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EVALUATION OF EDUCATION AND TRAINING IN MINISTRY OF PUBLIC WORKS AND PUBLIC HOUSING

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ABSTRACT
The study aims to evaluate the performance of the Ministry of Public Works and Public Housing Training. Evaluation of training performance needs to be carried out to measure the effectiveness of the training program. The scope of the research area covers the Provinces of North Sumatra, South Sumatra, DKI Jakarta, West Java, DI. Jogjakarta, East Java, South Kalimantan, South Sulawesi and Papua. Measurement includes score improvement of the training participants. This research method is a survey using questionnaires as a research instrument. The data is then processed with pre-test and post-test difference test techniques. The results showed that in general, the increase in the score of training participants in each field and each Training Center significantly shows an increase. The highest pre-test and post-test scores is Training Center Jakarta area. While the pre-test and post-test scores for the highest score is Housing and Settlement Finance Sector.

Keywords:
performance evaluation; training; pre-test; post-test; government institution.

INTRODUCTION

The training and education center of the Ministry of Public Works and Public Housing has the task of improving the competence of the Human Resources of the State Civil Apparatus (ASN) of the Ministry of Public Works and Public Housing. These includes preparing curriculum and training modules. In this effort, the training and education center also plays a role in determining human resources competency development policies and programs. All Training Centers, including: Center for Competency Assessment and Performance Monitoring (Center 1) Water Resources and Construction Training Center (Center 2), Road Training Center, Housing, Settlements and PIW (Center 3), Training Center for Road Management and Development (Center 4) Regional Training Centers (Centers I to IX), and Training System Trial Centers (2 Training Centers) While the external Work Units are users in the implementation of training are the Directorate General of Highways, Directorate General of Housing Finance, Directorate General of Housing Provision, Directorate General of Creation of Works and Regional Infrastructure Development Agency.

To improve the quality of human resources competency development, the preparation of the Training module curriculum and the implementation of Training by Center 3 with the Training Organizing Center, are routinely carried out every year after the evaluation of the Training continuously and continuously. Studies show that training and development will have an impact on organizational development, employee development, growth, success and survivability (Lakra &; Sahu, 2016). Previous studied show that effective training and education can encourage employees to take extra role beyond what the organization expects (Lavanya, Saraswathi, &;

Reddy, 2020). Therefore, training or training and development of employees has a very important role for the organization.

Training does not always have a direct impact on improving employee and organizational performance, this is because the impact can only be felt after a certain period (Otoo &; Mishra, 2018). However, training is proven to help employees complete work better (Attia &; Honeycutt, 2012), as well as continuous learning and increase employee motivation (Chiaburu &; Tekleab, 2015). Training programs that are planned according to needs, appropriate content, good methods and administration will produce effective training (Lakra &; Sahu, 2016). Many organizations invest in training and development programs without measuring the effectiveness of those programs, making it difficult for organizations to measure success and making those investments futile (Rehman, Khan, & Khan, 2011). The form of evaluation is carried out to determine the extent of the development of the target to be achieved and anticipate identifying problems that will occur in the future (Nisfah, 2022).

Previous studies have shown that organizations generally have difficulty measuring the effectiveness of training programs because of the diverse types of programs, various assessment matrices are needed (Oh &; Wesley, 2023). One common method of measuring the effectiveness of training is Kirkpatrick's model (Jasson &; Govender, 2017). Kirkpatrick's model measures the results and effectiveness of development and training programs with four dimensions of measurement: reaction, learning, behavior, and outcomes (Kirkpatrick, 2015). Other models that are also commonly used are pre-test and post-test models (Jorgensen, Thorsen, Siersma, &; Winther, 2022). Training participants are given questionnaires with various statement items that measure the ability of participants before and after training. Measuring the effectiveness of training and other development programs is very important and needs to be done so that organizations can know the impact on the organization's business performance (Garavan, et al., 2019). Ignoring these effectiveness measurements can risk identifying obstacles to the Training program, and losses due to human resource investments that produce nothing (Jasson &; Govender, 2017).

