Needs Analysis and Training Model Design Competence of Residential Construction Workers Has Local Wisdom Value

ABSTRACT

One of the goals of Construction Management is to effectively oversee the utilization of Human Resources in the execution of a construction project. Indonesia is among the key proponents of establishing the Economic Community integration. The government has undertaken various measures to align with the economic collaboration among the ten ASEAN nations, including the development of competent human resources. Thus far, training observations have been conducted without any provision of training or technical guidance for workers regarding a construction project that possesses local knowledge significance. The objective of this study is to analyze the requirements of the competency training model for residential construction workers that incorporate local wisdom values, and to develop the corresponding training model. This study employed the Research and Development approach to investigate the competency standards for building work executors that are associated with building construction and incorporate local wisdom values. The ADDIE development model (Analyze, Design, Development, Implementation, and Evaluation) was utilized to create the training model. Findings of the research the initial survey conducted on 30 workers revealed an average competence level of 30.9%, which falls within the category of weak competence according to local wisdom. Additionally, all workers (100%) expressed agreement in enhancing their competence in residential houses that embody local wisdom ideals. The competency training model was designed utilizing the ADDIE Research & Development Model, which consists of five components: model syntax, social system, reaction principle, support system, instructional impact, and accompanying impact. This model comprises a model book, teaching material modules, and books.

Keywords: *Construction Management, local wisdom, competency training*

INTRODUCTION

One of the goals of Construction Management is to effectively oversee the utilization of Human Resources in the execution of a construction project. The quality of human resources is a crucial aspect for construction businesses to achieve their vision and goal, making it impossible to be separated (Sintya Rani, Dharmayanti and Adnyana, 2017). The construction industry is known as one of the most hazardous activities. Therefore, safety on the job site is an important aspect with respect to the overall safety in construction. Developing a proactive safety culture may take long time and require spending of large sum of money for planning, investigating and implementing into each level within the organization. However, it is worthy of being compared with invaluable health and life of human beings. Once it succeeds, the relative rewards will be achieved in terms of competitive advantage, quality, reliability and profitability within organization[6-9].Indonesia has played a leading role in the establishment of the Economic Community integration. The government has undertaken various measures to align with the economic activities of the ten ASEAN countries, including the development of competent human resources.

At the higher education level, curriculum development and renewal are conducted in response to this phenomenon. It is mandated that every study program in higher education in Indonesia must develop, implement, and evaluate their curriculum based on the Indonesian National Quality Framework (KKNI) in the field of higher education.

As stated by Muhammad Nurtanto (2016), the execution of education, particularly vocational education, should prioritize the incorporation of indigenous knowledge specific to each locality. The objective is to enhance societal well-being by providing relevant and effective education to address the pressing issues of global competition, particularly the establishment of the Asean Economic Community (AEC).

Indonesia exhibits a significant amount of cultural diversity and linguistic abundance, characterized by unique attributes that vary across different regions. Indonesia exhibits a significant amount of cultural diversity and linguistic abundance, characterized by various qualities that vary from one another. Indonesia boasts a significant amount of cultural diversity and linguistic abundance, characterized by unique attributes that vary from one another. Similarly, Indonesia exhibits a wide range of architecture

designs that are heavily shaped by the cultural ideologies of each specific area. For instance, kepanrita-bolaan or kesanro-bolaan serve as the "architect" of traditional Bugis dwellings. A Bugis traditional stilt home is characterized not only by its design, but also by the construction process, which embodies Bugis cultural philosophy. Similarly, the Javanese Joglo traditional house incorporates the dense design of Javanese traditional culture. The utilization of the Knock Down technique on wooden connections enhances the construction's properties of flexibility, damping, stability, and elasticity, making it resistant to earthquakes (Nithi Indra Komala Dewi, 2019). The Rumah Rakit Sungai Musi in Palembang is dedicated to the meticulous process of choosing and preserving materials, guided by indigenous wisdom. Presently, the prevalence of indigenous knowledge in environmental governance in Indonesia has diminished. Similarly, in Gorontalo culture, the incorporation of cultural and religious principles in the architectural design of dwellings in ancient times encompassed profound philosophical insights about life, which are unfortunately diminishing in significance as time progresses (ArifundiLasalewo, 2017). Thus far, training observations have been conducted without any provision of training or technical guidance for workers regarding a construction project that incorporates local knowledge values. The objective of this study is to examine the requirements of the competency training model for residential construction workers that incorporates local wisdom values, and thereafter develop the training model.

