Modeling of Conceptual Worker Engagement Framework for Construction Projects in Thailand

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Abstract. Competition in the Thai construction industry in terms of costs, quality of work and construction time, which has resulted in the continuously increasing demand for construction workers, both skilled and unskilled workers, to be an important resource that contractors must maintain. In order to survive in the construction business, the contractor must understand the factors related to increasing the engagement of the construction workers and using the appropriate strategy to reduce turnover of the construction workers. The objective of this research is to study the factors related to the engagement of Thai construction workers that affect the satisfaction of construction workers and reduce the turnover. A conceptual worker engagement framework was modelled using employee engagement and worker satisfaction concepts. Research methods involved studying, collating and listing the theoretical factors and variables sourced from the available literature. Seven experts in related fields were employed to confirm the factors and framework following the Delphi technique. Results indicated that the factor of worker satisfaction had a positive direct effect on worker engagement that was comprised of two sub-factors as (1) organizational engagement, and (2) personal engagement, while worker satisfaction and worker engagement had negative effects on worker turnover in construction projects. Details of all the factors were summarized in the conclusion of this article.

1. Introduction

The construction industry has reproduced as a result of rapid population growth and has become a key economic development factor in Thailand [1]. The construction business is a service industry where contractors focus on the quality of their work to satisfy project owners and successfully tender for future ventures [2]. The construction industry in Thailand is highly competitive in terms of cost, quality of work and construction time. Demand for construction labor is constantly increasing, along with escalating investment in infrastructure and building construction. Both skilled and unskilled construction workers are important resources that contractors must retain in their workforces. The contractor is responsible for providing all the materials, labor, equipment, and services needed for the construction of the project [3]. To survive in the cut-throat construction business, a contractor must fully comprehend and understand the factors related to increasing employee engagement and adopt appropriate strategies to reduce labor turnover. Factors and measurement items related to worker engagement in the Thai construction industry were assessed. Results will assist contractors to maintain and engage employees...
in the industry. The scope of this study is based on expert opinions using the Delphi technique in terms of maintaining the engagement of construction project workers in Thailand. The objectives were to study and formulate a conceptual research framework that related worker engagement and worker satisfaction to worker turnover in construction projects. To achieve this objective, components relating to the engagement of Thai construction workers and their measurements were identified. A conceptual framework was developed to demonstrate the relationships between worker engagement, worker satisfaction, and worker turnover in construction projects. The framework was proved by a quantitative analysis of empirical data. A policy was outlined for enhancing the engagement of Thai contractors in the construction business.

2. Research background
A contractor can be defined as a person or company that arranges to supply materials or workers for building construction, and performs work on a contractual basis [4]. A contractor is responsible for providing all the materials, labor, equipment, and services required for a construction project, including overall responsibility for the quality of work performed by all workers and their subcontractors [3]. Workers are vital elements in construction work. The term employee engagement has been defined by many researchers from reputable institutions such as Gallup Strategic Consulting [5], Mercer Consulting Group [6], Hay Group [7] and Aon Hewitt [8]. To summarize, employee engagement involves a positive attitude with confidence and faith in the organization through accumulation and continuous development. Employees must be considered as a part of the organization, and desire the company’s mission to succeed. Employee engagement is an expression of behaviours that can be defined as the 3S’s; Say-Stay-Strive [8]. (1) Employees speak (Say) positive things about the organization, (2) Employees desire to continue to be members of the organization (Stay), and (3) Employees give their best efforts (Strive) to help or support company success. Employee engagement is not a spontaneous asset but something that must be created and earned through proactive activities. Employee engagement reduces staff turnover and increases company revenue and profit [9]. In the construction industry, the employer is termed as the contractor and employee engagement is referred to as worker engagement. Worker engagement can be measured by many factors including pride in work, part of the organization, relations with and acceptance by colleagues and supervisors, and desire to see the organization succeed, relations with and acceptance by colleagues and supervisors, and nature of the workplace [5], [6], [7], [8], [9]. The satisfaction of construction workers can be improved by receiving various benefits provided by the contractor such as accommodation, transportation, food, drinking water and various work tools. A conceptual framework has been defined [10] as a network or conceptual diagram linked together to provide a comprehensive understanding of the phenomenon being studied. A conceptual framework consists of factors and indicators that affect each other within the framework. Eight steps have been suggested in formulating a conceptual framework [10] including (1) mapping the selected data sources, (2) extensive reading and categorizing the selected data, (3) identifying and naming concepts, (4) deconstructing and categorizing the concepts, (5) integrating concepts, (6) synthesis and re-synthesis to finalize the best approach, (7) validating the conceptual framework, and (8) rethinking the conceptual framework.

