - 15 years	2	5,26%	57,89
	> 15 years	16	42,11%	100
Status	Married	26	68,42%	68,42
	Not Married	12	31,58%	100

Note: Five demographic variables were coded in the data as Gender, Age, Education, Years of Employment, and Status.

Table 2. Convergent and Discriminant Validity

Variables	Code	Factor Lo	ading			ά	CR	(AVE)
Participatory	PL1	0,7548				0,7506	0,8414	0,5704
Leadership	PL2	0,7742						
	PL3	0,7787						
	PL4	0,7114						
Psychological	PE1		0,7682			0,8556	0,8923	0,5800
Empowerment	PE2		0,7480					
	PE3		0,7760					
	PE4		0,7563					
	PE5		0,7692					
	PE6		0,7513					
Trust-In-Supervisor	TIS1			0,7807		0,8312	0,8809	0,5969
	TIS2			0,7550				
	TIS3			0,7796				
	TIS4			0,8061				
	TIS5			0,7399				
Performance	P1				0,7357	0,8803	0,9070	0,5822

P <sub>2</sub>	0,7778		
P3	0,7466		
P4	0,7626		
P5	0,7378		
P6	0,7822		
P7	0,7965		

Note: PL (Participatory Leadership), PE (Psychological Empowerment), TIS (Trust-In-Supervisor), and P (Performance). Based on Table 2, it is known that the results of the Validity Test show that all indicators have met the research requirements, and it can be stated that the construct of each variable affects the latent variable. Because these results have met the validity and reliability requirements for research.

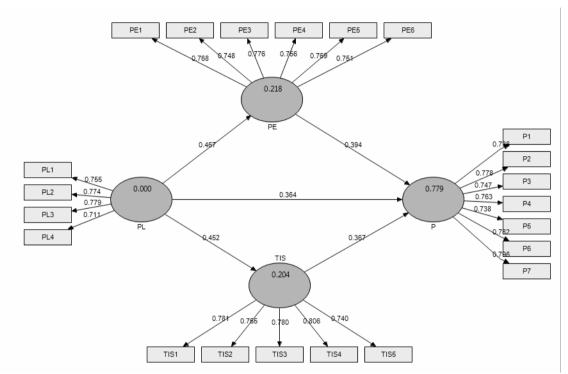


Figure 2. Outer Model

Table 3. Results Analysis Description

Indicator	Mean	Category
Participatory Leadership		
Employees stated that the leader of PT. Petrokimia Gresik encourages working group members to submit ideas.	4,18	Good
Employees stated that the leader of PT. Petrokimia Gresik provides the opportunity for working group members to express their opinions.	4,26	Very Good
Employees stated that the leader of PT. Petrokimia Gresik considered the ideas presented by the team even though the leader did not agree.	3,95	Good
Employees stated that the leader of PT. Petrokimia Gresik makes decisions based on ideas and suggestions submitted by employees.	3,95	Good
Mean Total	4,09	Good
Psychological Empowerment		Good
Employees of PT. Petrokimia Gresik stated that the work done is very important for PT. Petrokimia Gresik.	3,92	Good
Employees of PT. Petrokimia Gresik said that employees feel confident in their ability to complete their work.	3,95	Good
Employees of PT. Petrokimia Gresik states that employees have discretion or freedom in determining how they do their jobs.	3,87	Good
Employees of PT. Petrokimia Gresik states that employees master the skills / skills required for their work.	3,97	Good
Employees of PT. Petrokimia Gresik stated that employees have the opportunity to take the initiative in carrying out their work.	4,03	Good
Employees of PT. Petrokimia Gresik stated that employees have a big influence on the issues that are happening in their department.	3,55	Good
Mean Total	3,88	Good

