INTERNATIONAL JOURNAL OF INDUSTRIAL MANAGEMENT
ISSN: 2289-9286 E-ISSN: 0127-564X
VOLUME 19, NO. 1, 2025, 1 – 9
DOI: https://doi.org/10.15282/ijim.19.1.2025.10960

RESEARCH ARTICLE

STRENGTHENING ACADEMIC PERFORMANCE IN RAILWAY HUMAN RESOURCES: THE INFLUENCE OF VOCATIONAL AWARENESS AND VOCATIONAL ASPIRATIONS

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ABSTRACT - The growing railway industry demands organisations and educational institutions to produce high-quality human resources with specific competencies in the railway transportation sector. However, the competitiveness of vocational education graduates is lower compared to university graduates. Therefore, enhancing the skills and competencies of human resources can be achieved by improving the academic performance of vocational students. This study explores the influence of vocational awareness, vocational aspiration, and attitude on the academic performance of students from the Indonesian Railway Polytechnic. Probability simple random sampling was employed to select 212 students from the Railway Transportation Management Program and Partial Least Squares Structural Equation Modelling (PLS-SEM) was used for data analysis purposes. The results show that vocational awareness, vocational aspiration, and attitude have an impact on academic performance. This research contributes to the scholarly literature in the field of Resource-Based Theory, whereby personal attributes are considered strategic assets that are difficult to be replicated by competitors. Such insight is valuable for higher education institutions in producing excellent and competitive graduates. This study is limited by the restricted sample size of 140 respondents and the research subjects are students from a single study program. Therefore, future research can expand to include all study programs and across universities in the railway sector for better generalisability of the findings.

ARTICLE HISTORY
Received : 05-07-2024
Revised : 30-09-2024
Accepted : 30-11-2024
Published : 03-03-2025

KEYWORDS
Human capital
Career
Vocational
Performance
Attitude

1. INTRODUCTION

The dynamic growth of the railway industry requires organisations and educational institutions to develop high-quality human resources with specific competencies in the railway transportation sector. The expansion of the railway industry is exemplary through the number of passengers, which reached 277,115,000 in 2022 and increased to 371,538,000 in 2023 (BPS-Statistics Indonesia, 2024), reflecting a 74% increase. The rise in passenger numbers must be accompanied by the preparation of human resources in the railway transportation sector to ensure the delivery of quality services to the public. Conversely, vocational education institutions play a critical role in producing graduates with relevant skills and knowledge aligned with the needs of the railway transportation industry. Skills and competencies are key to improving the quality of human resources that are prepared and competitive in line with Indonesia's Vision 2030. However, the competitiveness of graduates in vocational education remains low compared to university graduates. Fajar and Hartanto (2019) found that vocational graduates have several weaknesses in soft skills, such as self-confidence, adaptability, communication, discipline, work ethic, and teamwork. Therefore, improving the skills and competencies of human resources can be achieved by enhancing the academic performance of vocational cadets.

Academic performance refers to the individual performance of students, primarily focusing on higher education institutions. It is regarded as a means to enhance overall organisational performance. The emphasis on improving academic performance has been extensively explored in research literature, yet often without considering the interaction between individuals, their environment, or their attitudes (Roberts & Woodman, 2017). Prasetiyo Satria et al. (2023) explain that attitudes or personal attributes are part of human resources that significantly influence individual performance. Therefore, the Resource-Based Theory plays a crucial role in the implementation of valuable strategies (Barney, 1991). One form of resource inherent to individuals is personal attributes or personality traits that are deeply embedded in a person (Prasetiyo Widodo et al., 2023). These personal attributes are resources that are difficult for competitors to replicate and they can enhance one’s interest in achieving future career goals. An individual's attitude or behaviour towards future aspirations is often shaped by their career awareness, purposeful actions, and personal direction in their life, allowing them to determine the behaviours or attitudes they will adopt in the present.

The Indonesian Railway Polytechnic in Madiun is the only vocational higher education institution in Indonesia with a unique focus on the railway sector. It is one of the key suppliers of human resources for the nation’s railway transportation sector. Conversely, producing capable, competitive, and quality graduates is of paramount importance. However, the institution is yet to achieve the optimal quality level, as reflected by its “B” rated accreditation. Therefore,

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there is an urgent need to improve the quality of graduates at the Indonesian Railway Polytechnic. This will not only produce future workforces who are capable and ready to meet the demands of the railway transportation labour market but also lead to improved institutional accreditation. Hence, the purpose of this study is to examine the influence of vocational awareness, vocational aspiration, and attitude on academic performance, particularly focusing on graduates from the Indonesian Railway Polytechnic in Madiun.