3. Research methods
The Delphi technique was developed by Olaf Helmer and Norman Dalkey in the 1950s and is still a widely used and accepted method to achieve convergence of opinion concerning real-world knowledge solicited from experts within certain topic areas [11]. The Delphi technique was designed as an expert group communication process that aims to conduct detailed examinations and discussions of a specific issue. The process is continuously iterated until a consensus is determined to have been achieved. This research used the Delphi technique to confirm the factors and framework of worker engagement, worker
satisfaction and worker turnover relating to construction projects in Thailand. Steps followed to initiate the Delphi technique were as follows:

3.1. Identification of the factors
First, factors and variables along with the related theories and literature such as textbooks, research articles, and online databases were studied and assessed. All factors were collated and listed before proceeding to the next step.

3.2. Confirmation of the factors
The listed factors were then confirmed by seven experts in related fields using the Delphi technique. The experts were selected based on their professional experience as follows:

- Three construction project managers with more than 20 years of experience in the Thai construction industry.
- Two experts from construction consultancy companies.
- Two experts from academic institutions.

The listed factors were confirmed by a consensus of the seven experts’ opinions directly and individually starting from expert 1, 2, 3..., 7 and returning to expert 1 circularly. All experts carefully and individually considered the listed factors. Anonymous responses were aggregated and shared within the group after each round until a consensus was saturated. Once the listed factors were confirmed and categorized by the seven experts, they were then constructed as the conceptual framework in the next section.

3.3. Drafting the conceptual framework
The confirmed factors were categorized according to the agreed consensus of opinions of the seven experts, and arrows were drawn between the factors as a draft conceptual framework. This framework was then reconfirmed by the seven experts by repeating step 2. The final framework was accepted as the conceptual research framework.

4. Results
Opinions of the seven experts as confirmed factors with items as indicators of worker engagement, worker satisfaction and worker turnover are listed in table 1.

Table 1 lists the factors of worker engagement (WE) comprising two sub-factors as (1) organizational engagement; 12 items (WE1 to WE12), and (2) personal engagement; 10 items (WE13 to WE22), while worker satisfaction (WS) comprises 10 items (WS1 to WS10) and worker turnover (WT) comprises 3 items (WT1-WT3). All factors and their measurement items were used to construct the conceptual framework shown in Figure 1. This framework was extended to include more detail of the items, variables and their indicators as shown in Figure 2.
| Factor | Item |
|--------|------|
| **Worker Engagement**: WE | WE1 Pride in the profession  
WE2 Being accepted by colleagues and helping each other  
WE3 Being entrusted to take responsibility for duties that match knowledge and expertise  
WE4 Freedom to work and be able to offer opinions about work responsibility  
WE5 Able to work with supervisors and understand each other  
WE6 Supervisors always advise and give you support  
WE7 Able to work well with colleagues  
WE8 You and your colleagues have good relations with each other, there is regular cooperation and assistance  
WE9 The company/contractor has work for you to do consistently and continuously  
WE10 Having the opportunity to be promoted  
WE11 The workplace is clean and tidy  
WE12 Modern work tools |
| **Organizational Engagement** | WE13 Ready to dedicate and sacrifice to the company/contractor  
WE14 Ready to cooperate with the company/contractor without any doubts  
WE15 Proud to be part of this company/contractor  
WE16 The problem of the company/contractor is like your problem  
WE17 This company/contractor is like your home  
WE18 Higher wages cannot make you decide to change jobs  
WE19 It is wrong to decide to leave this company/contractor while the company/contractor is experiencing problems  
WE20 You and your colleagues have a good relationship with each other, have regular cooperation and help each other  
WE21 Proud to tell others that you work here  
WE22 When you work, you try your best to do more than you can |
| **Personal Engagement** | WS1 Shuttle bus  
WS2 First aid equipment  
WS3 Toilets are adequate and clean  
WS4 Security guard to take care of security  
WS5 Other benefits such as New Year's holiday activities, etc.  
WS6 Special holiday during festive seasons  
WS7 Food and drinking water  
WS8 Accommodation  
WS9 Working clothes, safety hat, personal tools, etc.  
WS10 Additional money when working overtime or working during festivals |
| **Worker Satisfaction**: WS | WT1 Thinking of quitting often  
WT2 Plan to find a new job within a 1-3 month period  
WT3 Plan to resign, if finding a company/contractor that provides better compensation or benefits |
5. Conclusions
This research studied factors related to worker engagement to enhance sustainability in the construction business for construction companies in Thailand by modeling a conceptual framework. Factors were identified from the related theories and a literature review and confirmed by seven experts using the Delphi technique. Results indicated that requirements of worker engagement included organizational engagement (WE1-WE12) and personal engagement (WE13-WE22), together with worker satisfaction (WS1-WS10) and worker turnover (WT1 WT3) as shown in Table 1. The conceptual framework was presented as the outcome from the Delphi technique (Figure 2) and showed that factors of worker satisfaction had a positive direct effect on worker engagement in construction projects. These
engagements comprised two sub-factors including (1) organizational engagement and (2) personal engagement. All factors negatively impacted on worker turnover and reduced the willingness of workers to cease employment with companies or contractors. The framework in Figure 1 was extended to include more details of the items, variables and indicators as shown in Figure 2. This improved and expanded framework will be used to quantitatively analyze and determine future policy to retain workforces with companies or contractors through enhancement and improvement of worker engagement factors.

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