<i>Trust-In-Supervisor</i> Employees of PT. Petrokimia Gresik stated that employees have complete trust in their leaders.	3,95	Good Good
Employees of PT. Petrokimia Gresik states that its leaders are honest with employees.	4,03	Good
Employees of PT. Petrokimia Gresik stated that employees believe that their leaders have high integrity.	4,16	Good
Employees of PT. Petrokimia Gresik stated that the leader has good behavior.	4,05	Good
Employees of PT. Petrokimia Gresik states that employees are treated fairly by their leaders.	3,89	Good
Mean Total	4,04	Good
Performance	•	Good
Employees of PT. Petrokimia Gresik stated that employees can complete the work according to the targets to be achieved.	4,13	Good
Employees of PT. Petrokimia Gresik states that employees can complete their work within a predetermined period of time.	4,03	Good
Employees of PT. Petrokimia Gresik stated that the work carried out was in accordance with the standards set by PT. Petrokimia Gresik.	4,08	Good
Employees of PT. Petrokimia Gresik stated that employees have extensive knowledge about the work being performed.	4,03	Good
Employees of PT. Petrokimia Gresik stated that employees provide ideas to solve problems that arise.	3,97	Good
Employees of PT. Petrokimia Gresik stated that employees are willing to work with employees of PT. Petrokimia Gresik.	4,13	Good
Employees of PT. Petrokimia Gresik stated that employees are willing to accept input or opinions from colleagues.	4,26	Very Good
Mean Total	4,09	Good

Note: Based on Table 3 shows a description of the respondents' answers to the Participatory Leadership, Psychological Empowerment, Trust-In-Supervisor, and Performance variables in the Good category.

**Table 4.** Collinearity Testing the Effect of Participatory Leadership, Psychological Empowerment, and Trust-in-Supervisors Against Y

Construct	Tolerance	VIF
Participatory Leadership (PL)	0,688	1,453
Psychological Empowerment (PE)	0,756	1,323
Trust-in-Supervisor (TIS)	0,769	1,300

Note: Based on Table 4, the collinearity test shows that the VIF value of all predictor constructs is still below the limit value of 5.00, it can be concluded that there is no collinearity between the predictor constructs in the structural model.

Table 5. The Results of Significance Testing of the Path Coefficient of the Structural Model

Relationship	Path Coefficient	t statistics	Note
Participatory Leadership -> Psychological Empowerment	0,4672	3,4517	Significant
Participatory Leadership -> Trust-in- Supervisor	0,4519	2,9626	Significant
Participatory Leadership -> Performance	0,3641	2,2126	Significant
Psychological Empowerment -> Performance	0,3938	5,2775	Significant
Trust-in-Supervisor -> Performance	0,3668	2,1636	Significant

Note: Testing the significance of the path coefficient (path) can be done by comparing the value of t statistics with the value of t table at the 5% significance level, which is 1.96. If the value of t statistics> 1.96, then the path coefficient is considered a significant influence.

**Table 6.** Significance Test Results for Total Effects

Relationship	Path Coefficient	t statistics	Note
Participatory Leadership -> Psychological Empowerment	0,7139	8,6851	Significant

Note: Testing the significance of the path coefficient (path) can be done by comparing the value of t statistics with the value of t table at the 5% significance level, which is 1.96. If the value of t statistics> 1.96, then the path coefficient is considered a significant influence.

Tabel 7. The value of the coefficient of determination or R Square (R2) and Stone-Geisser (Q2)

Endogenous Variables	R2 value	Q2 value
Psychological Empowerment (PE)	0,2183	0,1216
Trust-in-Supervisor (TIS)	0,2042	0,1203
Performance (P)	0,7795	0,4234

Note: Based on Table 7 the coefficient of determination will represent the effect of the combination of exogenous latent variables on endogenous latent variables. This coefficient also represents the amount of variance in endogenous constructs which can be explained by all the exogenous constructs that influence it. R2 values range from 0 to 1, where the higher value indicates a higher level of predictive accuracy.

