

EDUCATION AND TRAINING MANAGEMENT IN THE FIRE PREVENTION FIELD TO ENHANCE FIRE CONTROL EFFECTIVENESS IN DKI JAKARTA - (A QUALITATIVE STUDY ON TRAINING MANAGEMENT IN THE FIRE PREVENTION FIELD IN DKI JAKARTA)

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Abstract

This research is motivated by the insufficient competence of Firefighters in Jakarta, Indonesia. The study aims to describe and analyze the Management of Education and Training (Diklat) for Fire Prevention in the Special Capital Region of Jakarta. The research is grounded in theories such as Total Quality Management, Risk Management, Organizational Competence, and the fundamental concept of Plan-Do-Check-Act (PDCA), utilizing a qualitative approach with a case study method. Data collection techniques include observation, interviews, and documentation. The findings conclude that the planning, implementation, evaluation, and follow-up of Fire Prevention Training in Jakarta have been conducted holistically. However, challenges arise due to inadequate resources, coordination issues, and community participation. Strategic improvements, including effective management, integrated evaluation, and coordinated follow-up actions, have successfully enhanced the competence of Firefighters. Recommendations include a) urging the Management of Pusdiklatkar Jakarta to enhance the frequency of intensive practical training, edutainment, periodic evaluations, technology integration, strong policies, a focus on evacuation skills, Total Quality Management (TQM), comprehensive evaluations, and risk management; and b) encouraging other researchers to consider this study as a general reference for further research. The research product introduces a Hypothetical Model and novelty in the form of innovative methods for fire prevention training, analysis of training needs, competency evaluation, technology integration, psychological factors, long-term effects, and community participation.

Keywords: Management of Education and Training, Fire Prevention, Competence of Firefighters.

INTRODUCTION

Indonesia, as an archipelagic country with a large population and extensive coastline, is vulnerable to fires. In 2020, there were 7,229 fires in 106 local governments, resulting in 924 fatalities and injuries, as well as material losses of around Rp. 604.4 trillion, including in DKI Jakarta. Fires are often seen as disastrous events that harm communities and the environment. Indonesia has forests and peatlands that are susceptible to fires, especially during the dry season or El Nino phenomena. This often leads to forest and land fires (Karhutla) and hazardous haze affecting human health, animals, and other habitats. Population growth also drives the need for housing by utilizing limited land in major cities like Jakarta. This necessitates the government to build high-rise residences such as flats, apartments, and tall buildings. However, this also poses new problems related to population density and the risk of fires, especially in densely

populated slum areas. In addressing the fire problem, it's crucial to have good equipment and human resource management in the fire department. Personnel capabilities need continuous improvement in line with technological advancements, especially since firefighting has been designated as one of the mandatory basic services, on par with other basic services like education, spatial planning, public housing, and social services. The technical standards for basic services in the firefighting subsector are regulated by the Ministry of Home Affairs, emphasizing the importance of having appropriate facilities and reliable human resources. Standardizing firefighting facilities includes equipment for prevention, extinguishing, rescue, handling hazardous materials, inspection of firefighting protection equipment, fire incident investigation, community empowerment, and firefighter self-protection. Firefighting infrastructure includes departmental buildings, sector posts in each district, and firefighting posts in each urban village/rural area. The focus on this infrastructure aims to enhance the ability and effectiveness in handling fire situations and providing better protection to the community.

The Jakarta Provincial Fire Department, managed by human resources, plays a crucial role in fire management. One issue in human resource management is employee career development, which can be done through on-the-job training or training programs. The Jakarta Provincial Fire and Rescue Training Center is responsible for the firefighting subsector, owning firefighting facilities such as vehicles and personnel that meet the standards. However, fire incidents in Jakarta remain high, with various causes including short circuits, gas cylinder/stove mishaps, and negligence like burning trash or weeds. It's crucial for firefighters to possess the knowledge, skills, and abilities needed to handle fire incidents. Developing this knowledge and skill set must be ongoing to meet the standards of professionalism in firefighting. This research is grounded in theories and basic concepts related to Fire Prevention Training Management, detailed as follows:

The Application of Total Quality Management (TQM) Theory in Fire Prevention Training Management in DKI Jakarta aims to enhance the effectiveness, efficiency, and quality of fire management. Developed by Deming (1986), TQM focuses on:

- 1) High-Quality Standards, emphasizing the importance of high-performance standards for training, equipment, and firefighting procedures.
- 2) Continuous Improvement as motivation to continuously improve curricula and training evaluations;
- 3) Involvement of all parties means actively involving personnel, instructors, authorities, and the community in designing training programs;
- 4) Measurement and evaluation, using systematic evaluation to monitor firefighting performance. The application of TQM must be tailored to the local context and factors in DKI Jakarta (Smith, 2022; Sarah, 2021; Taufik, 2020), expecting improvements in firefighting relevant to local needs.

Risk Management Theory in firefighting in DKI Jakarta focuses on risk identification,

evaluation, and handling with control, monitoring, and risk mitigation principles. Two important approaches in Utility Theory emphasize rational decisions based on estimating the probability of events and their impacts. Bernoulli (1738) developed this theory. Quantitative approaches are used through mathematical and statistical models such as statistical analysis, Monte Carlo simulation, and financial models for risk identification and management. This approach determines research methods and data processing techniques, especially in the context of data science (Maulid, 2021). These theories provide an essential basis in identifying risk factors, measuring risks, and planning effective prevention actions in firefighting in DKI Jakarta. These theories are crucial in the context of training management in the field of fire prevention in DKI Jakarta. Training in crisis communication helps firefighters convey clear information to the public, coordinate emergency responses, and mobilize resources effectively. Good communication can reduce uncertainty, speed up responses, and improve coordination in firefighting (Zaremba, 2010; Ulmer, Sellnow, & Seeger, 2016). Based on prior research relevant to this study regarding Fire Prevention Training Management in DKI Jakarta, some of the previous research includes: As previously outlined, there is a number of previous researches relevant to the topic of Fire Prevention Training Management in DKI Jakarta. There are some similarities and differences in the focus, approaches, and objectives of these studies. Based on the explanations provided, ten previous researches relevant to this topic are as follows: Casban, Marfuah, Sunardi, and Dewi (2020); Rochmawati, Timan, and Kusumaningrum (2019); Marfuah, Sunardi, Casban, Dewi (2020); Nurdianti (2019); Khairiyah (2022); Turere (2015); Sari and Kuwara (2021); and Saputra; Saputri; Cinkarila (2018). All these studies have relevance in the context of Fire Prevention Training Management in DKI Jakarta, with different approaches, methodologies, and focuses.

Research on fire prevention management in DKI Jakarta is crucial considering its complexity. With high population density, dense infrastructure, and diverse fire risks such as poor electricity, improper hazardous material storage, and human negligence, this research will identify common causes of fires. Additionally, appropriate prevention strategies will be designed, including public awareness campaigns, efficient allocation of resources, enhanced firefighting effectiveness, and broader knowledge. Hopefully, this will reduce fire risks and enhance the safety and well-being of the Jakarta community.

Management Process Includes Stages:

- a) Training Planning includes: data collection, needs identification, objectives, curriculum, schedule, resources;
- b) Training Implementation includes learning processes according to the curriculum, learning through various methods, understanding fire hazards, firefighting tactics, evacuation, safety practices;
- c) Training Evaluation includes setting objectives, selecting indicators, data collection, analysis, reporting, follow-up; and
- d) Follow-up includes identifying weaknesses, method improvements, advanced training, system development, policy enhancement, continuous monitoring, and evaluation.

Based on the issues, data, regulations, and facts above, the author deems it highly important to conduct research on "Fire Prevention Training Management to Enhance Firefighting Effectiveness in DKI Jakarta (A Qualitative Study on Fire Prevention Training Management to Enhance Firefighting Effectiveness in DKI Jakarta Province)". The research focuses on the Jakarta Provincial Fire and Rescue Training Center (Pusdiklatkar), aiming to improve training management for more effective fire prevention and firefighting.