Human resources department of Ministry Public Work And Housing in 2015 has 3,920 graduates of training participants and in 2016 has 4,688 graduates of training participants. This underlies the need for comprehensive measurement of the performance of training implementation, namely the Center 3 and the Secretariat as Supervisors and Regional Training Centers and Training System Trial Centers as training organizers. The more often the education and training provided by the organization will further improve employee performance (Suriyanto, 2018), it increases employee knowledge so that it has a positive impact on the organization in improving employee performance.

In the preparation of education and training performance in the fields of roads, housing, settlements and regional infrastructure development, there is a management process at training Center which refers to Stoner's theory (2012) defining that "Management involves the systematic process of strategizing, coordinating, guiding, and overseeing the activities of individuals within an organization, as well as utilizing other human resources, with the aim of accomplishing organizational objectives. In the context of Human Resource Development at the Training Center, the focus lies on

arranging training programs in alignment with the principles expressed by Raymond and Noe (2010: 2) as cited in Akhila Kunche's work (2015). According to their perspective, human resource management encompasses policies, training initiatives, and systems that influence employee behavior, attitudes, and performance. Additionally, Mathis and Jackson (2012: 4) define human resource management as the formal structural framework within an organization that assesses the competence of individuals in order to effectively achieve the organization's goals".

The Training Center is a facility designed to enhance employee performance through education and training (Sedarmayanti, 2009). According to Hasibuan (2014, pp. 69-70), education is a process that expands general knowledge and fosters a comprehensive understanding of our environment. On the other hand, training focuses on enhancing an employee's knowledge and expertise in performing specific job tasks. Education and training are part of the development process, which aims to improve both technical and managerial skills (Hasibuan, 2014). Education is primarily theory-based and conducted in classrooms over an extended period, aiming to address the "why" behind concepts. On the other hand, training is practice-oriented, involving field exercises that are shorter in duration and focus on answering the "how" (Rustiana, 2010). Through education and job training, the goal is to enhance the competence of each employee, consequently improving their overall performance (Handayani et al., 2017). This research analyzes various aspects in the Evaluation of Education and Training, including the trainees, trainers, training courses, implementation management, and evaluation of training performance.

The uniqueness of research on training and education evaluation lies in its focus on assessing the effectiveness and impact of various educational programs, interventions, and teaching methodologies. This field of research aims to provide evidence-based insights into how to improve teaching and learning outcomes, enhance educational practices, and optimize the training process for learners. These contribute to a better understanding of effective teaching and learning strategies and facilitate evidence-based decision-making in the field of education.

In this research the improvement was measured by pre-test and post-test score of trainee. Analysing pre-test and post-test scores of trainees is essential for assessing learning growth, evaluating intervention impact, establishing baselines, identifying learning needs, supporting evidence-based decision-making, and ensuring research validity. These analyses provide valuable insights into the effectiveness of educational programs and interventions, leading to continuous improvement in teaching and learning practices. The aims and objectives of the evaluation of education and training are as follows: 1) Measuring Pre-test and Post-test Scores of each Training Centre, 2) Measuring the Increase in Pre-test and Post-test Scores of each Training Centre, 3) Measuring Pre-test and Post-test Scores per Field, 4) Measure the Increase in Pre-test and Post-test Scores in each Field.

METHOD

The approach to evaluating the performance of Education and Training in Ministry of Public Work and Public House is designed with a systematic approach. This approach involves transforming all inputs into outputs through a specific process to produce outcomes that can deliver the desired benefits or impacts to users. In this system, the effectiveness of goals is not solely determined by internal factors, but is

also influenced by external factors. The closer the system is to the point of utilization or downstream, the higher the likelihood that external factors will impact the overall success of the system.

