

Level of Understanding of Palembang Aviation Polytechnic Cadets on Aviation Fire Rescue Rules and Regulations

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Received 10 May 2022; Revised 1 June 2022; Accepted 1 July 2022

Abstract: This study was conducted to determine the level of understanding of Palembang Aviation Polytechnic cadets on aviation fire rescue rules and regulations. Aviation fire rescue rules and regulation is one of the courses in the education curriculum of the Diploma III Aviation Fire and Rescue Study Program (PPKP) Palembang Aviation Polytechnic which was obtained in the first semester. The type of research used in this study is a quantitative type with a cross sectional research design. This study aims to see the average difference in the pre-test and post-test scores so that the paired sample t-test analysis test was carried out. The results of the study obtained a total of 49 respondents, 3 respondents entered the exclusion criteria because the data answered were incomplete. Through the univariant test, the increase in the average pre-test result was 87.00 to 91.86 in the post-test mean after the intervention in education and training materials was carried out. Normality test was performed to ensure that the data were normally distributed. Through the Paired Sample T-Test, a significance value of 0.000 was obtained, which means that there is a significant difference between the pre-test and post-test scores. Furthermore, it can be seen the Correlation value of 0.525 which shows the strength of the relationship of the 2 variables tested, namely pre-test and post-test. So that the success indicator data is obtained through the increase in the results of the pre-test and post-test.

Keyword: Level of Understanding, Cadets, Fire Rescue Rules and Regulations

1. Introduction

Today, air transportation is one of the main choices for users of transportation services. Air transportation is the most promising solution to facilitate the flow of transportation for both passengers and goods to and from abroad (Latifah, 2011). Air transportation is a transportation service that has several advantages, which are able to reach from one area to another that is geographically difficult to reach by land or sea transportation modes, and the travel time is relatively faster than land transportation and sea transportation (Firdiansyah and Fathoelqorib, 2018). However, recently there have been a lot of accidents or fires that have occurred on airplanes, causing a lot of losses, both loss of life and material and time losses, so that public confidence in the comfort and safety of using air transportation is decreasing, even though the need for the use of air transportation is very high (Zazili, 2008).

Safe and convenient transportation can be achieved by developing safety management. An important part in safety management is the presence of competent transportation human resources. Competency development must be carried out periodically to adapt to changing world conditions. Education and training programs are one of the methods that can be used in developing competence. This education and training program is constantly changing, so that transportation human resources must make these refreshing efforts.

Educational institutions in the field of air transportation have the task and function of educating Indonesian children to become professional and skilled human resources in the field of aviation in accordance with national and international regulations. At this time the education and training curriculum refers to national (Ministry of National Education) and international (ICAO) standards so that it is hoped that every graduate is expected to be able to compete with graduates from abroad. The success rate of this research can be seen in various improvements and improvements related to learning strategies, facilities, infrastructure/infrastructure and teaching staff in an effort to meet the needs of aviation human resources both in quality and quantity (Sri, 2011).

According to Abdul Majid 2012, the safety factor is a priority in the world of aviation, with the aim that passengers and flight crew during the flight do not get disturbed by either the air media, aircraft or flight supporters. In order for safety to become a habit, it needs to be taught and trained starting from the beginning of lectures, during lectures and practice until the teaching program is

finished so that it is hoped that after they finish college, they will have habits without having to be ordered.

One of the targets that will be produced by educational institutions is how to direct certain skills, both soft skills and hard skills. It should also be noted that the implementation of training and development can achieve two interests at the same time. The first is the personal interest of the employee, so that with the results of the training he has participated in, the quality of expertise will improve simultaneously. The next interest is the institution, if the implementation of training and human resource development is achieved by increasing the expected productivity.

Education and Training Institutions have a role in preparing quality human resources in the aviation sector in Indonesia and to find out that Education and Training Institutions are expected to overcome obstacles in preparing human resources in the aviation sector in Indonesia. The results of the study show that human resource management with education and workforce training is very important to improve human resources so that they better understand their work responsibilities, so that high-performing human resources will make a positive contribution to the organization. Work discipline needs to be done in order to achieve maximum service whose satisfaction will be felt by consumers (Fathul, 2021).