2. LITERATURE REVIEW

2.1 Vocational Awareness

Super's theory has extensively explained the stages of an individual's career development. Career, also referred to as vocational, is the preparation an individual undergoes before entering the workforce and represents a part of life that someone holds onto for a lifetime (Super, 1954). Achieving a career requires awareness of the goals one intends to achieve (Smaliukiene et al., 2014). Vocational awareness refers to an individual's understanding of career options and knowledge of the competencies or skills that can support the achievement of their career. It describes an individual's awareness of career opportunities (Eliason & John, 2008) that can help them prepare the skills and expertise required in a specific field (Yuen et al., 2010). Prasetiyo Satria et al. (2023) further add that vocational awareness encompasses educational requirements, skill requirements, types of professions, workplace climate, regulations, and the expectations of specific industries.

A study by Napitupulu et al. (2017) found that career understanding, if well-managed, can enhance individual performance. Similarly, Katharina and Kartika (2020) reported that career awareness has a positive and significant impact on individual performance. In this regard, academic performance can be developed through career awareness (Prasetiyo Satria et al., 2023), thus imposing positively influences on individual attitudes and behaviours (Wong, 2022). These findings lead to a conclusion that vocational awareness can improve academic performance through personality or attitude. Therefore, it is hypothesised that:

H_1: Higher vocational awareness leads to higher academic performance.

H_2: Higher vocational awareness leads to higher academic performance through attitude.

2.2 Vocational Aspiration

Vocational aspiration is a behavioural aspect that is developed through purposeful actions and influenced by internal/psychological factors and the social environment (Bora, 2021). According to Hou and Leung (2011), career aspiration refers to an individual's interest in a particular job and involves aspects like career goals, ambitions, or intentions that continuously evolve towards the future and serve as a guide for current behaviour. Dinakar and Suresh (2019) suggest that vocational aspiration generates motivation or passion and provides direction for an individual's goals. Vocational aspiration is also associated with individual career goals or choices.

Researchers believe that vocational aspiration can be strengthened through an individual's overall attitude (Wong, 2022) and is closely related to academic performance (Hou & Leung, 2011). This is aligned with Mau and Bikos (2000) who found that vocational aspiration is linked to individual achievement in school. Prasetiyo Satria et al. (2023) argue that career awareness can enhance individual attitudes and behaviours, which eventually impacts academic performance (Wong, 2022). Therefore, it is hypothesised that:

H_3: Higher vocational aspiration leads to higher academic performance.

H_4: Higher vocational aspiration leads to higher academic performance through attitude.

2.3 Overall Attitude

According to Super (1954), an individual's personal attributes or attitudes influence the career decisions they will achieve in the future. Wong (2022) suggests that one's intention to achieve something is a cognitive expression of their awareness, serving as one of the direct antecedents of behaviour or attitude. Roberts and Woodman (2017) explain that personality is a psychological state or characteristic behaviour that can contribute to a person's success or survival. Past studies have investigated how various indicators of attitude (i.e., interest, relevance, and motivation) influence individual achievement (Wong, 2022) and the relationship between personality and individual performance in activities (Roberts & Woodman, 2017). Therefore, it is hypothesised that:

H_5: Higher attitude leads to higher academic performance.

2.4 Academic Performance

The concept of academic performance is a combination of various factors aimed at achieving professional career development and individual behavioural growth (York et al., 2015). It serves as an output that impacts the improvement of an individual's academic quality within an organisation (Banda et al., 2023). According to Balogun et al. (2020), academic performance represents valuable achievements for both teams and individuals. Such definition aligns with Prasetiyo Satria et al. (2023) who perceive academic performance as the capacity to produce outcomes acquired by individuals, including students and educators, within a specific time frame. Researchers have identified several indicators

of academic performance, including skill level, knowledge level, identity level, personal factors, fixed factors, and performance level (Balogun et al., 2020); task performance, skills, and personality (Prasetiyo Satria et al., 2023); and students-peers relationship (Brouwer et al., 2022).

Figure 1 shows the research framework of this study.

