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Local Government Policy

Education, Training, and Improved Work Infrastructure Enhance Firefighter Performance

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Abstract: The performance of firefighters is a crucial factor in ensuring public safety and the effectiveness of fire response, making capacity building and infrastructure support a priority. This research aims to comprehensively explore and analyze the impact of education, training, and work infrastructure on the performance of firefighters in OKI Regency. The method used in this study is a quantitative approach applied to the Firefighters of the Municipal Police and Firefighter of OKI Regency in June 2024. The research population comprises 187 firefighters and Fire Department staff members in OKI Regency. A sample of 99 respondents was drawn at random from the overall population. The findings of this study show that education, training, and infrastructure all significantly impact the performance of firefighters at OKI Regency. Education is the most important factor impacting the performance of firefighters in OKI Regency. Human resource development policies in the fire department might focus on developing competencies through formal and non-formal education and improving the quality of work environments to support operational tasks.

Keywords: Education; Training; Infrastructure; Performance; Firefighter; OKI Regency.

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1. Introduction

Civil Servant competency enhancement is now becoming the requisite process for government institutions in Indonesia. This is in line with the organization's efforts to achieve its human resource management objective of recruitment, selection, retention of employees, and staff development (Saksono et al., 2022). Firefighting services are the responsibilities of local governments in Indonesia that aim to safeguard the life and properties of the people and communities in Indonesia against fire hazards, which include prevention, control, and extinguishment, as well as fire recovery (Akny, 2014; Apriani, 2015). Local governments have at least five roles and functions in fire management. First, fire control and prevention. Second, coordinate the preservation of the firefighting infrastructure and supplies. Third on the list is coordination and cooperation between the local governments, agencies, and the general public to ensure that firefighting infrastructure and resources are provided and properly managed (Hidayat et al., 2024). Sub-national governments are, therefore, legally empowered to facilitate the firefighting functions with the aforementioned parties: the federal government, institutions in the society, and the public.

Fourth, Formulation of Local Policies. Local governments are authorized to develop regional regulations and policies that govern fire control efforts, such as establishing safety standards for buildings and public facilities to reduce fire risks, imposing sanctions, and enforcing laws against fire prevention violations, such as negligence in implementing fire safety protocols in buildings or industrial areas. Fifth, Post-Fire Management. Local governments are also authorized to manage the post-fire impacts, which include providing emergency assistance to fire victims, such as temporary housing, food, and medical care, as well as environmental recovery after fires, particularly forest and land fires, which can harm ecosystems and public health.

Apparatus capacity development in improving Civil Servants performance is one of the priorities of local government policy in realizing optimal public services. The main focus of this policy is to strengthen the ability, competence, and professionalism of Civil Servants through various training and HR development programs. In this context, the performance of firefighters, especially in areas with high fire risk, such as the Ogan Komering Ilir (OKI) Regency, is an important concern. The Regency of OKI, which has a large area with many peatlands, often experiences forest and land fires, especially during the long dry season. This phenomenon requires the local government to formulate policies that support strengthening the capacity of firefighting human resources.

The Municipal Police and Fire Fighter of Ogan Komering Ilir (OKI) Regency is a government agency responsible for several areas, including the Fire Department. According to OKI Regency Regulation No. 56 of 2021 on the Organization and Work Procedures of Municipal Police and Fire Department, the Fire Department is a government body tasked with carrying out fire management duties in OKI Regency.

However, policies related to improving the performance of firefighters in OKI Regency face several problems. Regency OKI, known for its vast peatlands and high fire risk, requires urgent attention to enhance firefighter performance and infrastructure. The region frequently faces forest and land fires, especially during extended dry seasons, such as in 2023, when a significant fire incident occurred. Data from Municipal Police (Sat Pol PP) and Firefighter of OKI Regency reveals a sharp increase from 49 fires in 2022 to 119 in 2023, with vacant land fires comprising 63 cases. This rise in fire occurrences highlights the critical need for skilled, well-equipped firefighters who can respond swiftly and effectively to emergencies. However, inadequate infrastructure and insufficient training have hindered their ability to manage these disasters, particularly

in a region where fire incidents are also common in residential areas due to electrical faults (Sufianto & Green, 2012). Addressing these issues is vital for improving fire preparedness and ensuring that firefighting personnel can mitigate the challenges posed by fire disasters in OKI Regency.