Educators in the educational process play a strategic role, especially in efforts to shape the character of the nation through the development of the desired personality and values. Viewed from the learning dimension, the role of educators in Indonesian society remains dominant even though the technology that can be utilized in the learning process develops very quickly (Herawan and Nani, 2011).

Fires can happen anywhere and have sudden adverse effects on companies, employees, communities and the environment. Based on research showing the potential for fire hazards on the runway and monitoring potential hazards, there is no policy in fire prevention, emergency response procedures already exist and are implemented, a fire management team called PKP-PK has been formed but the number of personnel is not sufficient and the level of knowledge of the firefighting team is adequate. quite good but still really needs to be improved through understanding the Aviation Fire Rescue Regulations (Mulyono and Sujatmiko, 2012).

Analysis of various findings in articles published in reputable national journals and related laws and regulations, there is an urgent need related to

increasing the competence of cadets through education and training in the field of Aviation. Improvements and improvements are related to learning strategies, facilities, infrastructure/infrastructure and teaching staff in an effort to meet the needs of aviation human resources both in quality and quantity (Sri,Y, 2011).

Regulation of the Director General of Civil Aviation Number KP. 420 of 2011 explains that in order to overcome the danger of fire on the runway, a division of Aviation Rescue and Fire Fighting (PKP-PK) has been formed which has the task of carrying out flight accident assistance and fire fighting as well as handling emergency situations in the airport environment, saving human lives and goods from an aircraft that has an accident or fire on the runway during take-off or landing.

Evaluation is indispensable in formal education, in this case schools. Especially the evaluation of learning outcomes. It is intended to see the level of ability and success of students in the learning process. There are two techniques that can be used to evaluate learning outcomes, namely test and non-test. Test techniques used in evaluating learning outcomes, including the preparation and implementation of tests; testing the validity of the test and the validity of the test items; test reliability test; examination, scoring, and processing of test results; and determination of the final value; ranking, and making learning achievement profiles (Sudijono, 2011).

Palembang Aviation Polytechnic cadets are expected to be able to describe the history of the development of international regulations relevant to aviation safety, international organizations that regulate aviation safety, international regulations related to aviation rescue and firefighting as well as national aviation regulations related to aviation safety, especially aviation rescue and firefighting. (Abdullah and Nugraha, 2021).

Initial observations have been made to the Palembang Aviation Polytechnic cadets, Diploma III Aviation Fire and Rescue Study Program (PPKP) Level I and II in the Aviation Fire Rescue Rules and Regulation course which were obtained in the first semester of lectures and obtained data for more than 15% of the total number of respondents. obtained a score of 70. This motivated the author to conduct research by measuring the level of understanding of cadets on Aviation Fire Rescue Rules and Regulations as a basic subject that must be mastered by Diploma III Aviation Fire and Rescue Study Program (PPKP) cadets so that appropriate strategy development is obtained in subsequent research.

Understanding is the ability to define, formulate difficult words in their own words. It can also be the ability to interpret a theory or see consequences or implications, predict the possibility or consequences of something (Nasution, 1999). According to Benjamin S. Bloom, understanding is a person's ability to understand or understand something after something is known and remembered. A student is said to understand something if he can give an explanation or give a more detailed description of it using his own language.

Nana, (2012) also groups understanding into three categories, namely the lowest level, second level, and third level understanding. Understanding is one of the cognitive aspects (knowledge). Research on aspects of knowledge can be done through oral tests and written tests. The technique of assessing the aspect of understanding is how to put forward true and false statements, and sequences, with questions in the form of an essay (open ended), which requires a description of the formulation with words and examples (Hamalik, 2002).

