Improving Subcontractor's Motivation By Construction Managers

Xiao-Hua Jin[1], Yingbin Feng[2], Mary Hardie[3], Swapan Saha[4]

Abstract

The ability to motivate is one that is crucial for a manager in any professional field. The role of a project manager is no exception with the need to keep the subcontractors motivated and working efficiently in order to meet targets and deadlines. By improving the level of motivation you predictably increase the level of efficiency of employees and as a roll-on effect the achievement of project goals will be more assured. Motivation in the construction industry is often overlooked due to the short nature of many construction projects as well as the high turnover of employees and subcontractors from job to job. Nonetheless, if more emphasis were to be put on employee and subcontractor motivation, then project success would be easier to attain as the subcontractors would be working more efficiently and be more likely to achieve their targets and deadlines. With the benefits of improved motivation including increased project security and increased productivity, projects are more likely to meet targets and budgets. A research project has been taken with the aim to provide ways for management to improve subcontractor motivation and monitor its progress. This paper reports on the findings of the early stage of literature review. It has been found that not enough measures were being taken at the present time to positively influence subcontractor motivation and that there are many successful ways of motivating subcontractors in the construction industry, including things such as incentives, positive reinforcement, work facilitation and work participation. In particular, it was found that the main detail to take into consideration was that every worker is different and will respond differently to different motivation techniques. For this reason it is important to understand the workforce of subcontractors and motivate them accordingly.

Keywords: Motivation, subcontractor, project management, construction industry.

1. Introduction

Motivation may be defined as the characteristic of an individual willing to expend effort towards a particular set of behaviours (Tabassi and Bakar 2009). From a managers point of

[1] Senior Lecturer; Program of Construction Management; University of Western Sydney; Kingswood, New South Wales 2747 Australia; xiaohua.jin@uws.edu.au.
[2] Lecturer; Program of Construction Management; University of Western Sydney; Kingswood, New South Wales 2747 Australia; y.feng@uws.edu.au.
[3] Senior Lecturer; Program of Construction Management; University of Western Sydney; Kingswood, New South Wales 2747 Australia; m.hardie@uws.edu.au.
[4] Senior Lecturer; Program of Construction Management; University of Western Sydney; Kingswood, New South Wales 2747 Australia; s.saha@uws.edu.au..

view, motivational practices ensure that their workforce performs at the highest possible standard and achieves the best results. To this end there is a significant amount of research that has been done on how to implement the most effective motivation as a management tool in organisations. Most of these studies are focused around general organisations and the motivation of the employees, there are few that take into account the unique nature of the construction industry, and even those that do look at applying the motivational theories to management and not to the subcontractor workforce.

The construction industry is a business that largely centres around the management of people. Being such a complex, dynamic and uncertain industry, it requires a precise and motivated workforce. And while it is generally accepted that construction workers can be motivated, it is an industry that predominantly focuses on motivation of the management teams and not subcontractors and construction workers. The issue of employee motivation is important as it establishes a substantial foundation for high performance levels with less unproductive work and wasted time on a construction site. The problem that this study addresses is the evident lack of understanding and awareness of the different motivational methods and the effectiveness of these methods in motivating construction personnel.

Despite the significant improvements being made by modern technology to equipment, materials and methods of design and construction, actual productivity in the construction industry is often seen as being below par when compared with that within other industries (Mansfield and Okeh 1991). All these advancements however do not change the fact that the construction industry continues to be a predominantly labour-intensive industry. This suggests that a proper emphasis should be given to such matters as communication, participation and motivation in order to improve productivity. These factors are going to play a crucial role in an industry with such an intensive labour requirement. Ultimately this means that for the success of the industry, workers have to be motivated using appropriate incentives and motivational techniques in order to improve productivity.

This study investigates whether the introduction of a motivational program for subcontractors, from a construction manager’s perspective, is profitable enough to offset the investment of time and money. This study is aimed to identify the most effective methods of motivation, and performance indicators that may be used to continuously monitor the progress of motivation techniques being used. With the analysis of the different motivation methods and techniques available, this study will address the lack of understanding about the techniques effectiveness, and determine the most effective ways to motivate construction workers, as well as uncovering any issues and difficulties which may present themselves.

One of the main reasons that employee motivation is not used widely in the construction industry is due to the short term nature of most projects. Employees and subcontractors are not involved with the client or employer for long enough to integrate with their organisation and develop a proper understanding of the job. Longer involvement would give management more time to integrate them into the motivational structures operating in the organisation, and in doing so increase productivity. This is a natural feature of the construction industry

and is unable to be changed; therefore it is management and their views and processes towards motivation that need to adapt to the industry.