RESEARCH METHODS

This research utilizes a qualitative approach aimed at comprehending phenomena holistically through descriptive forms of words and language, relying on various scientific methods. Qualitative methods aim to uncover uniqueness within individuals, groups, or organizations in their daily lives comprehensively and in detail. Research subjects include informants selected through purposive sampling techniques, including the Head of the Jakarta Provincial Fire and Rescue Agency and related staff. The research location is conducted at the Jakarta Provincial Fire and Rescue Training Center.

Data Collection Techniques Include:

- 1) Interviews, employing structured questions with research informants;
- 2) Observation, direct observation of activities and events; and
- 3) Documentation, based on reports, files, and relevant written materials for the research. Research data collection instruments involve the researcher as the primary instrument, using interview guidelines, observation, and document analysis. The Research Instrument Grid contains questions related to fire prevention training management.

The Research Procedures Involve:

- 1) Research preparation, which encompasses drafting the research proposal and initial site visits;
- 2) Research implementation, consisting of orientation, exploration, member checks, and finishing stages;
- 3) Data analysis techniques involving data reduction, data presentation, and drawing conclusions from the research findings;
- 4) Testing data validity conducted through:
 - a) Prolonged engagement, involving
 - (1) Developing initial observations for more in-depth information;
 - (2) Increased perseverance, aiming for more precise and sustained observations;
 - (3) Triangulation ensures data authenticity from various sources and times in various ways.

RESULTS AND DISCUSSION

Result

1. Location Overview (Fire Prevention Training Center of DKI Jakarta Province)

The Fire and Rescue Training Center of DKI Jakarta Province covers an extensive area of approximately 664.01 km², comprising 1 district, 5 cities, 44 districts, and 267 urban villages. In organizing the Fire Sub-Sector's Basic Public Service, the Provincial Government is supported by departmental units at the administrative city level. They possess 238 fire-fighting vehicles and a total of 4,335 personnel, meeting the established standards. Established in 1981, this Training Center has undergone several name and structural changes to its current state. Their vision and mission are centered on enhancing human resources' competencies in fire prevention, firefighting, and rescue, with training programs tailored to community needs. The work culture adopted includes diligence, intelligence, completeness, and sincerity, with the motto "No day without training."

The legal basis for operating this Training Center includes local regulations, governor regulations, as well as ISO 9001:2015 certification standards and accreditation from the State Administration Institute of Indonesia (LAN). They conduct various types of technical training in fire prevention, such as fire inspector training, building fire safety management, and firefighting instructor programs.

The facilities and infrastructure of the Ciracas Training Center encompass an 8.5-hectare building equipped with amenities such as classrooms, studios, dining areas, worship facilities, a library, sports facilities, fire training facilities, swimming pools, testing grounds, simulation buildings, and spaces for oil and gas fire simulation.

DISCUSSION

a. Planning of Fire Prevention Training to Improve the Competence of Firefighters in DKI Jakarta

Collection of Data and Information on Fire Risks in DKI Jakarta: The research focuses on the planning of Fire Prevention Training in DKI Jakarta. Data collection involves hazard identification, risk analysis, and expert consultations. Fire statistics and expert perspectives serve as the basis for Diklat regulations, reinforcing awareness, technical preparedness, and rapid response in firefighting.

Identification of Fire Prevention Training Program Needs: The identification of Fire Prevention Training Program types includes the process of selecting topics, Diklat materials, scheduling, and instructor preparation based on identified needs, ensuring an effective and relevant Diklat program for personnel.

Identification of Competency Assessment Needs: The identification of personnel competency assessment needs includes evaluating the understanding of fire prevention principles, assessing basic knowledge, technical firefighting skills, evacuation and rescue procedures, crisis management abilities, compliance with standards and regulations, and communication and

collaboration skills. The assessment relates to Competency Theory in Organizational Theory, encompassing skills, knowledge, and attitudes influencing performance. It also aligns with ethical values, ensuring consistency and integrity in personnel evaluations.