The Regency of OKI's policy on training and performance development of firefighters has been implemented, but performance has not been maximized. The local government has allocated a budget for technical firefighting training, but the frequency and intensity of this training are still limited. In addition, efforts to improve the readiness of infrastructure and equipment have also not been proportional to the needs in the field, especially given the geographical conditions and characteristics of the OKI Regency prone to land fires.

Currently, the human resources in the fire department of OKI Regency consists of 187 personnel, including four civil servants (ASN) and 183 non-civil servants (non-ASN). The firefighters are organized into five teams, each with 17 members, working according to a predetermined schedule. With the current number of personnel, the firefighters are responsible for covering an area of 17,071.33 km², serving over 779,893 residents spread across 18 districts, 314 villages, and 13 sub-districts. However, this number of personnel is still insufficient, especially in terms of education, training, and infrastructure, which in several aspects have not met the Firefighter and Rescue Personnel Qualification Standards as regulated in Minister of Home Affairs Regulation No. 16 of 2009 on the Qualification Standards of Regional Firefighters. This highlights the need for improvements in various aspects to achieve optimal performance in line with these standards.

Education, training, and facilities are believed to influence employee performance. Therefore, a greater impact is likely to be achieved when education, training, and facilities are linked to employee performance. As a result, good education, training, and facilities will lead to improved firefighter performance (Andini et al., 2020).

The education provided to firefighters covers theoretical knowledge about fire, safety procedures, and disaster management (Supri, 2024). Quality education enhances intellectual ability and basic knowledge, which is crucial for firefighter performance. A relevant theory applied in this context is Adult Learning Theory (Andragogy) by Malcolm Knowles, which emphasizes practical relevance and experience in adult education (Bagaskara, 2019). Firefighters, as employees, need education focused on practical skills and knowledge that can be directly applied in the field.

Another relevant theory is David Kolb's Experiential Learning Theory, which suggests that learning is a process where knowledge is created through the transformation of experience. Experience-based training, such as physical drills and fire simulations, will improve firefighter performance. The effectiveness of training can be measured at four levels: reaction, learning, behavior, and results. Well-designed training will show improvements across all levels.

Herzberg's Two-Factor Theory supports facilities. This theory classifies factors influencing job satisfaction into motivators and hygiene factors. Adequate facilities fall under the hygiene factors that help prevent job dissatisfaction and enable optimal performance. Good facilities also support effective interaction and coordination among firefighters.

Regarding performance theory, Campbell's Performance Model identifies that performance is a function of ability, motivation, and the work environment. Education and training improve ability and motivation, while adequate facilities create a conducive work environment.

This research is based on the philosophy of positivism, which focuses on testing hypotheses using empirical data and statistical analysis. Positivism views reality as measurable and explainable through objective laws. The research uses a quantitative approach to identify and measure the influence of independent variables (education, training, and facilities) on the dependent variable (performance), which can be seen in Figure 1.