This study will be identifying the main factors that promote positive motivational behaviour in the construction subcontractor crews. In doing this it will be determined what predominate factors and methods being used as motivation at the present time are, and whether they are the most effective ones to be using. To assess the effectiveness of motivation systems Key Performance Indicators (KPIs) will need to be researched and discussed in order to ensure that the benefits outweigh what is being spent in time and money on the systems. Both quantitative performance indicators and qualitative performance indicators will be represented. The expected outcomes of this study are the realisation that motivation of construction workers is not being used to its full potential on most projects and worksites and that with the proper motivation there can be favourable benefits to both the time and cost elements of a construction project.

The paper drew upon the research of previous studies and literature to form an objective view on the state of the construction industry in regard to the motivation of subcontractors. The research originated with the original theorists such as Maslow (1954), Hazeltine (1976) and Thomas (1990). Based on the study of original theories on motivation, it has been explored where the topic had progressed in the last 50 years especially in the regards to motivation of subcontractors in the construction industry. It soon became apparent that this was a niche in the industry which had been largely overlooked and as a result the amount of specialised research done on the topic was minimal. To compensate for this, the research topic chosen here was broken down into its different elements and looked at separately in order to determine how, as a whole they would be able to provide the data needed.

By looking at first motivation, then the characterises of the construction industry and then at the differing factors regarding the motivation at the construction worker level, a clearer picture was able to be put together for how these elements may be best used to answer the research problem. Then on top of that, performance indicators were studied to provide an idea of just how the implementation of some of these methods may be measured.

2. Motivational Theories

Motivational theories have been recognised and used for over 50 years now with Maslow (1954) being one of the first to propose the theory of human motivation. Maslow’s theory was based on the principal that everyone has base needs that they need to fulfil, and once these needs were fulfilled they could progress on towards self-actualisation. Maslow's hierarchy of needs is often portrayed in the shape of a pyramid, with the largest and most fundamental levels of needs at the bottom, and the need for self-actualization at the top. Then there had been more specific studies in the construction industry being conducted by the like of Schrader (1972), Hazeltine (1976) and Thomas (1990). Despite this, actual productivity in the construction industry is seen as being below par when compared with other industries (Mansfield & Odeh 1991).

These theories are based on the principal that needs generally must be fulfilled in sequence, and as individuals satisfy lower level needs, there is increased motivation for attaining the next higher level of needs (Cox et al, 2003). It is here where management have the opportunity to encourage greater productivity in employees by providing extra motivation. In construction, at the higher levels of needs, this could include things such as the possibility for advancement in your position or paid incentives. While there have been other studies done into motivation in the construction industry by the like of Schrader (1972), Hazeltine (1976) and Thomas (1990), the first real study to collaborate this work into a motivational model for the construction industry was Cox et al. (2006).

A study carried out by Mansfield and Odeh (1991) delved into the issues that affect motivation on construction projects and the differences which made motivation of construction workers unique when compared with other professional fields. Their study suggested that due to the predominantly labour intensive nature of the construction industry, more emphasis should be given to matters such as communication, participation and motivation.

3. Industry Characteristics

The construction industry exhibits problems and characteristics which, taken individually, are shared with some other industries but which, in combination, create unique conditions calling for a unique management approach. For motivation to be successful and effective in construction it is necessary to have an understanding of the unique characteristics of the construction industry. These unique aspects of the construction industry are also what make motivation of subcontractors more difficult. The factor which makes the workforce or labour in the construction industry differ from other industries is the fact that unlike an assembly line or manufacturing industry, whose workers remain at their jobs for relatively long periods of time, the construction industry is always dynamic. The reason for this is that the duration of most projects are between one to three years and the labour force fluctuates significantly during the project. This aspect of short-term employment, along with construction contracts, and availability of labour and management are the key points to be addressed in order to help reflect the psychological dimension of the nature of the industry, and its likely effect on motivation and performance (Mansfield and Odeh, 1991).

Short-term employment is a defining factor in the construction industry, due to the high turnover of construction workers on their different contracts; none of the workers are around long enough to establish any long term motivational systems. The very nature of construction projects is that they are short term, even the larger construction projects that can carry on for a couple of years, will not have contractors on for the whole time. This means, that unlike regular organisations, employees are not allowed to sufficient time to integrate with their organisation in order to develop a proper understanding of the job. As a result, the prospect of mutual ‘belonging’ between the organisation and the employees tends to suffer, and with it the performance of the workforce. (Mansfield, Odeh, 1991) Furthermore, the requirements of plant and equipment also fluctuate significantly from month to month during the life of a project, unlike in the manufacturing industry where workers get very

familiar with the plants and equipment, thus allowing them to avoid the stress of adapting to new machines, unlike their counterparts in the construction industry.