Implementation of Ethical and Legal Values in Assessments: Ethical values, such as respect, honesty, responsibility, trustworthiness, helpfulness, tolerance, and harmony, are integrated into assessments to ensure alignment with professional ethical values. Assessments play a role in competence improvement by designing additional training programs and developing personnel skills.

Assessment Management for Competence Improvement: The assessment management in Fire Prevention Training in DKI Jakarta focuses on evaluating personnel knowledge, skills, and attitudes. Assessment results are used to design additional training programs to enhance personnel readiness in fire prevention tasks, crucial for public and environmental safety.

Identification of Regulation and Policy Needs for Fire Prevention Training in DKI Jakarta: The identification includes monitoring current regulations, evaluating compliance, identifying shortcomings, and coordinating with relevant parties. This process aligns with the planning stage in the Koontz and Donnel Planning Concept.

Identification of Technology and Equipment Needs for Fire Prevention Training: The identification includes updating firefighter performance through training, understanding the latest technology and equipment. Training management plays a vital role in adapting to changes and advancements in fire prevention.

Community Needs for Fire Prevention Training: Community needs include awareness of fire risks, with benefits such as reduced learning time, creating a positive attitude, improving cooperation, meeting human resource planning requirements, and reducing workplace accidents. Collaboration with relevant parties also creates an environment supportive of personal development. The Fire Prevention Training in DKI Jakarta has considered regulatory, technological, and community needs. Through monitoring, evaluation, and synergy, Diklat can play a crucial role in adapting to developments and enhancing community safety. Emphasizing performance updates, positive attitudes, and cooperation can create an environment supportive of personal development and collective security. The evaluation of previous programs provides a crucial foundation for designing more effective and relevant Fire Prevention Training programs.

Identification of Successes, Weaknesses, and Challenges: Evaluation on various aspects includes: Technical knowledge:

- (1) Success, if there's an improvement in technical knowledge among firefighters after the previous program, it is considered a success.
- (2) Weakness, if there are gaps in knowledge or a lack of understanding of firefighting principles, it is a weakness that needs improvement.
- (3) Challenges: Possible challenges may include ineffective teaching methods or a lack of training material updates.

Operational Skills:

- (1) Success, improvement in operational skills using firefighting equipment and effective firefighting tactics.
- (2) Weakness, a lack of improvement in operational skills or gaps in the application of firefighting tactics.
- (3) Challenges, a lack of resources or adequate practical training.

Emergency Management Abilities:

- (1) Success, if the previous program successfully developed emergency management abilities, including quick decision-making.
- (2) Weakness, if there are weaknesses in managing emergency situations or a lack of crisis readiness.
- (3) Challenges, factors such as a lack of crisis simulation or inadequate crisis management training.

Team Coordination:

- (1) Success, an improvement in the ability to work effectively as a team.
- (2) Weakness, difficulties in coordination or a lack of cooperation among team members.
- (3) Challenges, a lack of team exercises or ineffective communication.

Physical and Mental Abilities:

- (1) Success, an increase in physical fitness and mental resilience.
- (2) Weakness, if the previous program did not have a positive impact on physical and mental health.
- (3) Challenges, a lack of resources to support fitness training or a lack of focus on health aspects.

Relationship with Competent Firefighter Characteristics:

- (1) Success, if the previous program successfully created firefighters with competent characteristics.
- (2) Weakness, if there is a lack of fulfillment of competent characteristics in firefighters.
- (3) Challenges, factors such as a lack of emphasis on competence development during training.

This evaluation serves as the basis for developing a better Fire Prevention Training program. By identifying successes, weaknesses, and challenges, PUSDIKLATKAR can make necessary improvements and adjustments to enhance the effectiveness of the training program and achieve desired goals. This adjustment process should involve relevant parties, holistic data analysis, and program adaptation responsive to actual fire prevention needs.

b. Implementation of Fire Prevention Training to Improve the Competence of Firefighters in DKI Jakarta

Highlighting the importance of curriculum and training material development, strategic steps include needs identification, curriculum structure, technology utilization, and continuous evaluation. A pragmatic approach with the PDCA cycle is employed to enhance the effectiveness of firefighting. Planning, as the initial stage, involves goal setting, training needs identification, curriculum design, and resource allocation. The development of training programs is done pragmatically, prioritizing the usability of concepts in practical contexts.