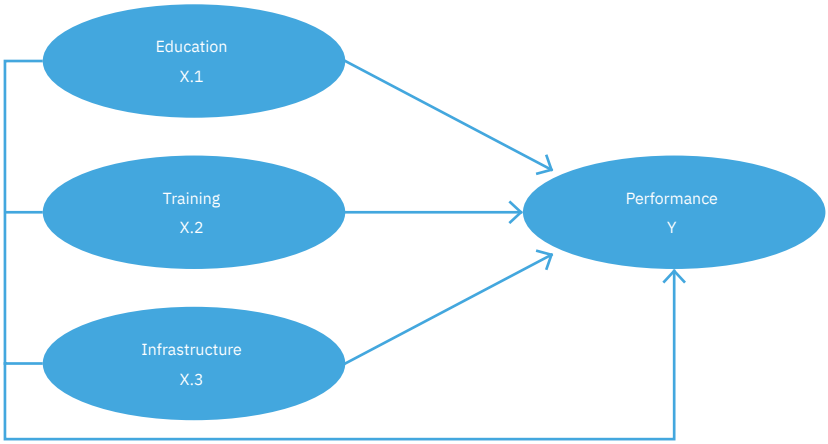

Figure 1. The Relationship Between Variables

Firefighters are expected to act quickly, efficiently, and effectively in any emergency situation to minimize property damage and loss of life (Bacas & Zahran, 2022). Various factors, including education level, training programs, and the availability of adequate infrastructure influence optimal performance. Proper education, training, and the provision of necessary infrastructure will positively impact firefighters' ability to handle fires more effectively and efficiently. This will also increase public trust in the government's ability to ensure public safety and security.

Previous research on firefighting performance in several regions has shown that strengthening human resource capacity through training and providing adequate infrastructure can greatly improve the effectiveness of fire management. However, these studies were limited to urban areas with characteristics different from those of peatland-dominated OKI Regency. This research gap allows this paper to provide novelty, focusing on the OKI local government's policy in developing firefighting human resources in an area with a high risk of land fires. This research aims to analyze the influence of education, training, and infrastructure on the performance of firefighters in Regency OKI. The hypotheses in this study are as follows: 1) education has a positive and significant effect on improving the performance of firefighters in OKI Regency; 2) training has a positive and significant effect on improving the performance of firefighters in OKI Regency; 3) work infrastructure together has a positive and significant effect on improving the performance of firefighters in OKI Regency; 4) education, training, and work infrastructure together have a positive and significant effect on improving the performance of firefighters in OKI Regency. The results of the study can serve as a basis for policy considerations in designing education, training, and firefighting infrastructure programs.

2. Methods

This research employs a quantitative approach using numerical data to objectively measure and conduct statistical analysis. The focus of the study is to identify the causal relationship between three independent variables—education, training, and infrastructure—and the dependent variable, which is the performance of firefighters. Education indicators are formal education, suitability of education to the field of

work, and insight development. Training indicators are training obligations, training suitability, and training frequency. Infrastructure indicators are quality, suitability, and placement of facilities. Performance indicators are punctuality, responsibility, and cooperation.

The population in this study consists of all employees in the Fire Department of the Municipal Police and the Fire Department of OKI Regency, totaling 187 people. The research sample consists of 99 individuals who are honorary firefighters and males, selected using random sampling (probability sampling). The research was conducted at the Office of the Municipal Police and Fire Department of OKI Regency from June 1, 2024, to July 29, 2024.

Data collection techniques involved both primary and secondary data methods. Primary data were obtained through closed-ended questionnaires personally distributed to all respondents. The questionnaires had undergone validity and reliability tests to ensure their accuracy and consistency. The statements in the questionnaire used a Likert scale to measure respondents' perceptions.

Next, classical assumption tests were conducted, including normality tests, linearity tests, heteroscedasticity tests, and multicollinearity tests using IBM SPSS 26. The data analysis technique used was multiple linear regression analysis to evaluate the influence of education, training, and infrastructure on the performance of firefighters. The multiple linear regression equation used in the analysis is as follows:

$$Y = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + e$$

where
Y = performance
β = constanta
X_1 = education
X_2 = training
X_3 = infrastructure
$\beta_1, \beta_2, \beta_3$ = independent variable coefficient
t = time (2024)
e = error term

3. Results and Discussion

The results of the research obtained on education, training, and instrumental facilities on the performance of firefighters in OKI Regency then the results can be described as follows:

Table 1. Variable Validity and Reliability Test Result

Variable	Statements	Sig. (2-tailed)	Cronbach Alpha
X1.1	The development of insight and personality is shaped by good education	.000	
X1.2	Continuing education improves performance capabilities	.000	
X1.3	Academic education enhances career	.000	
X1.4	Education improves performance	.000	
X1.5	Officers must have a bachelor's degree	.000	
X1			0.798
X2.1	Officers must attend training	.000	
X2.2	Training will minimise risk	.000	
X2.3	Training will improve skills and knowledge	.000	
X2.4	Training is conducted once a month	.000	

Variable	Statements	Sig. (2-tailed)	Cronbach Alpha
X2.5	Training in accordance with the qualification standards of the firefighting apparatus	.000	
X2			0.868
X3.1	Procurement of infrastructure in accordance with the needs	.000	
X3.2	The quality of infrastructure facilities is in accordance with the standards set	.000	
X3.3	Distribution of infrastructure facilities as needed	.000	
X3.4	Infrastructure facilities that are no longer suitable for use are removed according to procedures	.000	
X3.5	Placement of infrastructure facilities as needed	.000	
X3			0.732
Y1	Officers continue to carry out tasks even though they are at high risk	.000	
Y2	Work on time	.000	
Y3	Always pay attention to the quality of work in the field	.000	
Y4	Responsible for the authority given in carrying out the task	.000	
Y5	Cooperation and good communication while on duty	.000	
Y			0.783

Source: *Data processing*

Table 1 shows the validity of all variables with a sig value. <0.05 declared valid. Reliability of all variables with Cronbach Alfa value> 0.60 is declared reliable, so it can be used to analyze the relationship between variables in this study.

Table 2. Normality Test Result

N	Normal Parameters		Most Extreme Differences			Test Statistic	Asymp. Sig (2-tailed)
	Mean	Std Deviation	Absolute	Positive	Negative		
99	.00000	.54468852	.065	.046	-.065	-065	-200

Source: *Data processing*

Based on Table 2, the p value> 0.05), so this study is declared to have a normal distribution.

Table 3. Linearity Test Result and Partial Significance Test

Model	B	Std Error	Beta	t	Sig.
(Constant)	-1.272	1.432		-.888	.377
Pendidikan	.718	.065	.627	11.089	.000
Pelatihan	.177	.038	.261	4.723	.000
Sarana Prasarana	.196	.045	.242	4.334	.000

Source: *Data processing*

Based on the coefficient values in Table 3, the regression equation is as follows:

$$Y = - 0,1.272 + 0,718\ X_1t + 0,177\ X_2t + 0,196\ X_3t + e$$

The results of this analysis can be interpreted as follows:

β_0 = -1.272 If the variables of education, training and infrastructure = 0, the performance value will decrease by 0.1.

β_1 = 0.718 The education variable has an impact on performance of 0.718. This means that the education variable has a positive influence. In other words, every one-unit increase in the education variable will increase performance by 0.718.

β_2 = 0.177 The training variable affects performance by 0.177 with a positive influence. This means that each one-unit increase in the training variable will increase performance by 0.177.

β_3 = 0.196 The infrastructure variable impacts the performance of 0.196 with a positive influence. This means that each one-unit increase in the facilities and infrastructure variable will cause an increase in performance of 0.196.

Based on Table 3, partially, each variable X1, X2, and X3 have a p-value <0.05, which means that the level of education affects performance, training affects performance, and infrastructure facilities affect the performance of firefighters in Regency OKI. The regression coefficients that influence performance most are education, infrastructure, and training. To find out whether the research variables Education, Training, and Work Infrastructure simultaneously influence the performance of Fire Fighters in OKI Regency. This can be seen in Table 4.

Table 4. Simultant Significance Test

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	83.834	3	27.945	91.306	.000
Residual	29.075	95	.306		
Total	112.909	98			

Source: *Data processing*

Based on Table 4 shows the results of the F test with a p value <0.05, then simultaneously, the variables of Education (X1), Training (X2) and Infrastructure (X3) have a significant effect on the performance of firefighters in Regency OKI.

