EVALUATING THE LEVEL OF AWARENESS ON LEAN THINKING CONCEPT IN CONSTRUCTION AMONG HIGHER LEARNING STUDENTS IN MALAYSIA

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To my beloved mother, father, sisters 
and dear Mr. Amir
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ABSTRACT

Lean construction has implemented throughout the construction industry in order to smoothen the construction project and increase the contractor’s profit by eliminating waste. There is a study has conducted for determining the barriers in implementing the lean construction approach in Malaysia and the results show that most critical barriers are lack of knowledge on lean concept and lack of commitment from management. According to the literature, there are five important factors that a manager have to focus: improvement culture, self-development, qualification, Gemba, and target management. In terms of knowledge, all parties should know about the lean principles, lean construction techniques and causes of waste. This study focuses on these factors to investigate the level of knowledge on lean construction and leadership factors among the postgraduate students before joining to the construction industry. The results show that although “construction management” students almost know about lean thinking, there is lacked of knowledge among the other postgraduate students from faculty of civil engineering and built environment of UTM. Moreover, “construction management” students are fully aware their commitments in implementing lean construction.
ABSTRAK

# TABLE OF CONTENT

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>TITLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DECLARATION</td>
<td>ii</td>
<td></td>
</tr>
<tr>
<td>DEDICATION</td>
<td>iii</td>
<td></td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>iv</td>
<td></td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>v</td>
<td></td>
</tr>
<tr>
<td>ABSTRAK</td>
<td>vi</td>
<td></td>
</tr>
<tr>
<td>TABLE OF CONTENTS</td>
<td>vii</td>
<td></td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>xii</td>
<td></td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>xiii</td>
<td></td>
</tr>
<tr>
<td>LIST OF APPENDICES</td>
<td>xv</td>
<td></td>
</tr>
<tr>
<td>1 INTRODUCTION</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>1.1 Introduction</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>1.2 Research Background</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>1.3 Problem Statement</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>1.4 Aims and Objectives</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>1.5 Scope and Limitation</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>1.6 Significance of Study</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>
## LITERATURE REVIEW

2.1 Introduction 7

2.2 Definition of Lean Thinking 8

2.3 History of Lean Production/Manufacturing 10

2.4 Concept of Lean Production 13

  2.4.1 Principles of Lean Thinking 15
  2.4.2 Lean Production Principles 16
    2.4.2.1 Reduce Non-Value Adding Activities 17
    2.4.2.2 Increase Output Value 18
    2.4.2.3 Reduce Variability 18
    2.4.2.4 Reduce the Cycle Time 19
    2.4.2.5 Simplify the Number of Steps 20
    2.4.2.6 Increase Output Flexibility 21
    2.4.2.7 Increase Process Transparency 21
    2.4.2.8 Focus Control on the Complete Process 22
    2.4.2.9 Build Continuous Improvement 23
    2.4.2.10 Balance Flow Improvement 23
    2.4.2.11 Benchmark 24

2.5 Applying Lean Thinking in Construction Industry 24

2.6 Concept of Lean Construction 25

  2.6.1 Wastes Recourses in Construction Industry 26
    2.6.1.1 Overproduction 27
    2.6.1.2 Substitution 28
    2.6.1.3 Waiting Time 28
    2.6.1.4 Transportation 28
    2.6.1.5 Processing 29
    2.6.1.6 Inventories 29
2.6.1.7 Movement 29
2.6.1.8 Production of defective products 30

2.6.2 Principles of Lean Construction 30
2.6.2.1 Specify Value 35
2.6.2.2 Identify and Map the Value Stream 35
2.6.2.3 Flows 36
2.6.2.4 Pull 37
2.6.2.5 Perfection / Continuous Improvement 38

2.6.3 Lean Construction Techniques 38
2.6.3.1 Concurrent Engineering 39
2.6.3.2 Last Planner System 40
2.6.3.3 Daily Huddle Meetings 41
2.6.3.4 The Kanban System 42
2.6.3.5 Plan Conditions and Work Environment 42
2.6.3.6 Quality Management Tools 42
2.6.3.7 Visual Inspection 43