Integration of diverse teaching methods, such as lectures, discussions, simulations, and technology, aligns with the pragmatic approach and William James's philosophy. Scheduling and resource allocation reflect a serious commitment to improving effectiveness and relevance. The organization of fire prevention training in DKI Jakarta mirrors a Total Quality Management (TQM) approach, focusing on quality and human resource optimization. Pusdiklatkar DKI Jakarta is committed to quality safety and firefighting through planned and integrated actions.

The discussion above emphasizes the importance of curriculum development, training materials, and strategic steps. The integration of diverse teaching methods, continuous adjustments based on evaluations, and a pragmatic approach are key to program effectiveness. Pusdiklatkar DKI Jakarta demonstrates a commitment to quality safety and firefighting through planned and integrated actions, reflecting a Total Quality Management (TQM) approach.

Analysis of Fire Prevention Training in DKI Jakarta

The focus is on curriculum implementation, learning sessions, and module understanding. Curriculum implementation is considered a key element in enhancing the competence of firefighters, including planned material instruction, support for practical experience, and compliance with local standards. It involves building a strong understanding and practical application of knowledge and skills.

Learning sessions in Fire Prevention Training are designed multidimensionally, including methods like lectures, group discussions, practical exercises, case studies, and simulations. The aim is to ensure that participants not only understand theory but also have relevant practical skills in handling fires. Lectures provide a foundation, group discussions facilitate experience exchange, and practical exercises, as well as simulations, enable participants to apply their knowledge and skills without real risks.

Understanding training modules encompasses various aspects, from safety regulations to auditing SOPs, with a focus on technical, ethical, and regulatory aspects. Training module management is related to teleological values, such as usefulness, benefit, functionality, progress, regularity, integrative, productivity, effectiveness, efficiency, accountability, and innovation. There is also a connection with ethical-legal values, such as respect, humility, loyalty, honesty, and responsibility, to form an ethical foundation in dealing with fire situations.

The training implementation involves structured sessions, realistic simulations, active personnel participation, and consistency with the curriculum. The goal is to provide a knowledge and practical skills foundation for Junior Fire Inspectors. Therefore, Fire Prevention Training in DKI Jakarta not only focuses on technical understanding but also on achieving real goals and benefits. The program establishes a strong ethical foundation, encourages action, and stimulates innovation in the context of fire prevention.

c. Follow-up (Act) of Fire Prevention Training to Improve the Competence of Firefighters in DKI Jakarta

The "Act" phase in the PDCA (Plan, Do, Check, Act) cycle of Fire Prevention Training Management in DKI Jakarta involves steps such as identifying weaknesses, taking further actions, and improving teaching materials/methods. A pragmatic approach, based on Pragmatism Philosophy, is used to develop a practical and effective training program. Concrete steps involve test analysis, performance assessment, interviews, observations, the development of specific modules, adjustment of teaching methods, and continuous monitoring with participant feedback. Compliance with local regulations, the use of interactive methods, participant engagement, and training performance monitoring are regulated through policies. The principles of pragmatism create a continuous process in Fire Prevention Training Management, enhancing the effectiveness and relevance of the training program according to the needs of firefighters in DKI Jakarta.

In summary, in the Fire Prevention Training Management in DKI Jakarta, the "Act" phase in the PDCA cycle involves a series of actions to improve the training program. This includes identifying weaknesses, improving teaching materials and methods, advanced training, infrastructure development, policy improvements, and continuous evaluation. The application of pragmatism, constructivism, risk management, and Total Quality Management (TQM) forms the basis for continuous improvement. The consistency with fire prevention regulations and policies is crucial for creating a safer environment in DKI Jakarta. Infrastructure evaluation is crucial in developing fire prevention policies, and the implementation of TQM can help establish quality standards and drive continuous improvement.