Based on the Decree of the Minister of Research, Technology and Higher Education of the Republic of Indonesia No. 1223/KPT/I/2018 concerning Permits to Open a Study Program in the Framework of Establishing the Palembang Aviation Polytechnic in Palembang City, South Sumatra Province organized by the Ministry of Transportation, there is one Diploma III Aviation Fire and Rescue Study Program (PPKP) Palembang Aviation Polytechnic, which has the aim of providing education and training in the field of aviation safety, especially Aviation Rescue and Fire Fighting (PKP-PK) which are professional and meet international standards. One of the main courses in the Diploma III Aviation Fire and Rescue Study Program (PPKP) is Aviation Fire Rescue Rules and Regulation which is a course in the first semester (Madjid, 2012; Yekti et al, 2021).

2. Methods

The type of research used in this study is a quantitative type with a cross sectional research design. This study aims to see the average difference in the pre-test and post-test scores so that the paired sample t-test analysis test was carried out. This research will be carried out at the Palembang Aviation Polytechnic in the Diploma III Aviation Fire and Rescue Study Program (PPKP). The time used is 6 months.

The population of this research is the cadets of Diploma III Aviation Fire and Rescue Study Program (PPKP) Palembang Aviation Polytechnic, totaling 49 people. To get optimal results, a minimum sample calculation is carried out

according to the paired numerical analytical research method (Dahlan, 2010), namely:

$$n_1 = n_2 = \left(\frac{(Z\alpha + Z\beta)S}{X_1 - X_2} \right)^2$$

Note:

$Z\alpha$ = alpha standard deviation = 1,64

$Z\beta$ = beta standard deviation = 1,28

S = standard deviation of the difference in values between groups

$X_1 - X_2$ = the minimum difference in the mean that is considered significant

Using examples from the research of Tobase et al. (2017), the error value that is considered meaningful is 8.4. Since there is no data regarding the standard deviation of the mean difference, the standard deviation is used twice of the 11 minimum mean differences which are considered significant. However, in this study there is no minimum sample required, because the study will use total sampling. The inclusion criteria of this study were all Diploma III Aviation Fire and Rescue Study Program (PPKP) cadets at the Palembang Aviation Polytechnic who filled out the informed consent form, complete the exam questionnaire. Incomplete or incomplete data became the exclusion criteria for this study.

The data collection technique was using participant observation from the exam questionnaire which was filled out by the research sample through the google form. Data analysis carried out in this study was univariate analysis and bivariate analysis. Univariate analysis was carried out to see the average value of the pre-test and post-test scores for Diploma III cadets of Aviation Fire and Rescue Study Program (PPKP). While the bivariate test was carried out to test the significance of changes in knowledge in Diploma III Aviation Fire and Rescue Study Program (PPKP) cadets.

3. Results and Discussion

The success of the research can be seen from the significant increase in test results through the average pre-test results and the average post-test results indicating that repetition of lecture material in the early semester through periodic educational and training interventions in order to maintain cadets' understanding of the entire lecture material. The following are the results of data processing

based on the test results given to the cadets of the Diploma III Aviation Fire and Rescue Study Program (PPKP) distributed via google form to measure the cadets' understanding of the Aviation Fire Rescue Rules and Regulation material before and after receiving education and training interventions on the material.

Univariate Test (Data Frequency)

From the results of the univariate test, the pre-test variable obtained an average value of 87.00, median value of 88.00, standard deviation of 4.37. Meanwhile, for the post-test variable, the average value was 91.86, the median value was 92.00, and the standard deviation was 4.62.

Table 1. Univariate Test (Data Frequency)

	Mean	Median	SD	Minimum	Maximum
Pre-Test	87.00	88.00	4.37	80.00	98.00
Post-Test	91.86	92.00	4.62	82	100

Data Normality Test

Table 2. Normality Test Data

Variable	Stat	Sig.	Conclusion
Pre-Test	0.962	0.136	Normal Distributed Data
Post-Test	0.095	0.123	Normal Distributed Data

The normality test aims to test whether the data of the dependent variable and the independent variable have data that are normally distributed or not. Good data is to have a normal data distribution or close to normal. To test for normality, it can be analyzed using the Shapiro Wilk Test method because the data is less than 100 samples. The basis for decision making is if the probability value of t-statistics > level of significant = 0.05, then the regression model meets the assumption of normality. From the table above, it can be seen that the pre-test and post-test variables were normally distributed (sig > 0.05).