2.7 Incorporating Lean Principles in Project Development Process 43

2.8 Barriers in Implementing Lean Construction 47
2.8.1 Barriers in Implementing Lean Construction Malaysia 53

2.9 Principles of Lean Leadership 55
2.9.1 Improvement Culture 57
2.9.2 Self-development 57
2.9.3 Qualification 58
2.9.4 Gemba 58
2.9.5 Hoshin Kenari 60

3 RESEARCH METHODOLOGY 61
3.1 Introduction 61
3.2 Literature Review 61
3.3 Data Collection 62
  3.3.1 Survey Questionnaire 62
  3.3.2 Data Analysis and Obtaining the Results 63
    3.3.2.1 Average Index Analysis 64
    3.3.2.2 One Sample t-Test 65
    3.3.2.3 Chi-Square Test 66
    3.3.2.4 Reliability Analysis 66
3.4 Brief Research Methodology 67

4 RESULT AND DISCUSSION 70
4.1 Introduction 70
4.2 Barriers in Implementing Lean Construction 70
  4.2.1 Reliability Tests 72
4.3 Evaluating Knowledge on Lean Construction/Commitment 74
  4.3.1 Respondent Qualification 75
  4.3.2 Level of Knowledge on Lean Thinking 76
    4.3.2.1 Principles of Lean Production 77
    4.3.2.2 Causes of Waste in Construction 78
    4.3.2.3 Principles of Lean Construction 79
    4.3.2.4 Lean Construction Techniques 80
    4.3.2.5 Results of Level of Knowledge 81
  4.3.3 Lean Leadership and Management Commitment 81
    4.3.3.1 Reliability Tests 82
      4.3.3.1.1 One Sample t-Test 82
      4.3.3.1.2 Chi-Square test 84
      4.3.3.1.3 Cronbach’s Alpha Test 85
    4.3.3.2 Average Index of Commitment 87
4.3.3.3 Improvement culture
4.3.3.4 Self-development
4.3.3.5 Qualification
4.3.3.6 Stand for the Real Place (Gemba)
4.3.3.7 Target management
4.3.3.8 Results of lean leadership and commitment

5 CONCLUSION AND RECOMMENDATION
5.1 Introduction
5.2 Level of Knowledge
5.3 Lean Leadership (Management Commitment)
5.4 Recommendations Based on Findings
5.5 Recommendations for Further Studies

REFERENCES
Appendix A
## LIST OF TABLES

<table>
<thead>
<tr>
<th>TABLE NO.</th>
<th>TITLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-1</td>
<td>Definition of lean thinking</td>
<td>9</td>
</tr>
<tr>
<td>2-2</td>
<td>Time line marketing in the lean production evolution</td>
<td>12</td>
</tr>
<tr>
<td>2-3</td>
<td>Lean construction principles</td>
<td>31</td>
</tr>
<tr>
<td>2-4</td>
<td>Lean construction principles in construction</td>
<td>32</td>
</tr>
<tr>
<td>2-5</td>
<td>Lean tools in construction implementation</td>
<td>34</td>
</tr>
<tr>
<td>2-6</td>
<td>Key concepts of lean construction</td>
<td>44</td>
</tr>
<tr>
<td>2-7</td>
<td>Key concepts of lean construction in construction process</td>
<td>46</td>
</tr>
<tr>
<td>2-8</td>
<td>Summary of Barriers to Lean Construction Concepts</td>
<td>49</td>
</tr>
<tr>
<td>2-9</td>
<td>The mean score of restriction factors</td>
<td>55</td>
</tr>
<tr>
<td>3-1</td>
<td>Average Index Analysis of Level of agreement</td>
<td>65</td>
</tr>
<tr>
<td>4-12</td>
<td>Chi-square test on target management factors</td>
<td>85</td>
</tr>
<tr>
<td>4-13</td>
<td>Cronbach's Alpha test on lean leadership factors</td>
<td>86</td>
</tr>
</tbody>
</table>
# List of Figures