The Environment plays a very integral role in the construction industry. As the bulk of projects take place in the open, they are highly subject to the adverse effects of the environment. With exposure to the elements, on days when the weather is at its more extreme the performance of construction workers can be impaired resulting in: Errors of judgement; Carelessness; Complaints; General Lethargy; Irritability and poor mental attitude; Decrease in quality of work pace; and Unscheduled stoppages of work (Mansfield, Odeh, 1991). Factors such as these will all lead to decreased construction productivity which will result in failures to meet deadlines of budgets for a project.

Construction Contracts play a very important role in motivation as well, making the choice of contract that is entered into largely important to the success of the project. There are various types of contracts available ranging from the standard lump-sum contract to the more specialised cost-plus contract, and the choice of which by the client will play a role in the performance of management. By using a contract with some risk involved on the contractors behalf will motivate the managers to performing more efficiently, by reducing cost, controlling time, improving productivity and quality, and attending to the long-term goals of survival and growth. (Mansfield and Odeh, 1991). It therefore stands that a construction manager who is subcontracting out the different works required for a project will be able to keep these principals in mind and make sure that the subcontractors are assuming enough risk that they will be vigilant and more responsible for their work in order to minimise loss on their behalf.

The Availability of labour is an aspect that is mostly out of the control of construction managers, but one that will affect subcontractor motivation none the less. The availability of labour is an element of the industry that fluctuates with the economy, with other factors also playing influence as well, such as Population Density in the area of a contract; Local unemployment levels in the principal building trades; Current competition from other contractors in the area and the likely future competition; Local transport facilities; Availability of short-term housing within the area; The impact of local government training centres; The impact of legislation, e.g. Early retirement youth-opportunities programmes; and Subcontracting arrangements (Mansfield and Odeh, 1991).

When the labour supply is high, it can also be observed that there is a link to higher productivity in the labour. This can be attributed to job security, as when there is more labour going around than there is jobs, the workers will work improve their performance in order to keep their jobs. Conversely though, when the labour supply is low, labourers will not work as hard because they are not worried as much about losing their jobs.

4. Motivation Techniques

Almost all of the studies conducted in the area of motivation in the construction industry have focused on motivation programs at the general contractor or construction management level. Programs such as these at the management level have proven to be beneficial to a project by increasing productivity and by reducing a project's overall budget and/or duration. To

further these programs on down to the subcontractor and construction level it is necessary to determine what motivation techniques will be effective. Once subcontractors/workers are exposed to motivation programs on a regular basis, a company team image emerges instead of a visible division between the general contractor's management and the subcontracted workforce. The lines of communication begin to open allowing regular feedback and two way communications (Cox. et al, 2006). The current state of the construction industry dictates that bonus schemes are the main form of incentives in operation, but are these the most effective method of improving productivity, or are they just the least demanding option or are they just the most undemanding.

4.1 Motivation through incentives / rewards

The use of financial incentives and rewards in construction projects is seen as a key means of improving built environment outcomes (Rose and Manley 2011). Most commonly, financial incentives are used with the intention of reducing contract costs, minimising contract duration, and to achieve performance standards in areas such as quality, efficiency and productivity. Financial incentives are widely regarded as the most effective form of incentive in the construction industry due to the short term nature of it. Other incentives require the need to establish goals over time, and an understanding of the individual's motivational drive. According to Rose and Manley (2011), three types of financial incentives exist:

1. Share of savings incentives, where cost savings are shared between the client and the contractor based on an agreed formula

2. Schedule incentives, where a premium is offered to the contractor for the early completion of the project; and

3. Technical performance bonuses for meeting performance targets, other than cost and schedule. A performance bonus arrangement can be applied to a wide range of performance areas such as quality and functionality.

Implementation of financial incentive mechanisms in the contractual arrangement of a construction project can impact significantly on the motivation of contractors and hence project performance. Positive incentives, as a component of the project delivery strategy, aim to motivate contractors to align their goals with those of the client, via a financial reward. These incentive mechanisms take many forms in construction contracts including: profit sharing in cost plus incentive contracts, bonus performance provisions attached to various lump sum and cost reimbursable contracts, and multiple financial incentive mixes.

