Research Paper

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The Effect of Behavioral Characteristics on Decision Making in Construction Site

Engineering

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ABSTRACT

The site engineer is the one that has to make crucial decisions that can help the project or harm it. This paper aims to connect and find the relation between behavioral characteristics of site engineer and the process of decision making. By reviewing the literature related to the process of decision making and behavioral characteristics, a model is created and constructed to relate these characteristics with their effect on the decision making process. This paper finds that some behavioral characteristics have major impact on the decision making process such as self-control, reliability, creativity, and ability to handle crises. Motivation and leadership have bigger impact on running works. Qualitative methods, based on interviews with site engineers was used. This paper concludes that, the process of making decisions can be different for different persons as each one has its self-characteristics that have direct effect on the decision making process.

INTRODUCTION

Construction site is the place where a dynamic work is always conducted. It is a place where a lot of people are working and different types of work are done. Site engineer is responsible for the harmonization of works and keeping the workers in good shape for work, ensuring the safety and health in work and guiding the workers and explain to them how to do their work. Also, he is responsible for making the plans for purchasing, applying the materials and conducting the works within the time frame given by the contractor or the investor.

In the site engineer's daily life, he has to make a lot of decision that can help achieving the expected goals, or can bring losses to the project. Decisions that he makes have a vital impact in the process of construction and the progression at the site.

Behavioral characteristics have large impact on the process of decision making. The leadership abilities, engagement and motivation, self-control, openness, creativity, ability to solve conflicts and problems, abilities to handle crisis, reliability and other behavioral characteristics play integral role in the ability of making correct and good decisions at the construction site.

THEORETICAL BACKGROUND

Decision making is the process of thinking, analyzing and choosing between two and more options or alternatives to achieve bigger profit, or solve actual problem or avoid possible crises (Nooraie, 2012).

For site engineer, decision making process is the process of analyzing all resources with which he dispose, risks that can occur, current situation at the construction site and other factors that can affect his decision positively and negatively, and to analyze all possible solutions or options on how to prevent, solve such issues (Toole, 2002).

DECISION MAKING MODELS

Rational models return the problem to its components by using some steps, then analyzing these components one by one. The most common steps are: (1) Finding the problem, (2) Analyzing the problem, (3) Decision making, (4) Decision implementing. The lack of information about problem and the rapid changes in the problem nature are not considered in this model, which present the most important two disadvantages of this type of models.

In Intuitive models, the basis, upon which the decision is based, is generally information gathered from experience and learning stored in long-term memory, and used unconsciously. This type of models is not the opposite of the rational models. Intuitive models are generally rational as they are based on real experiences and real situations that the decision maker has already passed through. Intuitive decisions are often made faster than rational models, which makes them better for urgent situations and more suitable in daily life issues. (Davis-Stober, Dana, & Budescu, 2010)

The Recognition Primed model was developed by Psychologist Dr. Gary Klein. He claimed that 90% of decisions are made by intuitive approach. This model is based on the theory which constitute that most of situations contain some hints or signs related to some patterns. People with more experience will recognize these patterns faster and will make his decision with more certainty. Depending on the patterns, the decision maker will follow a course of solution that he believes it will work.

Normative models take in consideration that there are a lot of factors that affect the decision making process and make it less rational, and that decision makers are generally limited by some constraints such as limitations in time and resources. The characteristics of decision making process according to this model are: Limitations in available information; Judgmental heuristics; Satisficing or choosing the "good enough" options.

DECISION MAKER AND HIS BEHAVIORAL AND TECHNICAL COMPETENCIES

Behavioral competence can be innate or gained by learning or experience. They are crucial for decision maker as they are always present during the process. They dictate how he will think and how will search for the solution, how he will evaluate the options and how he will apply them. Here are given the most important behavioral competencies of a decision maker at the construction site (IPMA, 2006).

Behavioral competencies that play major role on the how good the Decision maker is, according to (IPMA, 2006) are: Leadership, Reliability, Engagement and Motivation, Self-Control, Openness, Creativity, ability to solve conflicts and problems (Wisdom), and Ability to handle crisis.

Technical competencies that are important for the Decision Maker, according to (IPMA, 2006) are: Experience and knowledge.

PROPOSED MODEL

In this section, a proposed model, that connects the behavioral

characteristics with the process of decision making in solving some problems that can occur at the construction site, will be offered with some explanation.