The survey was conducted within a direct survey to 100 alumni respondents participating in the 2015-2016 training. The survey locations are in the regions, namely in the Provinces of North Sumatra, South Sumatra, DKI Jakarta, West Java, DI.Jogyakarta, East Java, South Kalimantan, South Sulawesi and Papua. The data collection method is designed and implemented using ordinal scales 1-4. A lot of data and information have been collected from training evaluation activities carried out in 2015-2016. The data processing technique used is a test of differences and disparities between fields. This test involves analyzing pre-test and post-test data, as well as exam results, to examine various aspects of the implementation and personal data of the participants.

RESULTS AND DISCUSSION

Pre-Test and Post-Test are important stages to determine the achievement of training objectives to participants in absorbing learning results in the training program implemented. In this pre-test and post-test activity, the focus of evaluation is on changes in the knowledge and skills of training participants at the beginning of training or before the intervention, compared to the test results after participants have finished being given knowledge intervention. Evaluation in the implementation of training aims to improve things that are lacking in implementation and planning so that policies can be formulated in accordance with the implementation of the training (Sejati, 2021). The following are the results of data descriptions and analyses developed from pre-test and post-test scores:

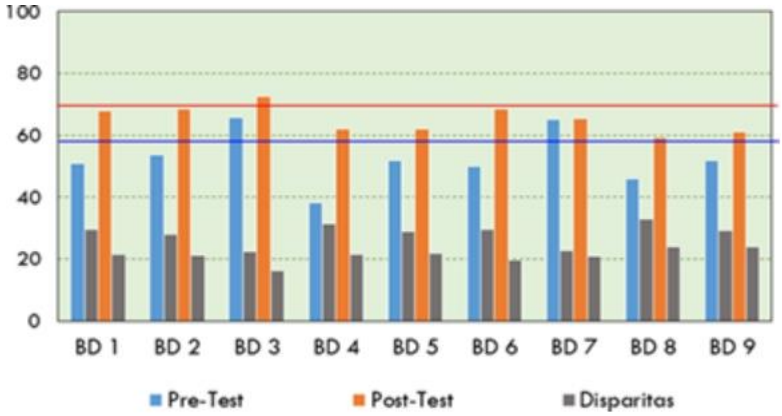

Figure 1. Pre-Test, Post-Test Results and Disparities of Each Training Center

The picture above is processed from data on pre-test and post-test scores of participants per training Training Center in 2017. The blue line shows the average pre-test score of participants in all Training Centers, which is 52.6 and the orange line shows the average post-test score of 65.3. In general, there is an increase in scores for all participants, after attending the training. However, the initial conditions and development of the participants varied according to the training center. Based on the picture above, the highest average pre-test score of participants is at the Jakarta Training Center III, which is 65.6. While the average pre-test is relatively low at the Bandung Training Center IV, which is 38.2. The difference is quite large and can indicate the general condition of the participants. Furthermore, we can see in the

picture the highest average post-test score is found in Training Center III Jakarta, which is 72.5 and the relatively low average post-test score is in Training Center IV Bandung, which is 62.1.

Furthermore, it can be seen the disparity or gap in the pretest and post-test scores of participants at each training center, to determine the absorption of participants in general. The high disparity score shows that in the training Training Center, the absorption of participants tends to be very different. The best results are indicated by high scores and minimal disparity, indicating that participants in the Training Center are highly engaged and their performance is evenly distributed. Ideally, no participant should lag behind or surpass others by a significant margin.

In this case, participants of Training Center VIII Makassar have a fairly high disparity when compared to other training Training Centers. Meanwhile, at the Jakarta Training Center III, it can be seen that there is no large gap between participants in pre-test scores. As for the post-test score, Training Center IX Jayapura has a considerable gap compared to other training centers. The magnitude of this disparity score is influenced by several factors, including the alignment of participant criteria with the type of training, the level of difficulty in pre-test and post-test questions, the teachers, and the learning process.

The significance of pre-test and post-test scores was carried out to determine the increase in participants' abilities after attending training, using the Pair t-test method, with an error tolerance of 5%.

