



# Implementation of Vocational Education and Training Models for Construction Workers

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## ABSTRACT

Skills education and training for construction workers in Indonesia still encounter many difficulties in its implementation. On the other hand, cultural and technological developments in the construction of physical infrastructure require an acceleration of the skills of construction workers. This paper aims to analyze the quality of results from the implementation of a training model for construction workers with the work standards of building operators. The method used is thematic analysis with data collection techniques through observation and interviews. Implementation of the training is carried out in collaboration between educational institutions, local governments, construction workers' associations, and Professional Certification Institutions (LSP). The quality of training results is influenced by institutional factors, instructors, participants, curriculum and training materials, facilities, and infrastructure.

**Keywords:** Labor Training, Labor Certification, Construction Workers, Skilled Workers.

## 1. INTRODUCTION

The development of culture and technology in response to human needs in architecture demands an acceleration of the skill abilities of builders/construction workers [1], [2]. Passing on skills from generation to generation is less able to respond to the need for construction work with new materials and technology [3]. Currently, all construction workers must be certified to be involved in various construction projects [4], [5]. Based on earlier research by Widaningsih [6], the factor of their self-taught skills and learning traditionally from their predecessors is a fundamental obstacle because it has implications for work attitudes and knowledge of construction techniques. In addition, limited access to education and skills training due to lack of information further weakens their position as vulnerable workers, while their existence is urgently needed in the construction industry which is currently developing. For

this reason, efforts from various parties to fill this gap are urgently needed.

By regulation, skills training has been announced by the government, but many obstacles have been encountered in its implementation. First, the non-specific skills of builders are a problem in fulfilling certification requirements that demand quality standards for modern work because the skills and attitudes of construction workers in Indonesia are learned informally and are developed by themselves while working (*learning by doing*) [6]. Second, socialization from the government has not yet reached many construction workers in various regions [7]. Third, the ambiguous attitude of the construction industry which has not consistently implemented the requirements for certified workers [8]. This condition is one of the causes of the difficulty in restructuring the construction workforce into an employment pattern that can guarantee their rights, standardize their wages, and gain access to education and

training to improve their work skills [9]. That is why it is still very difficult for construction workers in Indonesia to follow the skills certification required for them to get jobs in urban areas, especially in medium and large-scale construction projects.

This paper generally aims to describe how the application of the vocational education and training model for construction workers has oriented towards the needs of the construction industry and skills certification that has been made before.

In the early stages of research, a design model for vocational skills training for construction workers was produced based on the Logic Model Development Guide [10]. The process carried out includes the stages of planning, implementing, analyzing, testing, and finalizing the training model. Data collection was carried out through surveys of service users of construction workers, FGDs with model development experts, FGDs with construction industry stakeholders, as well as theoretical and policy analysis as material for model development. In this context, the results of the early-stage research were developed into a vocational skills training model that collaborated with tertiary institutions, the Ministry of Public Works and Public Housing (Directorate of Competence and Productivity), and associations of construction service entrepreneurs about training standards and certification requirements that have been regulated in the Law of Employment [11], Construction Services Act [4], and Workforce Training Policy [12].

## 2. METHOD

This research was conducted in the context of a Construction Worker Training (CWT) pilot project which is an implementation of a vocational skills training model for construction workers based on the Logic Model Development Guide. The method used in this research is thematic analysis which analyzes qualitative data to identify common themes, topics, ideas, and patterns of meaning that appear repeatedly. Thematic analysis will try to find something from experiences, views, and opinions, based on a set of qualitative data [13]. In this case, the data in question is the experience of the training implementation process supplemented by observations and interviews. The implementation of the training is carried out in collaboration between educational institutions, local governments, construction worker associations, and Professional Certification Institutions (LSP). This paper focuses on the description of the aspects that influence the quality of the training that has been implemented.

## 3. RESULT AND DISCUSSION

The CWT pilot project implemented in the city of Bandung generally went according to plan and achieved the expected goals. Based on the experience of the implementation process, starting from the planning stage to the implementation of activities, six important aspects will affect the quality of the implementation of the vocational skills training model for construction workers. These aspects are (1) institutions, (2) instructors, (3) participants, (4) facilities and infrastructure, (5) funding, and (6) curriculum and teaching materials.

### 3.1. Institutional

The institutional aspect focuses on how the institution implements the model that has been designed. The institutions involved in this training at least consist of elements from universities, government agencies, professional associations, professional certification bodies (LSP), and construction worker communities in a city or region. This is necessary to bridge the gap in access and information for workers to training and certification and to ensure that all facilities are available and adequate.

On the institutional aspect, the quality of model implementation in training pilot projects must be at least supported by three elements, they are (1) government policy support, (2) cooperation of professional associations and certification bodies, and (3) support for research programs and community service in higher education institutions.

In this study, government policy encouragement was obtained from the Bandung City government through the Department of Manpower. The training program for increasing work skills for construction workers, which so far has not been programmed, has now been listed and has become a routine program every fiscal year. Through the government, the outreach and outreach of this training program can be wider and more equitable. Among these three aspects, government regulation is the most important element to drive an initiation because it is formal and must be implemented. This is like what has been done in studies of Rohani [14] regarding the certification of tourism workers and Budijati, Pujawan, and Asih [15] about waste management practices which rely on support from the government.