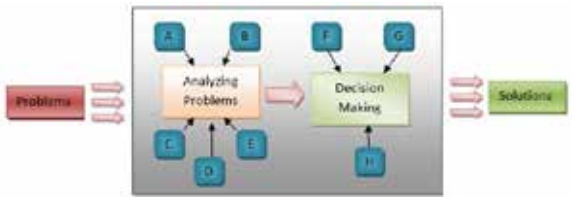


Figure 1: proposed model.

In order to understand this model, there are some instructions to be followed.

First, this model is explaining how the behavioral competence that Site Engineer might have does, can affect the process of decision making. So, it is a dynamic model as the decisions environment is always construction site.

Problems and situations (left part of the chart) are occurring and happening each working day and require solutions and decisions to be made.

In this model, the solution's steps are simplified and sorted into two phases; analyzing problems and finding potential solutions, and decision making. First phase contains: finding the problem and analyzing it, while the second phase is decision making phase. Now, this model shows which behavioral competences affect each phase of the solution's steps. They (behavioral competence) are given as variables (A, B, C, D, E, F, G, H) that changes from one site engineer to another. In the model proposed: A - Ability to solve problems and conflicts, B - Ability to handle crises, C - Openness, D - Creativity, E - Engagement and Motivation, F -Leadership, G - Reliability, H - Self Control,

This model can be used also for evaluating the mistakes that occurred while deciding and finding the reasons behind them in the characteristics of decision maker.

INTERVIEW QUESTION

In this section, some interview questions will be provided according to (Turner, 2010) guide.

Which of your human behavioral competences helps you while analyzing problems at construction site?

Which of your human behavioral competence helps you while making decisions at the site?

Do you think that openness affects your way of analyzing problems? How?

Creativity is required for all managers while analyzing the potential solutions, how crucial, do you think, this competence is?

While making decision, a lot of factors are involved, how does self-control ability help while deciding?

Reliability and leadership are very important ability that the site engineer should have, are they important in the process of decision making? How?

DATA

For the interview purpose, only people with high experience level related to the management of construction site were selected and interviewed, in order to get realistic results for the interview.

Interviewers were selected according to their experience level, and were sorted into several groups:

- Group 1: Medium experience (from 10 to 15 years)

- Group 2: High experience (from 15 to 25 years)

- Group 3: Ultra high experience (from 25 to 35 years)

From each category, three engineers were selected and interviewed. After that, the results were sorted according to their experiences and category. All interviews were done within one week and were performed as face to face interviews, which allowed the interviewed experts to explain their opinions openly and without any restrictions. The age of the interviewed experts differs according to the category they are sorted in, the average age for the first category is 42 years, for the second category is 51, and for the third group is 58 years. Interviewed experts worked for several companies worldwide. The countries that were included are Egypt, Turkey, Iraq, Libya, Algeria, Bosnia and Herzegovina, Russia, and USA.

RESULTS AND DISCUSSION

The results of the interviews, in general, showed that the variables of the purposed model are all important and are very much related. Interviewed experts mostly agreed that, during their working career, they had to rely on their behavioral competence in order to handle the problems and conflicts that occurs usually in the construction site.

The biggest match is reached in the importance of leadership and reliability competence to the decision making process. They agreed, generally, that leadership abilities are crucial as they give the workers confidence and reasons to believe in their leader, as well as on his decisions. That is the mean reason of success.

Also, all reviewed literature agreed with the results of interviews about the importance of creativity in searching and finding solutions to the problems that occurs in the construction site. All the interviewed experts in this paper noticed that creativity has very big importance on the decision making process, as well as on solving problems.

CONCLUSIONS

competences among the other competences. This paper has reviewed the importance of the behavioral competence on the decision making process at the construction site. It showed also that the site engineer should have several abilities in order to be able to cope with the problems that occur every day at the site.

The model proposed by this paper can be counted as realistic, as its variables and elements were proved to be crucial in the efficacy of the decision making process.

Creativity, openness, reliability, leadership and other behavioral competence, along with the experience gained by the site engineers, are very important competences for the site engineers. Without any of them, the site engineer will not be able to handle problems well nor to make a good decision. All the interviewed experts mentioned that creativity and leadership abilities are the most important

As a contribution for the companies, this paper gives a model for the good site engineer, and explains which competences he should have and acquire in order to become reliable enough. That can help companies while choosing and selecting the site engineers that will deal with running their projects. That will help them also to create a new promising site engineers or to evaluate their site engineers.

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Limitations of these paper and proposed model were:

- The inability of testing this model on the young site engineers
- The lack in the number of the interviewed experts
- The lack of professions interviewed

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