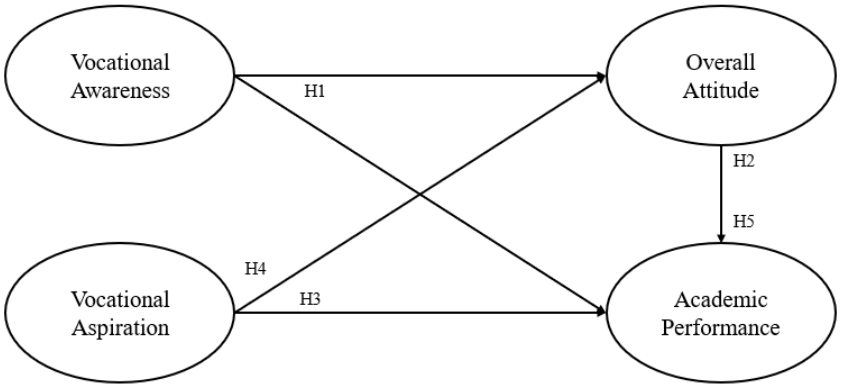

Figure 1. Research Framework

3. METHODS AND MATERIALS

This study employed the explanatory research design following its capability of explaining information about the variables and the relationships between them (Payne & Grey, 2014). The data was analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM) as it allows the calculation of latent variables based on the manifest variables associated with each latent variable. The variables of this study were vocational awareness, vocational aspiration, attitude, and academic performance. Table 1 shows the measurement (indicator) of each variable while Figure 2 presents the SEM model.

Table 1. Variable and Indicators

No	Variable	Operational Definition	Indicators	Source
1	Vocational Awareness	Vocational awareness is a person's orientation towards their future work.	• Environment and Conditions • Job Security • Rewards and Benefits	(Wong (2022)
2	Vocational Aspiration	Vocational aspiration is an orientation towards future work goals based on interests or needs.	• Achieve a career after graduation • Achieve a career according to plan • Accepts risks in career	(Wong (2022)
3	Attitude	An attitude is an attitude towards behaviours, subjective norms, and perceptions.	• Interest • Motivation • Relevance	(Wong (2022)
4	Academic Performance	Academic performance is a specific behaviour that is within an individual's control and is useful for achieving certain goals.	• Task Performance • Extra-role behaviour • Organisation & coworker support • Cognitive & motivational efforts	(Zeb et al. (2020)

This study adopted a reflective research model where variables are formed by their respective indicators. According to Garson (2016), reflective models must meet the assumptions of convergent validity, construct reliability, and discriminant validity, which are tested using the PLS algorithm technique by examining the loading factor, Average Variance Extracted (AVE), and composite reliability. It also tests discriminant validity by evaluating the Fornell-Larcker Discriminant Validity Criterion and the Heterotrait-Monotrait Ratio (HTMT).