Table 5. Test Coefficient of Determination/R Square

Model	R	R Square	Adjust R Square	Std. Error of the Astimate
1	.862	.742	.734	.553

Source: *Data processing*

Based on Table 5, the results of the analysis of the coefficient of determination (R-Square) of 0.742, it can be concluded that 74.2% of the variation or change in firefighters' performance is influenced by the three main variables in this study, namely education, training, and work infrastructure. This shows a fairly close relationship between these variables and officer performance.

The remaining 25.8% is explained by other factors not included in this study. These factors could include motivation, work experience, management policies, or work environment conditions that may also affect officer performance but were not analyzed in this study.

Based on Table 3, education has the most significant influence on improving the performance of firefighters in Regency OKI. These results suggest that higher education

contributes to firefighters' improved understanding of suppression techniques and fire risk management and more effective use of modern equipment. Officers with better levels of education tend to have better analytical skills, make faster and more informed decisions, and are more adaptive in emergency situations.

In the context of this study, education is an important factor influencing the quality of firefighting performance, particularly in fire-prone areas such as Regency OKI. Officers with higher education understand the complexities of peatland and residential fires and can use their knowledge to implement more efficient suppression strategies. In addition, education also improves communication and coordination skills, which are critical in emergencies to avoid mistakes that could make things worse.

This positive correlation between education and performance reinforces the urgency for local governments to improve education standards for firefighters through formal and informal capacity-building programs. This is in line with the needs of regions experiencing an increase in fire frequency, such as the one in 2023. Therefore, the results of this study support policies to provide further education and training opportunities for firefighters to improve their effectiveness and professionalism in dealing with fires in OKI Regency.

Based on Table 3, after education, the variable that significantly affects improving the performance of firefighters in Regency OKI is infrastructure. These results indicate that adequate facilities and infrastructure, such as fire fighting vehicles, extinguishing equipment, and water accessibility, greatly influence the effectiveness and speed of officers in dealing with fires. With complete and quality facilities, officers can respond to fire incidents more quickly, control fires more efficiently, and minimize losses caused by fires.

In this study, the availability of facilities and infrastructure is an important factor in improving the performance of firefighters, especially in OKI Regency, which often experiences forest and land fires and residential areas. The district's vast and often difficult-to-reach geography requires reliable equipment and supporting infrastructure that enables officers to reach fire locations quickly and accurately. When facilities and infrastructure are inadequate, such as a limited number of fire engines or a lack of water supply, firefighters' performance is hampered, which can worsen the impact of fires.

This positive correlation between infrastructure and performance underscores the importance of local government investment in improving the quality and quantity of firefighting infrastructure. This research supports policies to increase fleet size, update equipment, and improve accessibility to fire-prone areas. Such measures will improve the readiness of firefighting personnel, reducing the frequency and impact of fires in Regency OKI, especially in critical years such as 2023.

Based on Table 3, training is a variable that significantly improves the performance of firefighters after the variables of education and infrastructure. These results suggest that the training provided effectively improved officers' technical skills and readiness to handle emergency situations. Training that focuses on technical skills such as using extinguishing equipment, handling peatland fires, and evacuation and rescue simulations have been shown to positively improve officers' rapid response when fires occur.

In this study, training is one of the key factors influencing the performance of firefighters, especially in high-risk areas such as OKI Regency, which is prone to land fires due to its geography. With proper training, officers are better mentally and physically prepared to deal with various fire situations in land and residential areas.

This is also evident from the field data, which shows that fire response times were significantly reduced after the training, and officers' ability to control fires improved.

This positive correlation also indicates that human resource capacity building through training can be a solution to address the challenges of fires that continue to increase each year, such as those in 2023 with a spike in fire incidents. Therefore, the results of this study support the importance of local government policy in providing ongoing and relevant training programs for firefighters to improve their effectiveness in carrying out their duties and minimize the impact of fires in OKI Regency.