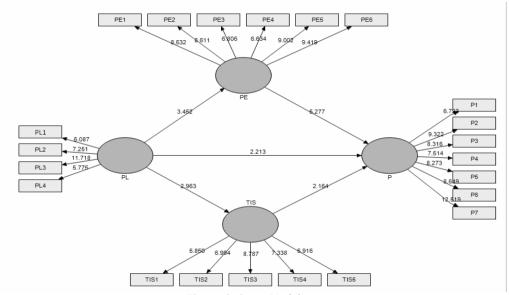


Figure 3. Outer Model

#### **RESULTS AND DISCUSSION**

#### Results

# Participatory Leadership for Performance

The first hypothesis states that there is a significant between participatory leadership performance. Based on the tests and results of the analysis carried out in this study, it is known that the path coefficient of the influence of participatory leadership (PL) on performance (P) is positive with a statistical t value of 2.2126> a t table value of 1.96, This shows the results of the analysis that participatory leadership (PL) has a significant positive effect on performance (P). Thus, the first hypothesis which states that there is a significant relationship between participatory leadership style and performance is accepted. This is supported by research by Polston-Murdoch, (2013) which states that leaders who use a participatory style will have better employee performance than those who don't. In addition, Danladi Mohammed et al., (2014) found a significant relationship

between participatory leadership style and employee performance in an organization. So that it can be stated when participatory leadership at PT. Petrokimia Gresik has been successfully implemented, so the resulting performance will increase. This shows that there is a leader who applies participatory leadership at PT. Petrokimia Gresik, which can affect the performance of their employees because participatory leadership is able to involve employees in decision making so that employees feel involved. Thus, the employees of PT. Petrokimia Gresik will show their best performance because of the employees' self-confidence. This can happen because participatory leader behavior will be effective in achieving high employee performance because the leader of PT. Petrokimia Gresik in consultation with employees of PT. Petrokimia Gresik in clarifying, setting, and achieving goals and will also show that there is a significant correlation to performance.

# Participatory Leadership in Psychological Empowerment

The second hypothesis states that there is a significant between participatory leadership psychological empowerment. Based on the tests and results of the analysis carried out in this study, it is known that the path coefficient of the influence of participatory leadership (PL) on psychological empowerment (PE) is positive with a statistical t value of 3.4517> a t table value of 1.96., this shows the results of the analysis that participatory leadership (PL) has a significant positive effect on psychological empowerment (PE). Thus, the second hypothesis which states that there is a significant relationship between participatory leadership and psychological empowerment is accepted. This is supported by research by Koberg, Boss, Seniem, & Goodman quoted by (X. Huang et al., 2006) who have found a leader approach (participatory leadership style) that is positively related to psychological empowerment. Through the influence of the impact of participatory leadership behavior which is a form of empowerment practice on employee psychological empowerment, it will show that the behavior of the leaders of PT. Petrokimia Gresik plays an important role in providing their employees with empowering experiences, which contribute directly to feelings of self-worth and ultimate self-determination. When the leader of PT. Petrokimia Gresik is able to implement participatory leadership well where leaders involve their employees, it will increase the feeling of being valued in employees. This shows that the better the participatory leadership of PT. The application of Petrokimia Gresik will increase psychological empowerment for PT. Petrokimia Gresik.

# Psychological Empowerment on Performance

The third hypothesis states that there is a significant influence between psychological empowerment on performance. Based on the tests and results of the analysis carried out in this study, it is known that the path coefficient of the effect of psychological empowerment (PE) on performance (P) is positive with a statistical t value of 5,2775> a t table value of 1.96. This shows the results of the analysis that psychological empowerment (PE) has a significant positive effect on performance (P). Thus, the third hypothesis which states that there is a significant relationship between psychological empowerment and performance is accepted. This is supported by TETIK research, (2016) that when the term psychological empowerment was coined, it paid attention to the relationship with the performance that would be generated. In addition, according to Guerrero et al., (2018) psychological empowerment will act as a driver that guides behavior and improves employee performance. Because the final goal of learning psychological empowerment is to improve performance. Performance is significantly influenced by the dimensions of psychological empowerment in the form of meaning and selfdetermination based on job characteristics theory. In such a scenario, employees of PT. Petrokimia Gresik will feel energized in the assigned task, and they will exert themselves to work well and are determined to complete it efficiently which in turn leads to an increase in their performance. When the psychological empowerment feeling arose in the employees of PT. Petrokimia Gresik is high, the employees will feel capable and competent to complete their work so that the performance given is also high. This indicates that the better psychological empowerment being implemented at PT. Petrokimia

Gresik, the better employee performance of PT. The Petrokimia Gresik.

