

Post Training Evaluation; Effectiveness of Road Infrastructure Training in Indonesia

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Abstract—This study aims to determine the effectiveness of the results of training in the field of road infrastructure in infrastructure training institutions in Indonesia. This research method uses a quantitative approach which is validated by using a qualitative approach. The training observed included 4 training in the field of road infrastructure managed by the Indonesian government infrastructure training institute. Research respondents were graduates, direct supervisors, peers and external users. The data processing method uses percentage by weighting and analyzed based on the training analysis concept from Kirkpatrick. This concept examines how trainees respond to the benefits of training results, changes in behavior and contributions to the organization. In addition, it was also identified the performance of graduates based on the opinions of direct superiors, colleagues and external users. The results showed that in general the graduates could apply their learning outcomes in a variety of ways and contribute to their job and the organization.

Keywords—post training evaluation; road infrastructure training field; training effectivity

I. INTRODUCTION

Infrastructure development requires highly skilled human resources. Human resource development is carried out through training and education. Road infrastructure training has been carried out routinely by authorized training institutions under the Government of the Republic of Indonesia. Routine training needs to be evaluated regularly to find out its effectiveness and benefits. One effort to assess the effectiveness of training is to conduct a post-training evaluation. This evaluation is expected to also motivate the workforce to learn objectively which leads to improved performance and professional commitment [1].

Measurement of training effectiveness has been carried out with various approaches. Research that measures the effectiveness of training is carried out using information from secondary data [2]. Other research related to the effectiveness of training is also carried out related to how the effectiveness of training is seen from its effect on the creative and moral attitudes of workers [3]. Other studies analyzed the effectiveness of training with the Kirkpatrick model approach [4]. The research was carried out in the banking and railroad industry. Research on post-training evaluations has been conducted aimed at improving training outcomes [1]. Research

related to the effectiveness of training that has been reviewed based on post-training observations has not been done much, especially those that use the substance of the training approach and use respondents from multi parties (graduates, direct supervisors, colleagues and users). This study aims to determine the condition of the effectiveness of the training based on the post training evaluation conducted on education in the field of road infrastructure in Indonesia. This research focuses on how the benefits felt by the trainees and the organization after the graduates return to the assignment are reviewed from various points of view or perceptions.

II. LITERATURE REVIEW

A. Training Evaluation

Training evaluation is often defined as the systematic process of collecting data to determine whether training is effective [5,6]. Training evaluation basically must identify the suitability of training activities with organizational strategies [7]. Some weaknesses that can be seen in many training systems are that managers and supervisors do not pay enough attention to training staff and ultimately do not get the right feedback [8]. Previous studies, showed that companies and institutions use various levels of analysis to evaluate training effectiveness [9]. The American Society for Training and Development (ASTD) assesses the national prevalence of the importance of measurement and evaluation to executives. The Human Resources Department (HRD) surveyed 300 HRD executives from various types of organizations. The survey results show that the majority (81%) of HRD executives felt the importance of evaluating training and more than half (67%) used the Kirkpatrick Model to conduct the evaluation. The thing that was evaluated was a change in attitude after the training program. The results showed that the results and effectiveness of the training results would depend on the nature of the training and the participants [10]. Employees who attended training could increase their sales by an average of 7% over the next six months, while the control group or who did not attend training showed an average decrease in sales of up to 3% [11]. The most commonly measured effectiveness of training programs is at the level of reaction and the level of skills learned or knowledge gained [12]. The training results also show that there are new abilities that can be obtained by learning and training [13].

Evaluating training is the last but very important part of the training cycle. This stage is the process of gathering information after implementing the training program. Further information from this stage is used to make decisions for designing more effective training programs [14]. There are three main objectives of training evaluation: (a) Feedback about the effectiveness of training activities, (b) Control of the training implementation, (c) Interventions into organizational processes that affect training. In addition, the benefits of training evaluation are: (a) Improving the quality of training activities, (b) Increasing the trainer's ability to associate inputs with outputs, (c) Better integration of training offered and development in the workplace and (e) Better collaboration between trainers and line managers in staff development [14].

B. Kirkpatrick 4 Level Training Evaluation Model

This training model was developed in 1959-1960 by Donald Kirkpatrick. The idea of evaluating training was conveyed through a series of articles published by the American Society for Training and Development (ASTD) [15]. Kirkpatrick introduces that training programs can be evaluated successfully at 4 different levels. Each level is very important and has an impact on the next level. The 4 levels are: (1) Level 1 Reaction: How well did the participants react or like the program? (2) Level 2 Learning: What knowledge (principles, facts and techniques) did participants learn from the program ?, (3) Level 3 Behavior / performance: What positive changes in the work behavior of participants originating from the training program ?, (4) Level 4 Outcome / impact: Does the application of learning achieve the results the organization expects? [15].

III. METHODS

This research uses quantitative methods with the sampling technique used is proportional random sampling, which is taken 30% of the alumni of training in infrastructure. The total number of respondents was 168 people consisting of: 42 graduates, 42 direct supervisors, 42 peers and 42 users.