Paired Sample T-Test

Table 3. Paired Sample T-Test

Variable	Mean	SE	P-Value	Correlation	CI
Aviation Fire Rescue Rules and Regulation					
Pre-Test	87.00	0.645	0,000	0.525	-6.174 s/d -
Post-Test	91.86	0.682			3.564

From the table above, a significance value of 0.000 is obtained, which means that there is a significant difference between the pre-test and post-test scores. Furthermore, it can be seen the Correlation value of 0.525 which shows the strength of the relationship of the 2 variables tested, namely pre-test and post-test.

This study was conducted to assess the level of understanding of Aviation Fire Rescue Regulations for the Palembang Aviation Polytechnic Cadets at Diploma III Aviation Fire and Rescue Study Program (PPKP). The mean pre-test result is 87.00. These results indicate the average knowledge base of the cadets on the Aviation Fire Rescue Rules and Regulations. After intervention through education and training on Aviation Fire Rescue Rules and Regulation materials, a reassessment was made to obtain the average post-test results. The average post-test result changed to 91.86. There was a significant increase in the basic knowledge of the cadets after being given education and training on the material (Vaniessa, 2020). Furthermore, the data were tested using a paired sample t-test analysis test with a cross sectional research design to see the average difference in the pre-test and post-test scores. Previously, the data normality test was carried out to ensure the data was normally distributed, namely with the same amount of data. pre-test and post-test. For cadets of the Diploma III Aviation Fire and Rescue Study Program (PPKP) they are required to understand well the material of the Aviation Fire Rescue Regulation as one of the mandatory competencies that PKP-PK personnel at the airport must possess. The level of cadets' understanding of the material will be good if refreshments are carried out regularly to recall the material that has been obtained in the first semester of lectures through education and training. The indicator of the success of this research can be seen from the

increase in the average pre-test and post-test results after the education and training intervention was carried out by 87.00 to 91.86.

4. Conclusions

Respondents in this study were cadets of the Palembang Aviation Polytechnic Diploma III of Aviation Fire and Rescue Study Program (PPKP). This study uses total sampling, from a total of 49 research samples, there are 3 (three) data samples that are incomplete or not filled as the exclusion criteria of this study. The average pre-test result was 87.00 as the average basic knowledge of cadets on Aviation Fire Rescue Rules and Regulations. After intervention through education and training on Aviation Fire Rescue Rules and Regulation materials, a reassessment was made to obtain the average post-test results. The average post-test result changed to 91.86. There is an indicator of success with a significant increase in the mean pre-test and post-test scores. Through the Paired Sample T-Test test can be tested the significance value on the pre-test and post-test, obtained a significance value of 0.000 which means that there is a significant difference between the pre-test and post-test scores. Furthermore, it can be seen the Correlation value of 0.525 which shows the strength of the relationship of the 2 variables tested, namely pre-test and post-test. The understanding of the material for Aviation Fire Rescue Rules and Regulations needs to be mastered well by the cadets of the Diploma III Aviation Fire and Rescue Study Program (PPKP) as a basic competency that must be possessed by PKP-PK personnel at the airport. Education and training are learning strategies that are quite powerful in an effort to increase cadets' understanding of the material. It is carried out routinely as an effort to refresh the material obtained in the first semester in order to improve the quality of graduate competencies. In this study, an education and training intervention was conducted to obtain a pre-test mean value of 87.00 as the basis for the level of understanding and training and education were carried out on the material so that the post-test average was 91.86. The indicator of success is seen in the increase in the average pre-test and post-test of 4.86.

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