# Participatory Leadership on Performance through Psychological

The fourth hypothesis states that there is a significant between participatory leadership influence performance through psychological empowerment. Based on the tests and results of the analysis carried out in this study, it is known that the exogenous variable of participatory leadership has a significant effect on performance when the psychological empowerment and trust-in-supervisor mediator variables are removed from the analysis model, as seen from the t statistical variable value of 10, 0767 which is> t critical 1.96. In testing the significance of the path coefficient (path) previously it can be explained that the participatory leadership variable has significant positive effect on psychological empowerment and psychological empowerment has a significant positive effect on performance. Furthermore, it is also known that participatory leadership has a direct positive effect on performance without intervening variables. This indicates that these conditions have met the criteria for mediation and thus will indicate the effect of mediation. Therefore, the fourth hypothesis which states that there is a significant relationship between participatory leadership and performance through psychological empowerment is accepted. This is supported by research by Huang, (2012) which has revealed that psychological empowerment significantly mediates the relationship between participatory leadership and the resulting performance. Participatory leadership of PT. Petrokimia Gresik will integrate their employees' suggestions into decisions about how the organization will work. When the leader of PT. Petrokimia Gresik has empowered its employees, from the point of view of social exchange theory, these employees will replicate into positive behavior by being more responsive to their leaders which refers to positive work performance. Furthermore, employees of PT. Petrokimia Gresik will feel that they have the opportunity to participate in decision making and make them get a bigger intrinsic reward from their work and a high level of psychological empowerment, which will result in the performance of PT. Petrokimia Gresik which is better.

# Participatory Leadership towards Trust-In-Supervisor

The fifth hypothesis states that there is a significant influence between participatory leadership on trust-insupervisors. Based on the tests and results of the analysis carried out in this study, it is known that the path coefficient of the influence of participatory leadership (PL) on trust-in-supervisor (TIS) is positive with a statistical t value of 2.9626> t table value of 1, 96, this shows the results of the analysis that participatory leadership (PL) has a significant positive effect on trust-in-supervisor (TIS). Thus, the fifth hypothesis which states that there is significant relationship between participatory leadership and trust-in-supervisors is accepted. This is supported by research according to Eva et al., (2019) that participatory leadership is known to facilitate the social exchange process by fostering trust. When the participatory leadership of PT. Petrokimia Gresik has been successfully implemented, open communication is well established by the leader of PT. Petrokimia Gresik as well as from employees can increase the high level of confidence in employees to their leaders. This shows that the better the participatory leadership is applied at PT. Petrokimia Gresik, the trust in its leader will be even

higher. Participatory leadership behavior of PT. Petrokimia Gresik will make employees feel that their leaders have treated them with respect, fairness, and pride. That way, employees of PT. Petrokimia Gresik will reciprocate by showing a high level of trust in the leader.

# Trust-In-Supervisor on Performance

The sixth hypothesis states that there is a significant influence between trust-in-supervisor on performance. Based on the tests and analysis results that have been carried out in this study, it is known that the path coefficient of the influence of trust-in-supervisor (TIS) on performance (P) is positive with a statistical t value of 2.1636> a t table value of 1, 96, this shows the results of the analysis that trust-in-supervisor (TIS) has a significant positive effect on performance (P). Thus, the sixth hypothesis which states that there is a significant relationship between trust-in-supervisor performance is accepted. This is supported by research according to Birkenmeier & Sanséau, (2016) trust-insupervisor which is a link that connects human resource management with the work performance that will be produced. The role of the supervisor of PT. Petrokimia Gresik is very important to ensure that their employees are competent in their work. For employees of PT. Petrokimia Gresik, this means that they must be able to trust their superiors because it can ensure that they will receive adequate training so that it will also refer to high quality work performance. When employees of PT. Petrokimia Gresik feels that they are treated fairly and leaders show honest behavior consistently, will create a feeling of trust-in-supervisor in the employees of PT. Petrokimia Gresik which makes them willing to give more effort for the performance given because the employees of PT. Petrokimia Gresik believes that its leaders will not cheat or be partial. This shows that the higher the trust-insupervisor that is in the employees of PT. Petrokimia Gresik, the performance given by the employees of PT. Petrokimia Gresik is getting better.