A. Respondents

Post-training evaluation respondents are:

- Training graduates: participants who have attended training and have graduated from the training.
- Direct supervisors: training alumni supervisors who are authorized to assess the work of graduates.
- Colleagues: colleagues in the organizational unit. The colleagues are a teammate and knows the graduate's performance after returning to the workplace.
- Users are internal and external parties of an organization that use the work of training graduates

B. The Instrument

The aspects asked in this research instrument are as in Table 1 as follows:

TABLE I. DIMENSIONS AND DESCRIPTION IN POST TRAINING EVALUATION INSTRUMENTS

Dimensions	Description	
Implementation of Substance of Training Materials (Behavior)	Ability to understand and apply training material	
Benefits and implementation of knowledge of training results (Behavior)	New benefits gained during training	
	Changes in mental attitude at work	
	Develop knowledge based on material obtained from training	
	Suitability of training with work	
	Training as a requirement for promotion	
Increased abilities, skills and changes in attitude at work (Behavior)	Increased skills in the workplace	
	Ability to apply work methods	
	The ability of employees to work more skillfully, quickly and efficiently	
	The ability of employees to reduce errors in work	
	The ability of employees to solve problems	
	The ability of employees to develop work methods	
	Timeliness in completing tasks	
	The ability to take the initiative	
	Changes in mental attitude at work	
	The accuracy of decision making in completing tasks	
	Ability to understand and apply training results	
	Result (results or impact on the organization)	The achievement of targets in work
		The suitability of the substance with the results of the work

C. Data Processing Techniques

Data collected from the results of questionnaires were processed using Weighted Means Scored (WMS) i.e. percentage by weighting. The results of data processing are then validated by the interview method using purposive sampling. Interviews were conducted with graduates and direct supervisors.

IV. RESULTUAND DISCUSSION

A. Benefits and Implementation of Knowledge of Training Results Based on Graduates' Perception

The benefits and implementation of knowledge based on alumni perception can be seen in the following figure 1.

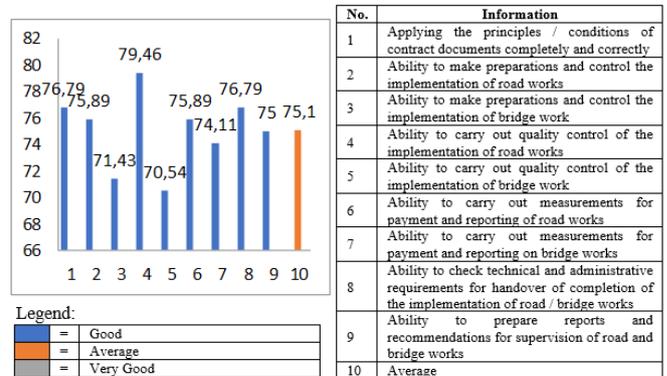


Fig. 1. Knowledge and skills based on substance of material according to graduates.

Based on figure 1 it can be seen that in general training graduates have been able to apply training materials in the workplace. Thus the training graduates have been able to supervising, measure and develop work report, checking technical requirements and provide recommendations. This is in accordance with the material received during the training.

Furthermore, changes in attitudes and benefits felt by graduates can be seen in the following figure:

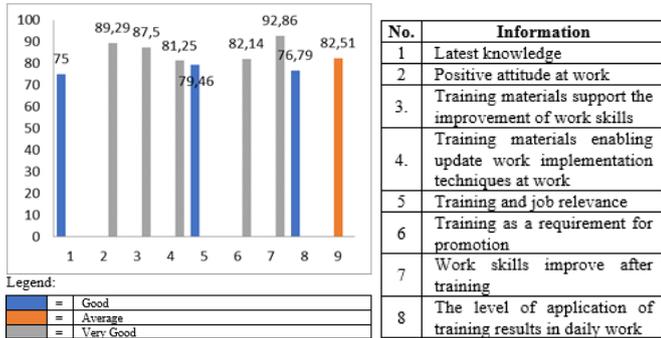


Fig. 2. Changes in training attitudes and benefits according to graduates.

Based on figure 2 it can be seen that the graduates have been able to apply the results of training on the job, have a positive attitude at work and training materials can be used to improve or update work implementation techniques. In the career, training is considered as a requirement of promotion. Thus in general the graduates feel that the training material provides benefits for the implementation of daily tasks. According to the interview it can be explained that in general the results of the training basically provide benefits and new knowledge for graduates.

B. Graduates' Performance Based on the Direct Supervisor's Opinion

Post-training conditions of graduates are asked to the direct supervisor. The following figure is the performance of graduates after training based on the perception of the direct supervisor:

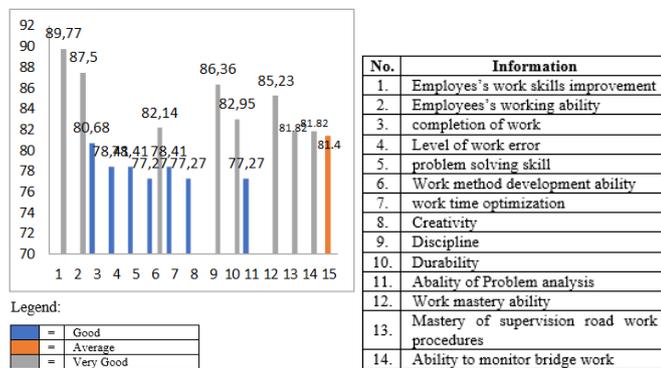


Fig. 3. Post training performance of graduates based on direct supervisor perception.