Fire Prevention Training in DKI Jakarta provides training to Junior Fire Inspectors with a focus on various aspects, including understanding regulations, identifying fire risks, knowledge of firefighting equipment, evacuation planning, crisis management, and the ability to read building drawings. Evaluation and supervision are carried out to enhance participant competence, involving assessments of understanding, skills, and participant satisfaction. The implementation of the PDCA cycle in training management creates a sustainable process.

The ability to read building drawings and fire protection installations is a primary focus of the training, with the expectation that Junior Inspectors can design more effective firefighting strategies. The training also emphasizes the development of skills in implementing inspection procedures, testing, and maintenance of fire protection equipment. Participants are trained in understanding inspection procedures, functional testing, preventive maintenance, and basic repairs.

In the context of the Functional Position of Fire Analyst, the training covers various tasks such as building inspections, community empowerment, evaluation of outreach, education and training, preparation of the Fire Protection System Master Plan, handling risks of Hazardous and Toxic Materials (B3), and follow-up on deviations from fire safety standards.

The training also focuses on understanding the principles of fire protection systems involving active systems, passive systems, and Fire Safety Management. Participants are trained in the operational use of active equipment, understanding the design of safe buildings, inspection and maintenance of passive structures, as well as the ability to develop fire safety and crisis management plans.

Mastering inspection result reporting techniques is also a primary focus, involving the identification of findings, writing clear inspection reports, the use of technical language, and effective communication. By mastering these techniques, it is expected that firefighters can make valuable contributions to maintaining safety and readiness against fire risks.

It is also important to note that the discussion includes references to Ministerial Regulations and Regulations of the Head of the Education and Training Agency of DKI Jakarta Province, providing the basis for the implementation of training and the duties of functional positions.

CONCLUSION

The Fire Prevention Training (Diklat) Planning in DKI Jakarta has been conducted holistically, involving needs identification, evaluation of previous programs, and the implementation of Total Quality Management (TQM) along with the PDCA cycle. Despite successfully reducing fires and increasing awareness, weaknesses such as limited resources, inconsistent approaches, and community participation need improvement. Continuous enhancements, including strategic Diklat management, are essential for program success.

The Implementation of Fire Prevention Diklat in DKI Jakarta has covered curriculum implementation, learning sessions, and understanding of Diklat Modules, reinforcing participant readiness through the TQM process. The program has considered local contexts and stakeholder feedback.

The Evaluation of Fire Prevention Diklat in DKI Jakarta has been clear and integrated, complying with relevant regulations. It encompasses various aspects such as evaluation goals, delivery of Diklat material by instructors, measurement of knowledge and skills, participant feedback, and evaluation reports.

The Follow-up (Act) of Fire Prevention Diklat in DKI Jakarta includes identifying weaknesses, improving teaching methods and materials, advanced Fire Prevention Diklat, system and infrastructure development, and enhancing compliance with policies and regulations. Continuous monitoring and evaluation are carried out to improve the competence of Fire Officers. For Pusdiklatkar Management in DKI Jakarta: Conduct more intensive practical Diklat with realistic simulations and edutainment on fire risks. Periodically evaluate and refine the curriculum to ensure the relevance of fire prevention information. Strengthen focus on

evacuation skills, equipment protection, and safety monitoring through integrated policies. Adopting TQM and cross-sector collaboration can enhance responses to fire risks. For Other Researchers: Utilize the findings of this study as a reference for further research on Fire Prevention Diklat Management in DKI Jakarta. Verify the conclusions and findings in different research locations for generalization.

Conduct further research using the same methodology in different locations or use the model generated from this study as a hypothetical model for quantitative testing. Emphasis should be placed on the comprehensive and continuous development of fire prevention programs, considering both theoretical and practical aspects and compliance with existing policies and regulations. The goal is to enhance overall effectiveness and response to fire risks.

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