<table>
<thead>
<tr>
<th>Figure No.</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-1</td>
<td>Beginning of the lean production</td>
<td>11</td>
</tr>
<tr>
<td>2-2</td>
<td>Production as a flow process; simplistic illustration</td>
<td>13</td>
</tr>
<tr>
<td>2-3</td>
<td>Performance improvement</td>
<td>14</td>
</tr>
<tr>
<td>2-4</td>
<td>“4P” of the lean way</td>
<td>16</td>
</tr>
<tr>
<td>2-5</td>
<td>Cycle time compressing</td>
<td>20</td>
</tr>
<tr>
<td>2-6</td>
<td>Lean construction principles</td>
<td>31</td>
</tr>
<tr>
<td>2-7</td>
<td>Last Planner System</td>
<td>40</td>
</tr>
<tr>
<td>2-8</td>
<td>The sequence of last planner process</td>
<td>41</td>
</tr>
<tr>
<td>2-9</td>
<td>Prioritizing Lean Construction Barriers</td>
<td>51</td>
</tr>
<tr>
<td>2-10</td>
<td>The five principles of lean leadership</td>
<td>56</td>
</tr>
<tr>
<td>2-11</td>
<td>The lean leadership model</td>
<td>60</td>
</tr>
<tr>
<td>3-1</td>
<td>Sequence of SPSS test</td>
<td>66</td>
</tr>
<tr>
<td>3-2</td>
<td>Research methodology outline</td>
<td>69</td>
</tr>
<tr>
<td>4-1</td>
<td>The job positions of respondent</td>
<td>71</td>
</tr>
<tr>
<td>4-2</td>
<td>Knowledge on lean production principles</td>
<td>77</td>
</tr>
<tr>
<td>4-3</td>
<td>Knowledge on each waste resources</td>
<td>78</td>
</tr>
<tr>
<td>4-4</td>
<td>Knowledge on lean construction principles</td>
<td>79</td>
</tr>
<tr>
<td>4-5</td>
<td>Knowledge on each associated lean construction techniques</td>
<td>80</td>
</tr>
<tr>
<td>4-6</td>
<td>Average Index of improvement culture factor</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td>Description</td>
<td>Value</td>
</tr>
<tr>
<td>---</td>
<td>------------------------------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>4-7</td>
<td>Average Index of self-development factors</td>
<td>89</td>
</tr>
<tr>
<td>4-8</td>
<td>Frequency of effectiveness of qualification factors</td>
<td>90</td>
</tr>
<tr>
<td>4-9</td>
<td>Average Index of gemba factors</td>
<td>91</td>
</tr>
<tr>
<td>4-10</td>
<td>Average Index of target management factors</td>
<td>92</td>
</tr>
</tbody>
</table>
# LIST OF APPENDICES

<table>
<thead>
<tr>
<th>APPENDIX</th>
<th>TITLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Questionnaire sample</td>
<td>106</td>
</tr>
</tbody>
</table>
CHAPTER 1

INTRODUCTION

1.1 Introduction

Construction industry is unique and complex due to the involvement of many parties and consumption of varieties of resources. According to Ballard and Howell (1998), construction covers a variety ranging from the slow, certain, and simple project to quick, uncertain and complex project. Meanwhile, Koskela (1992) stated that construction is unique in the sense of it is one-of-kind nature of projects, site production and temporary multi-organization.

However, failure of establishing a good management system in the construction project will lead to many problems that would cause cost of project increases, late completion of project and low quality, which finally reduce the profit of the contractor. In order to overcome this problems, lean construction based on lean thinking has been introduced in this construction sector.

According to Howell (1999), lean construction is one of the new philosophies that been implemented by Toyota in their manufacturing process, which now applied
throughout the construction industry in Forder to smoothen the construction project and increase the contractor’s profit by eliminating waste. This statement has been supported by Ballard and Howell (1998) whom also stated the same facts that lean thinking in construction concerned in waste reduction.

Lean construction project is very different compared to traditional construction project management where lean approach aims to maximize performance to the customer at the project level, set well-defined objective clearly for delivery process, design concurrent product and process and applies production control throughout the life of the project (Howell, 1999).

Lean approach breaks the construction project to smaller parts of activities, which will be defined clearly the start and end date for completion of each activity with an appointed person to keep on monitoring all the activities to be completed according to schedule. Lean Construction (LC) is aimed at reducing waste and increasing productivity in fulfilling the client’s requirements on the construction industry. In general, lean construction projects are easier to manage, safer, completed sooner, and cost less and are of better quality.