Based on figure 3, the direct supervisor argues that after attending the training the graduates improve their performance and there is a change in working's attitude (average score of

81.40%). Thus the direct supervisor's perception of skills and the change in attitudes of graduates after returning to work is quite positive.

C. Graduates' Performance Based on Colleague Opinions

The following chart is the perceptions of colleague on graduate performance:

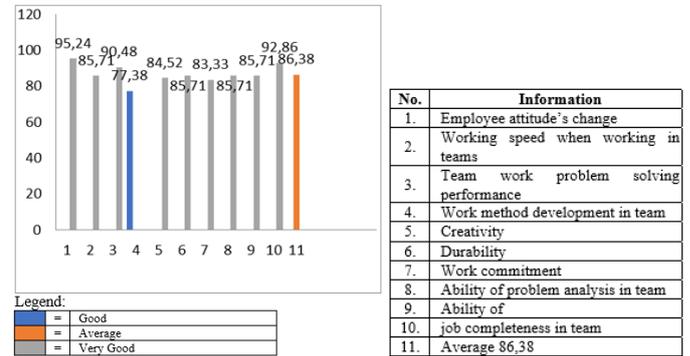


Fig. 4. Colleague's perceptions on graduate performance.

Based on the figure 4 colleagues argue that graduates experience significant changes in attitude and skills. Data shows that assessment of colleagues by level of 86.38%. However, for aspects of the ability to develop work methods in a new team at an early stage. In this case colleagues have felt that the results of the training have begun to increase the ability of graduates to develop work methods.

D. Graduates' Performance Based on User Perception

To ensure that the results of training are felt beneficial to the organization we need to explore internal and external users perception about graduates performance in services. Here is a figure of these perceptions:

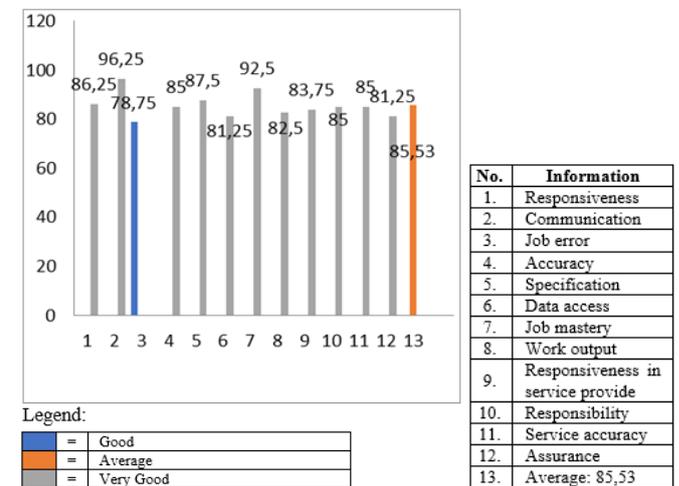


Fig. 5. User perception on training graduates performance.

Based on figure 5, it can be explained that the user's perception of graduates' skills and services is very good (85.53%). The user perception illustrates that the results of the training have provided benefits at the organizational level. The benefit is the outcome of services that are well perceived by the

users. Referring to the concept of Kirkpatrick then level 4 has begun to be reached.

The quantitative results above were validated through interviews. Interview results confirm that in general participants felt that the training that was followed was in accordance with their position, duties, job responsibilities at work. Overall the training material can be understood. In addition, participants also said that training materials could be implemented in the workplace. However, they felt a short amount of time while the training material is quite dense. The obstacle in implementing material in the workplace is the lack of information regarding new regulations. Participants also argued that they obtained the latest knowledge in the work when conducting field visits. Besides, there is a few training materials cannot be implemented in the workplace, because their job is not relevance. Another thing that can cause training results not to be applied is the policies changing.

The results of the study indicate that basically training that was held quite effective. This is in line with the benefits received by training graduates that they gain latest knowledge, change behavior and provide benefits to the organization. Thus the results of the post-training evaluation provide feedback to the training providers on what needs to be improved, control further training activities and plan interventions [14]. Furthermore, the interventions in question can be directed to improve the quality of activities and staff development [14]. The results of this study are also in line with previous studies namely that the effectiveness of training results depends on the characteristics of the participants [10]. Based on the results of the study it can be seen that there are sometimes learning outcomes cannot be applied because of inappropriate job position when graduates return to their assignments. In addition, the results of this study are also in accordance with research that explains that employees who attend training tend to improve their performance than those who do not attend training [11].

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