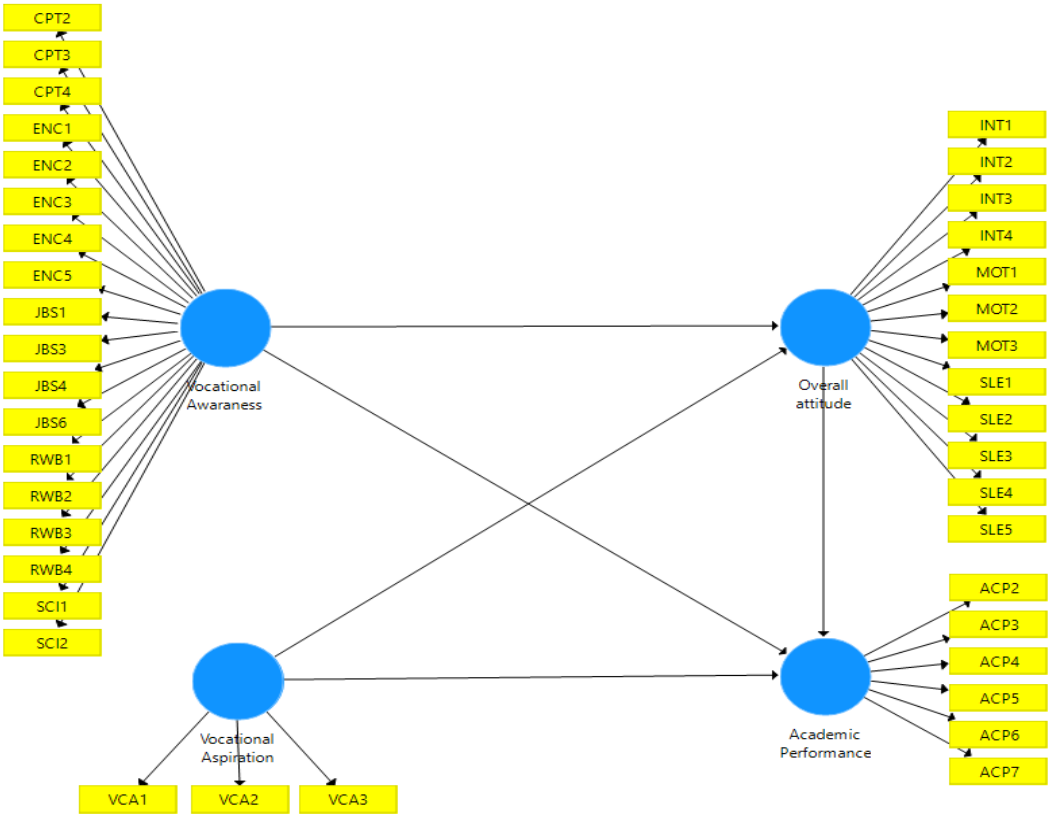

Figure 2. Structural equation model

The population in this study consisted of 212 cadets from the Indonesian Railway Polytechnic majoring in Railway Transportation Management. Probability simple random sampling technique was used to select the respondents. The minimum sample size was 140 respondents as determined by the Slovin formula with a 5% margin of error.

4. RESULTS AND DISCUSSION

4.1 Results

4.1.1 Respondents' Demographic Profiles

Table 2 shows the demographic profiles of all 163 respondents who completed the questionnaire. The majority of them are within the age range of 19 to 21 years old (n=135) and male (n=113).

Table 2. Demographic profiles of the respondents

Characteristics	Category	Total	Percentage
Age	< 19 years	14	8.6%
	20 - 21 years	135	82.8%
	22 - 23 years	13	8.0%
	> 23 years	1	0.6%
Gender	Male	113	69.3%
	Female	50	30.7%

4.1.2 Validity and Reliability

The validity and reliability test results in Table 3 show that the loading factor of all indicators on their latent variables is greater than 0.70, indicating that all indicators are able to explain their respective latent constructs (Chin, 1998). The AVE test results denote that all variables obtained values greater than 0.5, suggesting that all variables are valid and capable of explaining their indicators (Garson, 2016). The composite reliability test results also show that all variables obtained values greater than 0.7, indicating that all variables meet the reliability criteria (Henseler et al., 2012). Therefore, this study fulfils the outer model testing requirements for reflective model testing.

Table 3. Validity and reliability test

No	Variable	Indicator	Loading Factor	AVE	Composite Reliability
1	Vocational Awareness	You understand the contents of the qualification exam in the field of railways.	0.717	0.588	0.962
		You understand the practical content in the field of railways.	0.739		
		You understand the competency requirements for officers in the railway sector.	0.758		
		You understand the environment and conditions in the railway sector.	0.835		
		You understand the risks and difficulties of working in the railway sector.	0.778		
		You understand the permanent contract requirements for work in the railway sector.	0.737		
		You understand that work in the railway sector can be assigned anywhere.	0.734		
		You understand that language skills are one of the requirements for employment in the railway sector.	0.765		
		You understand the demand and trends for jobs in the railway sector on the job market.	0.769		
		You understand the limitations of non-railway jobs available after a career in the railroad sector.	0.730		
		You know the type of career you want to achieve.	0.824		
		You understand the progress and career expectations in the railway sector.	0.849		
		You understand the salary/rewards for work in the railway sector.	0.728		
		You understand the general benefits and support for work in the railway sector.	0.810		
		You understand the general differences between jobs in the railroad and non-railway fields.	0.749		
		You understand what you need to learn from education in the railway sector.	0.794		
		You have support from your family to pursue a career in the railway sector.	0.739		
		You have received support from friends and colleagues to pursue a career in the railway sector.	0.726		
2	Vocational Aspiration	You will pursue a railroad career when you graduate.	0.893	0.802	0.924
		You understand that a career in the railway sector fits your career plans.	0.913		
		You are willing to accept the difficulties and risks involved in a career in the railroad sector.	0.880		
3	Attitude	You are interested in the field of railways and education in the field of railways.	0.800	0.667	0.960
		You are increasingly interested in pursuing a career in the railway sector after experiencing the campus atmosphere and environment.	0.846		
		You are increasingly interested in a career in the railway sector after experiencing aspects of travelling by train.	0.861		
		You are increasingly interested in a career in the railway sector after understanding the types of work in the railway sector.	0.782		
		You understand that employment in the railway sector will be easier to achieve through relevant education in the field.	0.761		
		You understand that your skills and abilities will grow if you succeed in education in the relevant field.	0.792		
		You understand that family and friends will appreciate the efforts made in relevant education.	0.814		
		You study hard about railways and relevant studies.	0.849		
		You prepare yourself in class to get an understanding of railways.	0.854		
		You study the material presented in class.	0.827		
		You work hard to understand every practice carried out in class/lab.	0.855		
		You actively participate in activities related to railway studies and relevant topics.	0.746		