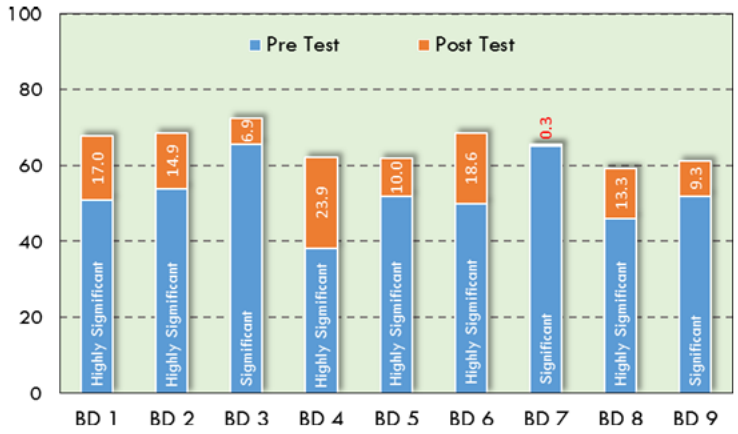

Figure 2. Pre-Test and Post-Test Results of each Training Center

After conducting a paired sample test, overall, training participants experienced an increase in terms of mastery of concepts. From figure 2, it can be seen that the average sample test result is very significant between pre-test and post-test scores. This shows that there was a 'very marked' increase in participants' insights before and after attending the training. A total of 6 Training Centers showed a very significant increase in participants of 66.6%, while the other 3 Training Centers experienced an increase in sufficient limit of 34.4%.

The average increase in pre-test and post-test scores in all Training Centers was 12.7%. The highest increase was found in Training Caenter IV Bandung and the lowest increase was in Training Center VII Banjarmasin. Other training centers such as Medan, Palembang, Surabaya and Makassar are among the average. Bandung City

Training Center, which initially included having the lowest pre-test average score, actually experienced an increase in the highest post-test, or there has been a very noticeable development. Even the score of the other three training Training Centers. Training Center 3 (Jakarta) and Training Center Banjarmasin, with the highest pre-test scores, experienced a relatively slight increase. The next analysis was carried out by looking at the correlation between pre-test and post-test, with the following results;

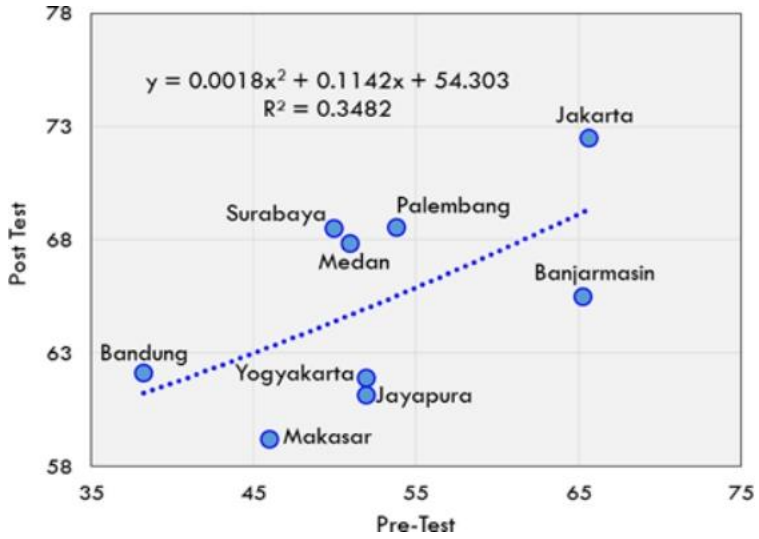

Figure 3. Linear Pre-Test on Post-Test Per Training Center

The linear equation graph above explains the relationship between the average pre-test and post-test scores based on 2017 Training Center data. The rate of improvement can be assessed using these equation lines. If the position of the training Training Center is above the line, it indicates a good improvement achievement or above its potential. Conversely, if the position is below the line, then the achievement of improvement is relatively low or below its potential. Training Centers that exceed the minimum limit are Jakarta, Palembang, Surabaya, Medan, and Bandung Training Centers, meaning that at different levels of pre-test scores, participants in these centers can achieve improvements that exceed their potential. While Training Center Banjarmasin, Yogyakarta, Jayapura and Makassar, at different levels of pre-test scores, but the achievement of increasing post-test scores is lower than the potential it can achieve.