3.1. The Effect of Education Level on Firefighter Performance in Regency OKI

Based on the partial hypothesis testing results, it was found that the hypothesis is accepted, indicating that the level of education significantly affects firefighter performance. This finding is consistent with various previous studies that show a positive relationship between education and employee performance. According to Erlangga et al. (2024), education enhances workers' knowledge, understanding, and attitudes, allowing them to better adapt to their work environment. Good education provides theory and helps employees develop the professional skills necessary to perform their tasks effectively (Rosela & Koesyanto, 2021). This is highly relevant for firefighters, who must handle various complex emergency situations.

Research by Pulungan (2015) shows that increased employee education correlates with improved performance. This study confirms that when employee education is conducted well, their performance will improve (Sunardi et al., 2022). This finding supports the argument that quality education, including firefighters, can enhance employees' abilities and work effectiveness. Research by Backlund et al. (2007) found that education significantly influences employee performance. This study indicates that good education can partially and significantly improve firefighter performance. It shows that education is not merely a formality but a crucial element in enhancing work effectiveness and efficiency. The level of education has a significant impact on firefighter performance. Quality education can enhance firefighters' knowledge and skills, which, in turn, positively impacts their performance in executing their duties. Therefore, it is important for relevant agencies to continually improve education and training programs for firefighters to enhance their performance in serving the community.

3.2. The Effect of Training on Firefighter Performance in Regency OKI

Training is a crucial factor influencing firefighter performance. In the context of OKI Regency, this study aims to explore the impact of training on firefighter performance. The results indicate that training has a positive and significant impact on performance, consistent with various previous studies that show a similar relationship.

Research by M. A. Fitri et al. (2023) found that the performance of civil servants is significantly influenced by training activities. This study emphasizes that good training can enhance employees' abilities and work effectiveness, which in turn positively affects their performance.

Research by Sukardi et al. (2023) states that training has a positive impact on improving workers' knowledge and skills. In the context of firefighters, effective training can provide the necessary knowledge and skills to handle emergency situations, thereby improving their performance in executing their duties.

Research by Iqbal (2022) reinforces that increased training activities are always followed by improved performance of staff. Training will improve employee discipline which has an impact on improving performance (Ismail et al., 2023). This finding suggests that well-planned and continuous training can enhance employees' performance in disaster management, which is also relevant for firefighters.

Adequate training facilities also contribute to performance improvement. Research by Septyandy et al. (2023) notes that good and ongoing training can enhance firefighters' skills and knowledge, which in turn positively impacts their performance in the field.

According to the research findings and available literature, training considerably impacts firefighter performance in OKI Regency. Good training can improve firefighters' knowledge, abilities, and competence, improving their performance in serving the community. Therefore, it is vital for relevant organizations to consistently update training programs for firemen to boost their effectiveness in dealing with emergency circumstances.

3.3. The Effect of Work Infrastructure on Firefighter Performance in Regency OKI

Infrastructure is an important factor in ensuring the effectiveness and efficiency of work, notably in public services such as firefighting. In Regency OKI, adequate infrastructure has a huge impact on firefighter performance. Work infrastructure refers to all of the physical and non-physical factors required to support work activities. According to Bohari et al. (2019), good infrastructure can improve employee performance, whereas inadequate infrastructure can reduce productivity. This implies that the availability and quality of infrastructure have a direct impact on employees' work capacities (Pattipeilohy & Regif, 2024).

According to research by Panja (2020), the performance of firefighters will be better if officers have access to equipment. Meanwhile, according to Sari et al. (2024), work infrastructure for officers to work productively includes all movable and immovable objects used in work. Fire vehicles, firefighting equipment, and training facilities are the infrastructure for firefighting. High-quality, well-maintained equipment can reduce fire response times and increase fire control effectiveness such as fire drones. Drones are used to search and scan locations to relay accident-related data to command units, as well as to communicate via social media (Chen & Hu, 2020; Kim et al., 2022).

In addition to firefighting equipment, other facilities such as office buildings, meeting rooms, and rest areas support a positive work environment to improve performance. Increased work motivation and job satisfaction start from a comfortable work environment, resulting in better performance (Ghassani & Sumartik, 2024). The availability of appropriate equipment and supplies, adequate training facilities, and comfortable supporting infrastructure can improve productivity and effectiveness at work. The available infrastructure influences the performance of firefighters in OKI Regency. Improving the quality of infrastructure to support the performance of firefighters should be a priority for the local government.