METHOD

This study employed a research and development methodology to establish competency criteria for individuals involved in building construction. These standards were specifically designed to incorporate local knowledge values.

1. Perform a comprehensive examination and analysis of training programs for residential construction workers that incorporate local cultural knowledge and values. Standards of competence.
2. To create a training framework for residential construction workers that incorporates local indigenous knowledge and values.

The development approach employed in the creation of this Competency Standard follows the ADDIE development paradigm, which entails the stages of Analyze, Design, Development, Implementation, and Evaluation. The selection of this model was based on its generic and straightforward characteristics, as well as its methodical structure. Additionally, the ADDIE development model offers the advantage of allowing ongoing evaluation and revision throughout each phase. The model comprises five distinct stages, specifically: (1) analysis, (2) design, (3) development, (4) implementation, and (5) evaluation. This paradigm allows for iterative revision and review at every level, with the goal of creating a product that is both valid and useful. According to this, the ADDIE development paradigm is deemed appropriate for product development. The ADDIE development approach concludes in the assessment stage, where feedback and recommendations from validators and students are gathered to enhance the generated product.

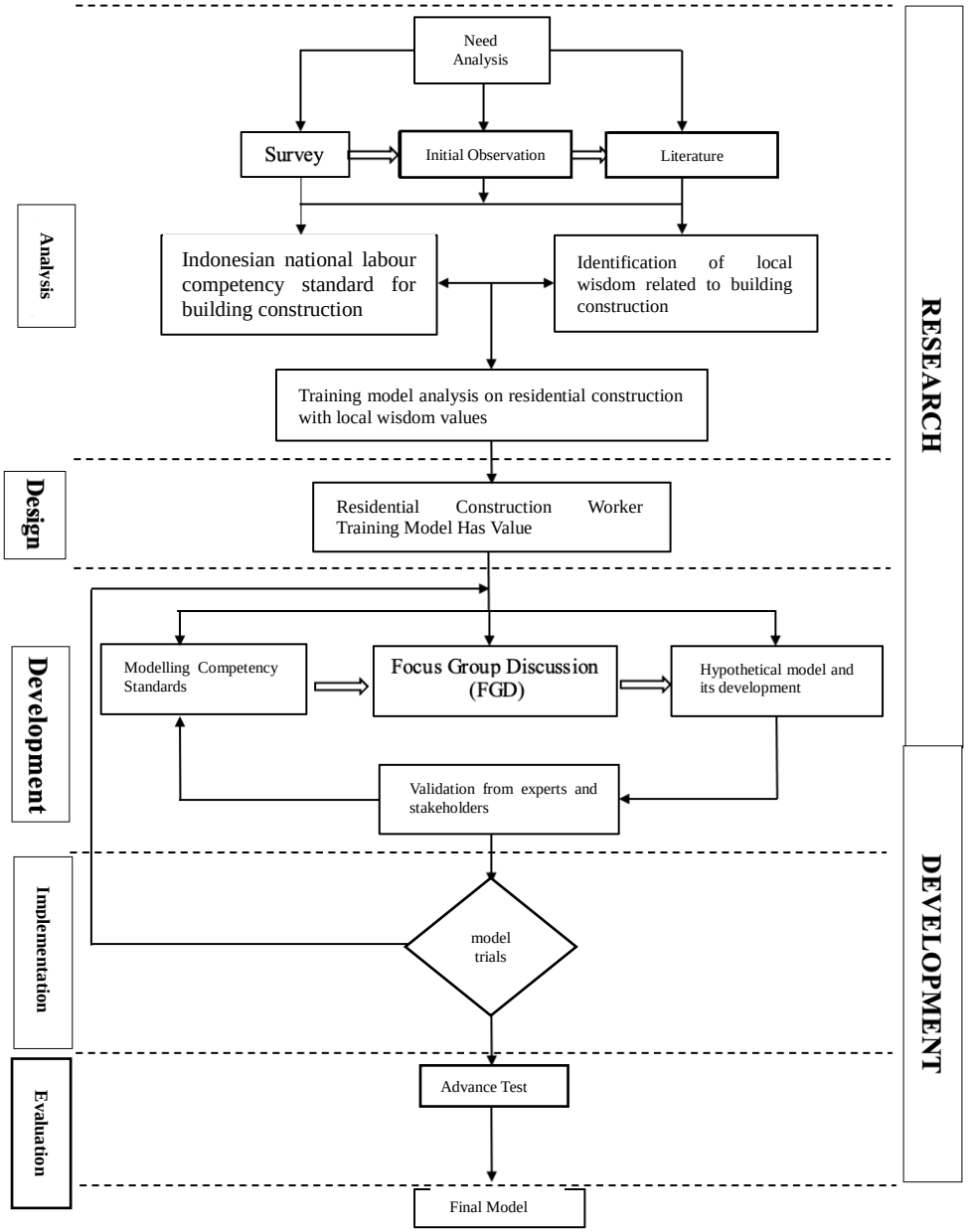

Chart 1 :Study protocol

Research Design

Preliminary Study

A preliminary study was conducted to analyse the need for a residential construction worker competency training model that has local wisdom values. The preliminary study stage is a research and information collecting activity that has two main activities, namely literature study (literature review and previous research results) and field study. The result of this activity is an overview of the competency standards for building work implementers, especially those related to buildings that have local wisdom.

1. Data Sources

The data needed in this research is data on the establishment of the Indonesian National Work Competency Standards for the Construction Category of the Basic Construction Group in the Building Work Field Executor Job Title. The source of data is the number of fitters and workers in Gorontalo city.

2. Research Instruments

The research instrument used in the preliminary stage of the initial study was a needs analysis in the form of distributing questionnaires.

Table 1. Worker Competency Assessment Questionnaire

No	Questions	Options		Criteria
		Yes (%)	No (%)	