Table 3. (cont.)

No	Variable	Indicator	Loading Factor	AVE	Composite Reliability
4	Academic Performance	You are never late for study time.	0.850	0.736	0.943
		Brothers rarely make mistakes.	0.784		
		You are able to complete assignments as expected.	0.902		
		You have good relationships with fellow students.	0.856		
		Siblings help each other students in completing assignments.	0.901		
		You are able to complete tasks, even in difficult situations and problems.	0.850		

4.1.3 Discriminant Validity

Tables 4 and 5 show the discriminant validity test results as observed from the Fornell-Larcker Criterion and Heterotrait-Monotrait Ratio (HTMT) scores. In Table 4, the Fornell-Larcker Criterion scores are higher than the correlations, indicating that each construct is distinct from other constructs (Garson, 2016). In Table 5, the Heterotrait-Monotrait Ratio (HTMT) scores are below 0.9 for the variable pairs, meaning that discriminant validity is achieved (Hair et al., 2019).

Table 4. Fornell-Larcker criterion

	Academic Performance	Attitude	Vocational Aspiration	Vocational Awareness
Academic Performance	0.858			
Attitude	0.730	0.816		
Vocational Aspiration	0.625	0.658	0.895	
Vocational Awareness	0.613	0.739	0.630	0.767

Table 5. Heterotrait-Monotrait Ratio (HTMT)

	Academic Performance	Attitude	Vocational Aspiration	Vocational Awareness
Academic Performance				
Attitude	0.770			
Vocational Aspiration	0.688	0.720		
Vocational Awareness	0.636	0.760	0.678	

4.1.4 Hypothesis Testing

The purpose of hypothesis testing is to evaluate the relationships between antecedent and mediating variables with the consequent variable. It can be conducted based on t-statistic values or p-values through the bootstrapping method in Smart PLS. A hypothesis is accepted at a 5% alpha level if the t-statistic is greater than 1.96 and the p-value is less than 0.05. The results are presented in Table 6.

The hypothesis testing results show that vocational awareness does not directly affect academic performance as the t-statistic value of 1.059 is smaller than 1.96 and the p-value of 0.290 is greater than 0.05. Hence, H1 is not supported. Vocational awareness indirectly affects academic performance through attitude as the t-statistic value of 4.454 is greater than 1.96 and the p-value of 0.000 is less than 0.05, thus supporting H2. Furthermore, vocational aspiration has a direct effect on academic performance with a t-statistic value of 2.482, which is greater than 1.96, and a p-value of 0.013, which is less than 0.05. Hence, H3 is supported. Vocational aspiration indirectly affects academic performance through attitude, as indicated by the t-statistic value of 3.685, which exceeded 1.96, and a p-value of 0.000, which is less than 0.05, thus supporting H4. Lastly, attitude directly affects academic performance as the t-statistic value of 6.873 is greater than 1.96 and the p-value of 0.000 is less than 0.05, hence supporting H5.