3.4. The Impact of Education Level, Training, and Work Facilities on the Performance of Firefighters in Regency OKI

Factors significantly influence firefighters' performance, including education, training, and infrastructure. In Regency OKI, these three elements play a crucial role in determining the effectiveness and efficiency of firefighter operations.

In the education questionnaire results, the highest-rated item was statement number 5, which asserts that employees/staff must have an educational background in undergraduate education. Having a higher education level will impact the quality of firefighters, as better education influences their thinking and performance on duty.

The most dominant result in the training questionnaire responses for this variable was that firefighters must regularly attend training. Training should be conducted regularly to ensure firefighters are well-trained, professional, and fully competent. This will improve their ability to serve the public effectively and minimize the risk of work-related accidents.

Regarding the variable on work facilities and infrastructure, the most dominant response was that the placement of facilities and infrastructure should meet the needs. The availability of firefighting facilities and infrastructure must align with their purpose and requirements. Proper equipment placement will facilitate smooth operations and quick action in a fire. With adequate firefighting facilities and infrastructure, there will be no hindrance in carrying out duties during a fire incident.

Firefighters have the primary responsibility of extinguishing fires, rescuing victims, and educating the public on fire prevention (Fiondra et al., 2023). Firefighters are equipped with the training and knowledge to be ready for complex and dangerous situations, such as using firefighting tools using water, foam, and other materials (Kurnia et al., 2023; Yasmeardi et al., 2020). The success of firefighting relies heavily on the rapid response and strategy of the officers in acting to rescue victims trapped in the fire (Damayanti et al., 2021). After that, officers conduct education to increase public knowledge and awareness about fire risks and prevention (Tomasoa et al., 2023).

Officers must be prepared for complex and dangerous situations, such as explosions, thick smoke, high heat, and building collapses (Meyer et al., 2020). The effectiveness of officers' work is affected by extreme weather and will be more difficult by heavy rain and strong winds. Supporting officers' performance is highly dependent on the availability of adequate facilities and infrastructure (A. Fitri et al., 2022). Lack of facilities and infrastructure will affect their performance in the field (Puspitasari, 2019).

Officers receive quality education and training to improve performance (Rodriguez et al., 2021). Training will help them to be skillful in dealing with complex, dangerous, and emergency situations (Ma'romah & Adianto, 2020). Formal and non-formal education will shape their understanding of firefighting techniques, emergency management, and standard operating procedures for rescuing victims. In addition to education, structured and regular training allows firefighters to hone their technical and tactical skills. Through intensive training, firefighters can develop quick response abilities, team communication skills, and proficiency in using modern equipment they may not have mastered previously.

Investment in adequate infrastructure, such as fire trucks, personal protective equipment, and training facilities, is essential to support firefighters' performance (Daeng, 2023; Rodriguez et al., 2021). The government and relevant institutions must ensure that firefighters have access to the necessary resources (Silalahi & Nurkharimah, 2022). Insufficient resources can lead to delays in fire response and endanger both the safety of the firefighters and the public (Rahmadhani & Alhadi, 2021).

From the distribution of respondents' answers on the Performance variable, the most dominant factor is teamwork and good communication when carrying out tasks. Teamwork and communication are key factors that support the performance of

firefighters because if teamwork and communication within a team do not function well, it will hinder the performance of the firefighters and could lead to fatal consequences if communication is not properly maintained.