1	Are you familiar with the concept of a house that possesses a local wisdom value?			
2	Are you familiar with dwellings that embody local wisdom values?			
3	Do the training's competency standards encompass residential dwellings that embody local wisdom values?			

Table 2. Needs Response

No	Questions	Options		Criteria
		Yes (%)	No (%)	
1	Do you possess any resources or publications pertaining to dwellings that embody indigenous knowledge and values?			
2	Do you possess competency standards for residential homes that use local wisdom principles?			
3	Do the training's competency standards encompass residential dwellings that embody local wisdom values?			
4	Do you possess a training curriculum that focuses on residential houses incorporating local wisdom principles?			

Model Design

The sequential steps involved in creating a construction worker competency model for residential homes including local wisdom are as follows:

a. Creating the preliminary blueprint of the model. The preparation utilized is founded on the findings of the preliminary investigation, the theoretical underpinnings of learning theories, the theory of model construction, and the practicality of implementation.
b. Validation by experts and practitioners. Thorough testing was carried out by experts to evaluate the viability of the preliminary model, focusing on both the practicality of its conceptual framework and the underlying theory. Additionally, I engaged in discussions with other associations and PUPR offices pertaining to the domain of Construction Services. Upon analyzing the validation findings, enhancements were implemented to refine the initial model and additional tools.
c. Preliminary field testing is conducted to evaluate the limited model. Specifically, the goal of this class trial is to assess the practicality of implementing the various stages of the competency standard development process.
d. Revision of the model. Modifications will be implemented based on the outcomes of the model experiment. The outcome of this phase is a theoretical model that is prepared for empirical verification.

RESULT AND DISCUSSION

The preliminary investigation was conducted using two methods: literature review and questionnaires and interviews. The literature review was undertaken by examining theories, concepts, and existing research pertaining to the training of construction workers to enhance their competency. Questionnaires were employed to ascertain the current conditions and requirements of construction

workers in enhancing worker competition in the context of residential buildings that embody local knowledge values. Interviews were conducted to further explore the questions in the questionnaire. Table 3 displays the data obtained from the initial study assessment.