1.2 Research Background

Based on Guo (2009), Construction management and technology are the two key factors influencing the development within the construction industry. Over the past 40 years, although several new and advanced technologies have been applied to construction projects, the efficiency within the industry has remained quite low.
One of the new management philosophies that have been considered in the construction industry is that of lean thinking. Lean construction has the goal of meeting customers’ needs while using less of everything, a term created by the International Group for Lean Construction (Gleeson and Townend, 1993) in United Kingdom. This refers to the application of lean production principles and practices in design-construction processes to maximize value and to reduce waste (Howell and Ballard, 1998).

Sustainability has been defined as economic development that meets the current customers’ need without compromising the opportunity and ability for future generation needs. In materializing this effort, the construction industry is urged to move from traditional, labor consuming, energy inefficient and waste generated method of construction to more environmentally friendly, energy efficient and less waste generation of the construction environment. Pratt (2000) stated that Malaysian projects in the last decade were not cost and function effective. On certain construction projects, the budgets were overstepped, longer construction period and quality of the end products were poor (Ibrahim et al., 2010).

In Malaysia other than Lim (2008), among other pioneer researches on lean construction was conducted by Abdullah et al. (2009). The study concluded that the application of lean construction is limited due to the nature of the construction industry, which is very unique, high risks and one-off. Lim (2008) added earlier that its knowledge has been widely accepted by the stakeholders. It was indicated that there is a need for more holistic approaches such as incorporating the other important aspects to the lean construction key concepts towards sustainable and better future environment.
1.3 Problem Statement

According to Ibrahim and Ong (2003), construction is known as a very reluctant industry to accept changes to its current practice because of the belief that construction industry is completely different in nature. However, with the problems that industry inherits such as lack of focus to customers, lack of quality, and adversarial relationship among team members, inefficient project communication and project delay force the industry to reconsider its current practice.

Various studies on the construction industry have been conducted to develop the best practice that is not only capable of improving organization profit but also assists in producing a systematic work process which will encourage the optimal use of resources. Concurrently, the emergence of the lean construction concept is seen as a current approach that can be used to produce best practices because it was viewed as an effort to bring construction industry towards a more optimum productivity level with the efficient usage of resources as well as to produce the maximum value. Through the concept of waste elimination and value enhancement in a construction project, this approach is seen as being able to create a process of implementing activities in the project in a systematic and effective manner.

Based on Lim study (2008) in Malaysia, the use of the lean construction concept in the industry is still considered as a new approach. In fact, its application within the construction firms throughout the country is very limited. Even with the scarce numbers of research done towards the application of the lean concept in the Malaysian construction industry, it has indirectly shown that the usage of this concept is still unpopular within the country’s construction firms even though these firms engage learned and skilled academic professionals in construction processes as well as being aware of the change and improvements that are occurring within the construction industry, whether it is from the aspects of technology, implementation methods, management and others.
1.4 Aims and Objectives

This study aims to appraise the level of awareness of lean thinking as a sustainable approach in postgraduate level of construction management program in higher learning in UTM. To achieve the aim of this study, following objectives have determined:

1. To identify the lean thinking concept, principles and techniques in construction.

2. To determine the most important barrier factors in implementing lean construction within the Malaysian construction industry.

3. To evaluate level of knowledge of students on lean construction and level of awareness of lean leadership among postgraduate students based on the findings in objective 2.

1.5 Scope and Limitation

This study focus on Malaysian construction industry in implementing the lean construction concept. Emphasis is given to evaluate the level of knowledge and the factors related to management support and commitment among the Built Environment and Civil Engineering students in UTM.
1.6 Significance of Study

Nowadays, the construction firms attempt to increase their productivity and improve their efficiency in fulfilling the client’s requirements by adopting a positive approach to solve the arising problems, in the initial stage of the projects. One of the most appropriate construction management approach is lean construction.

The significance of this study is in the reason that lean construction is a new construction management approach in Malaysia and majority of current professionals don’t have adequate perception of lean concept and lean implementation in construction industry. Moreover, construction industry embraces an increasing number of construction academics who will get professional position in a near future. Thus, it seems crucial to investigate the probable barriers which might occur in implementing lean construction, for the parties associated with construction industry, to remedy the situation.

It is obvious that finding the barriers of implementing lean construction and its major causes, play a critical role in the first step to facilitate and enhancing the efficiency of performing this new approach. This study is conducted to indicate the major barriers and also the factors which affect the most important barriers of lean implementation, “lack of understanding the concept of lean construction” and “lack of commitment and leadership from top management” to point out future possibilities to improve in these areas.
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101