# Participatory Leadership for Performance through Trust-in-supervisor

The seventh hypothesis states that there is a significant between participatory leadership performance through trust-in-supervisors. Based on the tests and results of the analysis carried out in this study, it is known that the previous path coefficient explains that the participatory leadership variable has a significant positive effect on trust-in-supervisor and trust-insupervisor has a significant positive effect on performance. In addition, participatory leadership also has a direct and positive effect on performance. This indicates that these conditions have met the criteria for mediation and thus will indicate the effect of mediation. Therefore, the sixth hypothesis which states that there is a significant relationship between participatory leadership and performance through trust-in-supervisors is accepted. This is supported by research X. Huang et al., (2010) which has growing evidence which shows that participatory leadership affects the performance of subordinates through higher levels of trust-in-supervisor, especially for employees in non-managerial positions. By providing support and opportunities to assume responsibility and participate in decision making, participatory leaders at PT. Petrokimia Gresik must earn emotional trust in their employees by building close emotional bonds between the two parties. This will make the employees of PT. Petrokimia Gresik is more willing to advise and participate in the decision-making process and guides them to

retaliate through participating in work-related behaviors (such as performance) that their superiors expect.

#### **CONCLUSIONS AND SUGGESTIONS**

#### **Conclusions**

Based on the results of data processing using Partial Least Square, in this study it can be concluded that participatory leadership has a significant effect on performance at PT. Petrokimia Gresik, Participatory leadership has a significant effect on psychological empowerment at PT. Petrokimia Gresik, Psychological empowerment has a significant effect on performance at PT. Petrokimia Gresik, Participatory leadership has a significant effect on performance through psychological empowerment at PT. Petrokimia Gresik, Participatory leadership has a significant effect on trust-in-supervisors at PT. Petrokimia Gresik, Trust-in-supervisor has a significant effect on the performance at PT. Petrokimia Gresik, participatory leadership has a significant effect on performance through trust-in-supervisors at PT. Petrokimia Gresik. According to Oing et al., (2019) performance can ensure the realization of the company's business and operational goals through proper human resources, which is one of the competitive advantages available to improve performance that can affect organizational results. In this study, the company used the influence of participatory leadership variables, psychological empowerment, and trust-in-supervisors in influencing the performance improvement for human resources in the company. That way, PT. Petrokimia Gresik can refer to their employees in creating good quality work and supporting companies that grow sustainably.

#### Suggestions

Based on the results of this study through the discussion and conclusions of this study, this research can be used as a recommendation by the management of the company in measuring the influence of participatory leadership on performance through psychological empowerment and trust-in-supervisors. It is known that it can also influence in facilitating the involvement of subordinates in the decision-making process, providing information that effectively eliminates all factors that reinforce helplessness, gives employees the willingness to rely on promises, actions, words, or intentions towards their direct superiors, and can create productivity that is high. In addition, it is known that the average result of the smallest performance variable is 3.97 regarding the opinions of employees in providing ideas for solving problems that arise. Although it is still in the good category, these results show the smallest average. Thus, it is suggested that employees should be more active in providing ideas, especially when solving a problem that may occur while doing work. Because that way employees will feel their behavior at work is getting better and they can maximize their behavior and work resources.