Table 6. Structural path coefficient

	Hypothesis	Original Sample	T Statistics	P Value	Result
H1	Vocational Awareness → Academic Performance	0.090	1.059	0.290	Not Supported
H2	Vocational Awareness → Attitude → Academic Performance	0.275	4.454	0.000	Supported
H3	Vocational Aspiration → Academic Performance	0.231	2.482	0.013	Supported
H4	Vocational Aspiration → Attitude → Academic Performance	0.164	3.685	0.000	Supported
H5	Overall Attitude → Academic Performance	0.512	6.873	0.000	Supported

4.2 Discussion

Hypothesis 1 relates to the influence of vocational awareness on academic performance, where vocational awareness is measured through three indicators: environment and condition, job security, and rewards and benefits. The results indicate that vocational awareness does not significantly affect academic performance. It suggests that students who focus on their future careers do not see a corresponding improvement in their academic performance. This may be due to a misalignment between their expectations and the career goals they wish to achieve. According to Prasetiyo (2023) and Susanty and Miradipta (2013), attitudes are aspects that can change depending on the environment in which individuals are active. Therefore, to enhance academic performance, it is essential to foster values that provide comfort and confidence in the work performed. This is consistent with Sarea and Bin-Nashwan (2021) who emphasise the importance of practice and faith based on religiosity in improving performance.

Hypothesis 2 concerns the influence of attitude on the nexus between vocational awareness and academic performance. The findings indicate that vocational awareness significantly impacts academic performance via attitude. This suggests that students who focus on their future careers, through their attitudes towards behaviours, norms, and perceptions, can enhance their academic performance. It aligns with the findings by Prasetiyo Satria et al. (2023) and Wong (2022) whereby individuals with career concerns will show increased interest and motivation to achieve their goals. Individuals with a future job orientation, driven by high motivation, will strive for optimal contributions as they have long-term objectives to attain.

Hypothesis 3 examines the impact of vocational aspiration on academic performance. The results show that vocational aspiration significantly affects academic performance. This suggests that students who are oriented towards their future job goals, based on interest or necessity, can improve their academic performance. Students with a clear career direction will enhance their academic performance because of their individual drive to continuously develop the necessary skills and knowledge, which improves their ability to complete assignments and tasks. The finding is consistent with the study by Mau and Bikos (2000).

Hypothesis 4 links vocational aspiration to academic performance through attitude. The findings demonstrate that vocational aspiration significantly influences academic performance via attitude. This is consistent with several previous studies (Hou & Leung, 2011; Mau & Bikos, 2000; Wong, 2022) whereby students oriented towards their future job goals, based on interest or necessity, can enhance their attitudes towards behaviours and perceptions. It ultimately impacts academic performance, as evidenced by their ability to complete assignments.

Hypothesis 5 relates attitude to academic performance. The results indicate that attitude has a significant impact on academic performance. This aligns with previous studies (Roberts & Woodman, 2017; Wong, 2022) in which students who are interested in or motivated towards their careers and jobs will be more enthusiastic and satisfied to complete their tasks, thereby improving their performance outcomes.

5. CONCLUSIONS

This study examines the influence of vocational awareness, vocational aspiration, and attitude on academic performance. The results indicate that four hypotheses are accepted; however, vocational awareness does not directly impact academic performance, necessitating mediation through the attitude variable. This suggests that individuals aiming to enhance their performance must understand the career they wish to achieve and possess attitudes characterised by interest, motivation, and relevance towards their future careers.

A limitation of this study is the restricted sample size of 140 respondents. The research object is also limited to students within a single study program. Therefore, future research can be expanded to include all study programs and cross-institutional studies within the railway sector to facilitate the generalisation of the findings. This research contributes to the development of knowledge, particularly within the framework of the Resource-Based Theory where assets are not solely physical but also include personal attributes, which are difficult for competitors to imitate. Additionally, this study hopes to benefit institutions aiming to improve the quality of graduates in the railway human resources sector through an approach centred on students' interests and attitudes.

ACKNOWLEDGEMENTS

The authors would like to thank the Indonesian Railway Polytechnic, Indonesia for the support.

FUNDING STATEMENT

This research was funded by the Indonesian Railway Polytechnic, Indonesia.

AUTHORS CONTRIBUTION

Alfian Yuda Prasetiyo: Research ideas, methods, and analysis results
Atik Raden Roro Siti Kuswati: Editor and translator

Erifendi Churniawan: Editor and translator
Handoko: Editor and translator

AVAILABILITY OF DATA AND MATERIALS

The datasets used in this research are available and can be provided upon request.

ETHICS STATEMENT

This research complies with ethical standards, ensuring informed consent, confidentiality, and the privacy of all participants.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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