This CWT pilot project is also supported by cooperation between job training institutions such as professional associations and professional certification bodies. Inter-agency networks will improve and guarantee the quality of training. The quality of training that is maintained will have an impact on the quality of the skills of construction workers.

On the other hand, the support of higher education research and Community Service (P2M) programs is also an important part, especially in coordinating and synergizing policies. Through tertiary institutions, the aspirations of various stakeholders can be captured and formulated into a complete and reliable program.

### **3.2. Instructors**

Training instructors who are qualified and have competency certificates according to their fields determine the quality of various types of training program and have implications for the quality of training results [16]. Instructors can be determined from several elements as was done in this CWT pilot project, namely (1) elements of professional practitioners, (2) elements of professional associations, (3) elements of higher education institutions, and (4) elements of construction training institutions. Each instructor is positioned according to their respective areas of expertise and adjusted based on predetermined programs and curricula.

### **3.3. Participants/Trainees**

Aspects of the trainees related to the objectives of the training program. This CWT program is specifically made for construction workers who do not yet have a skills certificate (operator level). In this training, the input of the trainees is active workers in construction projects who already have work experience. It is hoped that after going through this training the participants will receive updates on the latest construction science and a broader paradigm.

In the planning stage of the CWT pilot project, it is targeted that as many as 100 workers can become training participants. In its implementation, as many as 120 people registered as participants in this training. The amount is obtained from various relationships. They are residents of the city of Bandung who work as construction workers in construction projects throughout West Java. Some are direct workers from associations and contractor acquaintances, some are construction workers who are registered at the labor office. Information about this training is continuously rolling in their circle until the training quota target is reached.

### **3.4. Facilities and Infrastructure**

Training facilities and infrastructure determine the quality of activity implementation and the quality of results. According to Saftari and Sinta [17], facilities will have a direct effect on the effectiveness of training. Facilities and infrastructure are prepared according to the curriculum design that has been made before. In this training, some of the facilities and infrastructure that were prepared included: (1) classrooms for theoretical

training materials, (2) open space for practical skills training materials, and (3) real locations for competency tests for implementing simple single function building designs. In addition, standard lecture equipment (theory) is also needed such as blackboards, media presentations, projectors, and laptop computers, as well as building materials and carpentry equipment (following the competency test design), also health and safety (OHS) equipment at work.

### **3.5. Funding**

Training and certification for workers require a lot of funds. In various training implementations, funding is often a factor of success, as in the training conducted by Handoyo and Setijaningsih [18]. This CWT pilot project was carried out in the city of Bandung with participants from construction workers from the city of Bandung so that the person in charge of the activities and funding is borne by the Bandung city government budget. In planning, this program is included in the budget change scheme for the 2022 fiscal year after first carrying out discussions and coordination of researchers with the Bandung City Manpower Office, because previously this program did not exist in the budget plan. Through the approval of the Bandung Regional Representatives Council (DPRD), this program was funded for 120 training participants. To maintain the sustainability of the program, training activities for construction workers are routinely programmed at the Bandung Manpower Office (Disnaker).

### **3.6. Curriculum and Teaching Materials**

The curriculum and training teaching materials as well as the modules prepared for training refer to standards and learning or training outcomes for building operators/technicians. Curricula and training materials are compiled and adapted from various existing sources such as the Indonesian National Work Competency Standards (SKKNI), construction competency training materials, college lecture materials, to materials determined according to the skill needs of today's construction workers. Curriculum can be adjusted and determined according to the expected achievements [19], however the content of the curriculum must be comprehensively discussed in advance by all stakeholders and instructors so that all content follows the targeted competencies. This also includes determining the material schedule. The number of hours in this training package is 30 hours of lessons plus a full day of competency or skills testing (real work practice).

In the implementation of this training model, the focus of the skills being trained consists of woodworking, stone working, and plastering skills. These three types of

work were chosen because they were a priority for technical practice in general. However, in addition to technical skills training, improving the quality of construction workers also focuses on work culture related to Occupational Health and Safety (OHS), attitudes and behavior in the workplace, communication techniques, how to read drawings, and the formation of the character of professional workers.

#### 4. CONCLUSION

The construction worker training pilot project that was carried out in the city of Bandung was generally carried out well. In the success of this program, six aspects must be considered, namely: (1) institutions, (2) instructors, (3) participants/trainees, (4) facilities and infrastructure, (5) funding, and (6) curriculum and teaching materials. These six aspects work as a system that cannot be separated from one another. The better the quality of the six aspects above, the better the output and outcome of the training program conducted, and vice versa. The CWT program can be carried out on a regional scale and organized by the local regional government and related stakeholders. If all regions in Indonesia do this, the acceleration of certification of construction workers in Indonesia will most likely be realized quickly.

The hope is that this training pilot project can become an inspiration and continue to be developed in various regions so that it can increase the skills of construction workers in Indonesia equally. In addition, the results of this research can be used as a basis for encouraging government programs to accelerate construction worker certification in Indonesia.

#### AUTHORS' CONTRIBUTIONS

Lilis Widaningsih: Lead researcher, methodology, conceptualization, CWT program trainer, original draft writer. Indah Susanti: Research member, data curation, CWT program trainer. Yudhistira Kusuma: Research member, CWT program trainer, writer, editor. Aldissain Jurizat: Research member, CWT program trainer. Try Ramadhan: Research member, CWT program trainer. Fauzi Rahmannullah: Research member, CWT program trainer.

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