#### REFERENCE

- Abadiyah, R., Eliyana, A., & Sridadi, A. R. (2020). Motivation, leadership, supply chain management toward employee green behavior with organizational culture as a mediator variable. *International Journal of Supply Chain Management*, 9(3), 981–989.
- Abrell, C., Rowold, J., Weibler, J., & Moenninghoff, M. (2011). Evaluation of a Long-Term Transformational Leadership Development Program. German Journal of Human Resource Management: Zeitschrift Für

- Personalforschung. https://doi.org/10.1177/239700221102500307
- 3. Birkenmeier, B. J., & Sanséau, P. Y. (2016). The relationships between perceptions of supervisor, trust in supervisor and job performance: A study in the banking industry. *Journal of Applied Business Research*, 32(1), 161–172. https://doi.org/10.19030/jabr.v32i1.9530
- 4. Buttenschon, M. (2016). Reflective insights from today's fire service leaders: A narrative inquiry to inform the next generation's leadership development. In *ProQuest Dissertations and Theses*.
- Danladi Mohammed, U., Olafemi Yusuf, M., Mohammed Sanni, I., Ndule Ifeyinwa, T., Usman Bature, N., & Olalekan Kazeem, A. (2014). The Relationship between Leadership Styles and Employees' Performance in Organizations (A Study of Selected Business Organizations in Federal Capital Territory, Abuja Nigeria). European Journal of Business and ManagementOnline).
- Eliyana, A., Ma'arif, S., & Muzakki. (2019). Job satisfaction and organizational commitment effect in the transformational leadership towards employee performance. *European Research on Management and Business Economics*, 25(3), 144–150. https://doi.org/10.1016/j.iedeen.2019.05.001
- 7. Eva, N., Newman, A., Miao, Q., Cooper, B., & Herbert, K. (2019). Chief executive officer participative leadership and the performance of new venture teams. International Small Business Journal: Researching Entrepreneurship, 37(1), 69–88. https://doi.org/10.1177/0266242618808558
- 8. Guerrero, S., Chênevert, D., Vandenberghe, C., Tremblay, M., & Ben Ayed, A. K. (2018). Employees' psychological empowerment and performance: how customer feedback substitutes for leadership. *Journal of Services Marketing*, 32(7), 868–879. https://doi.org/10.1108/JSM-09-2017-0325
- Huang, J. T. (2012). Be proactive as empowered? The role of trust in one's supervisor in psychological empowerment, feedback-seeking, and job performance. *Journal of Applied Social Psychology*. https://doi.org/10.1111/j.1559-1816.2012.01019.x
- Huang, X., Iun, J., Liu, A., & Gong, Y. (2010). Does participative leadership enhance work performance by inducing empowerment or trust? The differential effects on managerial and non-managerial subordinates. *Journal of Organizational Behavior*. https://doi.org/10.1002/job.636
- Huang, X., Shi, K., Zhang, Z., & Cheung, Y. L. (2006). The impact of participative leadership behavior on psychological empowerment and organizational commitment in Chinese state-owned enterprises: The moderating role of organizational tenure. *Asia Pacific Journal of Management*, 23(3), 345–367. https://doi.org/10.1007/s10490-006-9006-3
- 12. Iqbal, Q., Ahmad, N. H., Nasim, A., & Khan, S. A. R. (2020). A moderated-mediation analysis of psychological empowerment: Sustainable leadership and sustainable performance. *Journal of Cleaner Production*, 262, 121429. https://doi.org/10.1016/j.jclepro.2020.121429
- 13. Ji, S., & Jan, I. U. (2020). Antecedents and consequences of frontline employee's trust-in-supervisor and trust-in-coworker. *Sustainability* (*Switzerland*), 12(2). https://doi.org/10.3390/su12020716