Table 3. Preliminary Study Results

No	Questions	Options		Criteria
		Yes(%)	No (%)	
WORKER COMPETENCE				
1	Are you familiar with the concept of a house that possesses a local wisdom value?	23 (76%)	7 (23,4%)	Good
2	Are you familiar with dwellings that embody local wisdom values?	4 (13,3%)	26 (86,7%)	Not good
3	Do the training's competency standards encompass residential dwellings that embody local wisdom values?	1 (3,3%)	29 (96,7%)	Not good
Total		30,9%	69,1%	Not good
NEEDS RESPONSE				
1	Are you familiar with the concept of a house that possesses a local wisdom value?	1 (3,3%)	29 (96,7 %)	Not good
2	Are you familiar with dwellings that embody local wisdom values?	0	30 (100%)	Not good
3	Do the training's competency standards encompass residential dwellings that embody local wisdom values?	29 (96,7%)	1 (3,3%)	Good
4	Are you familiar with the concept of a house that possesses a local wisdom value?	30 (100%)	0	Good
Total		50%	50%	

The initial study, which involved 30 workers, yielded an average of 30.9%, placing it into the poor group. The assessment utilizes factors such as the workers' current proficiency and the training they have received in relation to residential dwellings with local wisdom values. The preliminary study yielded information, specifically:

a. Among the group of 30 workers, 23 workers were aware with home construction that incorporates local knowledge values, while the remaining 7 workers were not familiar with it.
b. Out of the total of 30 workers, only 4 reported acquiring knowledge about home construction that incorporates local wisdom values, while the remaining 26 workers did not. The findings from points a and b demonstrate that the majority of workers possess a general understanding of residential construction with local wisdom values. However, only four workers have acquired a more comprehensive knowledge on the subject. Following an extensive interview, they acquired knowledge firsthand through oral communication from their parents or experienced workers who had previously performed the task.
c. Points a and b are further exemplified in the subsequent questionnaire results. Specifically, out of the workers who participated in the competency training, one worker received information on residential dwellings, whereas 29 workers reported that they had not received such material.
d. The workers' requirements response analysis encompasses training opportunities, access to publications and modules, specifically focusing on residential dwellings that embody local knowledge values. The training they have participated in mostly focuses on basic and

uncomplicated construction techniques. The survey findings indicate that the proficiency of workers in local wisdom homes is merely 4%, resulting in challenges in carrying out tasks related to local wisdom houses. To address this issue, the survey findings indicated that all workers unanimously agreed to enhance their proficiency in local wisdom houses.

Training Model Design

The syntax of developing a local wisdom-based residential construction worker competency training model consists of 5 phases. Each phase outlines a description of each activity. The following syntax stages and activity descriptions can be seen in Table 4.

Table 4 :Syntax stages and activity descriptions

Phase	Description
Phase 1 : Review of existing Competency Training for Construction Workers.	The Minister of Manpower of the Republic of Indonesia issued Decree No. 205 of 2005, which establishes the Indonesian National Work Competency Standards for the Construction Category of the Basic Construction Group in the Building Work Field Executor Job Title. Perform an evaluation of the descriptions of the Indonesian National Competency Standards for the Construction Category of the Basic Construction Group in the Building Work Field Executor Job Title.
Phase 2 : Create a competency training program that focuses on the principles and values of local knowledge.	Develop a Competency Map and Competency Packaging specifically focused on local wisdom. Create a compilation of Competency Units that are derived from local wisdom.
Phase 3 : Surveyand Observation	Perform surveys and conduct observational interviews with relevant stakeholders involved in the construction project. Performing comprehensive interviews regarding the significance and principles of work tasks rooted in indigenous knowledge.
Phase 4 : Creation of Training Modules	Establish a comprehensive Work Competency Reference. Create a curriculum for training purposes.
Phase 5 : Training on the implementation of local wisdom-based construction work	Collect data about builders and workers from appropriate associations or authorities. Collect data about builders and personnel who possess a certified expertise from the applicable association or agency.

CONCLUSION

1. The findings of the needs analysis indicated that, on average, all participants' demonstrated awareness of houses that possess local knowledge values. Nevertheless, the participants lacked comprehension regarding the structural components of dwellings that embody local knowledge principles. One cause is the absence of any training attended by them that covers the local wisdom values related to residential construction. According to the findings of the needs analysis, it is essential to develop a training model that enhances the proficiency of workers in residential building while incorporating local wisdom values.
2. This competency training approach was designed utilizing the ADDIE Research & Development approach, which consists of five components: model syntax, social system, reaction principle, support system, instructional impact, and accompanying impact. This model comprises a model book, teaching material modules, and books.

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