The variable that affects the most dominant performance is education. In accordance with the Facts and Conditions in the field of firefighters, the education factor shows a (dominant) influence on the performance of firefighting officers. This occurs because of several causes, namely as follows:

a. Good formal education makes one more likely to have a strong theoretical understanding of firefighting techniques, safety, and emergency handling.
b. Education can also lead to critical thinking and the ability to make quick and appropriate decisions, which are very important in emergency situations such as fires.
c. Officers with a good educational background are likelier to understand and adhere to standard operating procedures and protocols, which are important for effectiveness and safety in fire management.
d. A good formal education can help officers adapt to new and unexpected situations that often change in the field

Education serves as the foundational element in equipping firefighters with the necessary knowledge and skills. Relevant formal and non-formal education can enhance firefighters' understanding of both the theory and practice of firefighting. According to Sumino et al. (2022), good education contributes to improving firefighters' analytical abilities and decision-making skills in emergency situations.

Training is an ongoing process to improve firefighters' skills and knowledge. Structured and relevant training can enhance firefighters' preparedness for various fire situations. Research by M. A. Fitri et al. (2023) indicates that intensive training can boost firefighters' confidence and technical abilities, positively impacting their performance in the field.

The success of fire suppression depends on the available infrastructure, including fire trucks and other supporting facilities. According to Feber and Muchlis (2021) and Kloot (2009), the time effectiveness of firefighting increases with the availability of good infrastructure. Conversely, poor infrastructure can reduce time effectiveness and hinder performance. The findings of this study indicate that education, training, and infrastructure have a major influence on the performance of firefighters in Regency OKI. This is in accordance with Nugraha et al. (2020), which states that the combination of the three elements produces synergies that increase work productivity and effectiveness. Improving the quality of education and training and providing adequate facilities to support the performance of firefighters should be a priority for local governments.

3.5. Recommendations

For the Municipal Police and Firefighters of OKI Regency:

a. Improvement of the education and training programs. Given the high business performance of training activities, it is recommended that firefighters' education and training programs be enhanced, including the continuation of education and the development of new competencies.
b. Ensuring Suitable Buildings and Structures are made available. Relevant information explains the importance of a quality work environment. Therefore, there ought to

be a commitment to the provision and quality of equipment and other facilities that are essential for the proper running of these courses.

c. Evaluation and feedback. Periodical assessment and appraisal are necessary to determine whether available education, training, facilities, and structures can assist firefighters in performing better.

d. Budget Support. The funds invested in education, training, and the provision of equipment and appliances, particularly in the Fire Department, have to be raised to guarantee that firefighters dispose of the means needed to accomplish their tasks.

e. Develop Data-Driven Policies. To enhance performance and safety while fighting fires and disasters, there is a need to come up with policies in education and training for the firefighters and infrastructural support that can be informed by data and research findings.

4. Conclusion

In this study, the gap is seen in the lack of focus on these three factors in previous studies, so this paper offers a novelty by providing a more comprehensive perspective on the role of education, training, and infrastructure in firefighter performance. In this study, the gap is seen in the lack of thorough focus on these three factors in previous studies, so this paper offers novelty by providing a more comprehensive perspective on the role of education, training, and infrastructure in firefighter performance. Education, training, and work facilities all substantially impact improving firefighters' performance. Firefighters can manage field issues with greater responsiveness and professionalism as their education level increases. Continuous training also improves technical skills and emergency preparedness, while proper work environments enable more efficient and successful operations. Combining these three factors considerably aids in successful firefighting and community rescue operations. Firefighting performance includes rapid response, infrastructure readiness, team competence, effective coordination, safety during operations, and fire prevention efforts. Improvement can be achieved through training, facility improvements, and officer welfare.

Policy recommendations are that local governments continuously enhance education and training programs, improving technical competencies and emergency management. This will help firefighters adapt better to various fire conditions. Providing modern and standard-compliant work facilities should be a priority. Investment in advanced equipment and better infrastructure will support the efficiency of firefighters' performance. Policies should also focus on improving education and career development for firefighters. This can be done through formal education, professional training, and rewards for outstanding performance. Rewarding outstanding firefighters will increase their motivation and improve the overall quality of service to the community. A suggestion for future research to provide a more comprehensive analysis of firefighter performance is to include additional factors that may influence their performance. These factors could encompass aspects such as motivation, work experience, management policies, or working conditions, which may also affect performance but were not analyzed in this study.

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