In addition to analyzing data from each Training Center, data analysis and processing can also be done by comparing participants' pre-test and post-test scores based on the field of training. This training field consists of roads, housing finance, housing provision, settlements, and regional infrastructure development. The results of this evaluation can be used as input for the review and improvement of the field of training. The following are the pre-test and post-test results that have been processed based on the field of training:

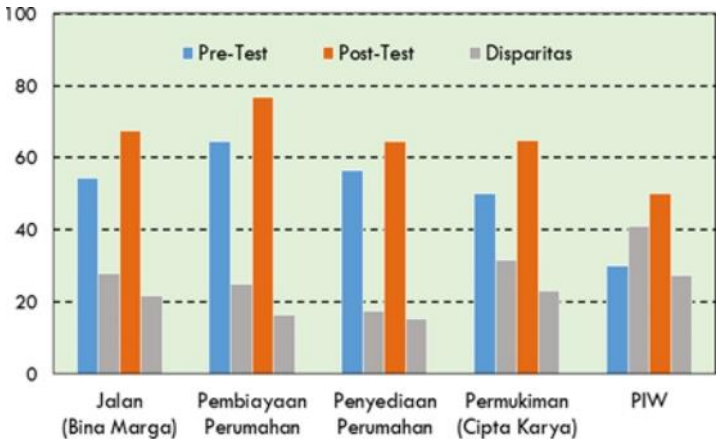

Figure 4. Pre-Test and Post-Test Results of each Field

From the data above, it shows the pre-test and post-test participants per field in 2017. Of all fields, training participants in the Housing Finance field have the highest pre-test scores, while PIW training participants have relatively lowest pre-test scores. The highest average post-test score is in the Housing Finance Field, while the lowest post-test score is in the PIW Field.

From Figure 4, it can also be seen the disparity in participants' pre-test and post-test scores based on each field. In the pre-test score, the PIW field has the highest disparity between participants when compared to other training centers. Meanwhile, the Housing Provision Field has a relatively small score gap between participants. The situation of PIW Field training needs attention, because in addition to the relatively low score, the difference between participants is also relatively high. However, in general, there is an increase in test scores in Training Centers and a decrease in disparity in participants' scores.

The calculation of the significance of pre-test and post-test scores is also carried out per field to determine the improvement of the ability of training participants in each field of training (roads, housing finance, housing provision, settlements and PIW). The following are the results of the pre-test and post-test significance tests that have been processed based on the field of training:

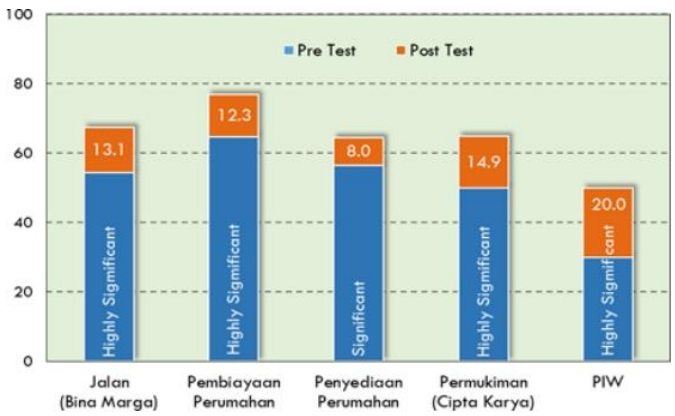

Figure 5. Pre-Test And Post-Test Scores of Each Field

Based on Figure 5 by conducting a paired sample test, overall, training participants according to their respective fields, experienced a very significant increase

in terms of mastery of concepts. The pre-test and post-test scores of the PIW Field experienced the highest increase. The lowest increase in the Housing Provision Sector. In the field of Housing Finance, in addition to the average score is already high, the rate of change is also very significant. The next analysis is to correlate between Pre-Test and Post-Test scores, with the following results:

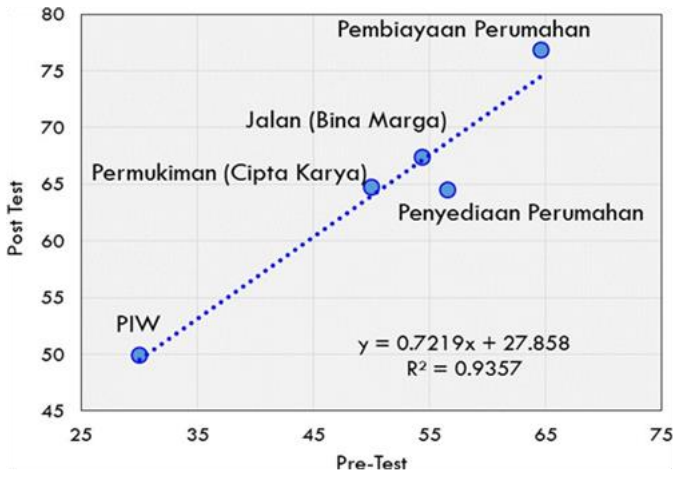

Figure 6. Pre-Test, Post-Test Linear Graphs on each Field

The linear equation graph above explains the relationship between the average pre-test and post-test scores based on 2017 field data. From the graph, it can be concluded that the high and low pretest scores tend to greatly determine the post-test score. If the average pre-test score of participants in a field is high, then in general the average post-test score will be high as well. The rate of improvement can be assessed using these equation lines. If the position of the field is above the line, it indicates a good improvement achievement or above its potential. Conversely, if the position is below the line, then the achievement of improvement is relatively low or below its potential. The field of training that exceeds the minimum limit is the field of training for housing and settlement finance. This means that at these different levels of pre-test scores, participants in the field of training can achieve improvements that exceed their potential. The field of Highways and PIW is relatively mixed category. The field of Housing Provision is included in the category below its potential, namely the achievement of increasing its post-test score lower than its potential that can be achieved.

From the pre-test and post-test score analysist, the participants have learning growth progress. This showed that training in terms of knowledge acquisition is effective. The participants also have skill development. By analyzing the change in scores, which higher in post-test the intervention has led to significant improvements in trainees' knowledge or performance. This evaluation helps identify effective strategies and interventions that contribute to enhanced learning outcomes.

Pre-test scores provide a baseline measurement of trainees' knowledge or skills before the intervention takes place. It helps establish a starting point against which post-test scores can be compared. This baseline data is valuable in understanding the initial proficiency level of trainees and provides a reference point for evaluating the effectiveness of the intervention.

CONCLUSION

The results of the pre-test and post-test for the disparity in the absorption of participants' learning outcomes show in general the ability of participants to understand the training material. The highest average pre-test and post-test scores of participants are at the Jakarta Training Center III. This means that in the Jakarta Training Center III, it can be seen that there is no big gap. Based on the Increase in Pre-test and Post-test Scores per Training Center, it is concluded that the high and low pre-test scores tend to determine post-test scores. Training Center Jakarta, Palembang, Surabaya, Medan, and Bandung, achieved improvements that exceeded their potential.

The results of the pre-test and post-test participants per field in 2017 concluded that the participants of the Housing Finance training had the highest pre-test and post-test scores. The results of pre-test and post-test significance tests that increase scores based on fields, high and low pre-test scores tend to greatly determine post-test scores. The field of training that exceeds the minimum limit is the field of training for housing and settlement finance. This means that in the field of training, it can achieve improvements that exceed its potential.

The analysis of pre-test and post-test scores provides empirical evidence to support decision-making processes. The comparison of scores allows for an objective assessment of the effectiveness of different teaching methods, instructional materials, or curriculum changes. Based on this evidence, educators, trainers, and policymakers can make informed decisions about program improvements, resource allocation, and future educational interventions.

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