- 14. Knezovic, E., & Musrati, M. A. (2018). Empowering leadership, psychological empowerment and employees' creativity: A gender perspective. *International Journal of Innovation, Creativity and Change*, 4(2), 51–72.
- Lam, C. K., Huang, X., & Chan, S. C. H. (2015). The threshold effect of participative leadership and the role of leader information sharing. *Academy of Management Journal*. https://doi.org/10.5465/amj.2013.0427
- Lumbasi, G. W., K'Aol, G. O., & Ouma, C. A. (2016). The Effect of Participative Leadership Style On The Performance of COYA Senior Managers in Kenya. *Journal of Management*, 4(5), 1–12.
- 17. Newman, A., Rose, P. S., & Teo, S. T. T. (2016). The Role of Participative Leadership and Trust-Based Mechanisms in Eliciting Intern Performance: Evidence from China. *Human Resource Management*, 55(1), 53–67. https://doi.org/10.1002/hrm.21660
- Orth, R., Staudinger, M., Seneviratne, S. I., Seibert, J., & Zappa, M. (2015). Does model performance improve with complexity? A case study with three hydrological models. *Journal of Hydrology*. https://doi.org/10.1016/j.jhydrol.2015.01.044
- 19. Pislaru, M., Herghiligiu, I. V., & Robu, I. B. (2019). Corporate sustainable performance assessment based on fuzzy logic. *Journal of Cleaner Production*. https://doi.org/10.1016/j.jclepro.2019.03.130
- 20. Polston-Murdoch, L. (2013). An Investigation of Path-Goal Theory, Relationship of Leadership Style, Supervisor-Related Commitment, and Gender. *Emerging Leadership Journeys*.
- Qing, M., Asif, M., Hussain, A., & Jameel, A. (2019). Exploring the impact of ethical leadership on job satisfaction and organizational commitment in public sector organizations: the mediating role of psychological empowerment. *Review of Managerial Science*, *April*. https://doi.org/10.1007/s11846-019-00340-9
- Rana, R., K'Aol, G., & Kirubi, M. (2019). Influence of supportive and participative path-goal leadership styles and the moderating role of task structure on employee performance. *International Journal of Research in Business and Social Science (2147- 4478)*, 8(5), 76–87. https://doi.org/10.20525/ijrbs.v8i5.317
- 23. Sheshi, A., & Kercini, D. (2017). The role of transactional, transformational and participative leadership in performance of SME's in Albania. *Microbiology Independent Research Journal*, 4(1), II-IV. http://mirjournal.org/ru/issues/4/otkryvaya\_nauku\_kakie\_voz mozhnosti\_daet\_open\_access/
- 24. Silla, I., Gracia, F. J., & Peiró, J. M. (2020). Upward voice: Participative decision making, trust in leadership and safety climate matter. *Sustainability (Switzerland)*, 12(9). https://doi.org/10.3390/su12093672
- 25. TETIK, N. (2016). The Effects of Psychological Empowerment on Job Satisfaction and Job Performance of Tourist Guides. *International Journal of Academic Research in Business and Social Sciences*. https://doi.org/10.6007/ijarbss/v6-i2/2026
- 26. Tripathi, D., Priyadarshi, P., Kumar, P., & Kumar, S. (2020). Does servant leadership affect work role performance via knowledge sharing and psychological empowerment? VINE Journal of

- Information and Knowledge Management Systems. https://doi.org/10.1108/VJIKMS-10-2019-0159
- 27. Ugwu, F. O., Onyishi, I. E., & Rodríguez-Sánchez, A. M. (2014). Linking organizational trust with employee engagement: The role of psychological empowerment. *Personnel Review*. https://doi.org/10.1108/PR-11-2012-0198
- 28. Waheed, A., Abbas, Q., & Malik, O. F. (2018). 'Perceptions of performance appraisal quality' and employee innovative behavior: Do psychological empowerment and 'perceptions of HRM system strength' matter? *Behavioral Sciences*. https://doi.org/10.3390/bs8120114
- 29. Wardani, N. K., & Eliyana, A. (2020). The Influence of Transformational Leadership on Employees Performance with Communication Satisfaction Mediation (Case Study of Frontliner Employees of PT Bank Muamalat, TBK Surabaya). 117(Gcbme 2018), 247–252.

https://doi.org/10.2991/aebmr.k.200131.053