4.2 Motivation through goal setting

Motivation on the construction site through goal setting is an important form of motivation. An employee's motivation begins with their desire to satisfy their basic needs outlined in Maslow's theory. A great way to keep an employee motivated is to give them a reachable goal to strive for. Goal setting can be an effective motivational process when applied correctly because it creates a discrepancy between the current and the expected

performance. Researchers have shown that if goal setting is to be successful it must consider the following: Goal acceptance by the workers; the goals must be seen as a challenge; and the system must provide a mechanism for performance monitoring and feedback. (Cox. et al, 2006) It is important for management to keep in mind though, that while employees need clear and measurable objectives to strive for, the subcontractor or employee being motivated must feel that the goal is reachable, otherwise they may become frustrated or overwhelmed by the task.

4.3 Motivation through employee needs

Needs are the starting point of all motivational behaviour, and this was recognised over 50 years ago with Maslow's (1954) need hierarchy model. While it may be convenient to think that everyone's needs may be neatly summed up with his hierarchy, everyone is an individual and each will have varying needs.

Figure 1 is Schrader's (1972) adaptation of Maslow's (1954) hierarchy model for the construction industry. As the lower level needs are most often met already, they no longer serve as a motivating factor, and management should therefore facilitate the pursuit of the higher needs.

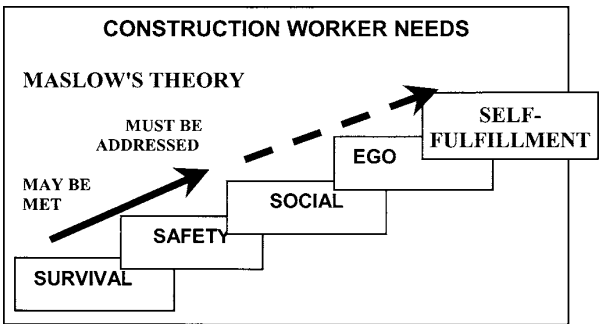

Figure 1: Construction worker's needs (Schrader 1972)

As a response to this model it draws the conclusion that the self-fulfilment of employees could be brought about with the investment in Human Resource Development. As stated by Armstrong (1990) "Human Resource development programmes aim to train new employees to the level of performance required in their jobs quickly and economically and to develop the abilities of existing staff, on that their performance in their present jobs is improved and they are prepared to take on increased responsibilities in the future." Training such as this then builds on this foundation by enhancing skills and knowledge as required to improve performance in the present job or to develop potential for the futures. By increasing a workers knowledge and expertise it will give them the tools to seek advancement in their career and strive for self-fulfilment.

5. Motivation and de-motivation of subcontractors

In order for a manager to motivate the construction workforce, they must have a solid understanding of the different motivation concepts and a willingness to adapt them to a

required situation and workforce. The challenge however is for a manager to apply these motivation techniques within the construction industry with his subcontractors.

Each of the three motivation techniques discussed above has its benefits and strengths. However, there is no particular technique that will fit every situation, especially in the construction industry. According to the study carried out by Cox, et al (2006), the majority of motivation programs can be grouped under five categories, namely Goal-setting, Incentives, Positive reinforcement, Work participation, and Work facilitation. The study then concluded that the contractors have the primary responsibility of the execution of the onsite work activities of crew members. Project owners on the other hand, have an interest in these matters because of the potential direct effect on the overall project.

Another factor that goes hand in hand with the motivation of subcontractor crews in the construction industry is de-motivation. De-motivation involves negative factors and influences that so often come into play on construction projects and bring down the productivity and moral of the subcontractors and employees. De-motivation occurrences that could be avoided from actions by the owner would be elements such as Design Changes, Poor Work Environments, and Delays on Financing

From a contractor's point of view, de-motivational factors would involve any negative occurrence or factor in the work environment which would bring about a lower morale. Steps a contractor could take to prevent factors such as these effecting the work environment would be Training first and second level supervisors; Providing open lines of communication; and Utilizing practices to eliminate de-motivational factors.

6. Subcontractor Motivational Model

As almost all studies in the area of motivation have focused on motivational programs at the general contractor or construction management level, it is the subcontractor level of motivation which has been overlooked. Motivation programs at the general contractor and management level have proven to be beneficial to the productivity of a project, as well as reducing the projects overall budget and/or duration, but it was not until Cox, Issa and Frey (2006) that this was looked at being applied to the subcontracted workforce and construction workers in larger projects.

Cox *et al*. (2006) identify the factors that promote positive motivation behaviour in construction subcontractor crews and using those attributes to create a subcontractor employee motivational model. The model shows that a supervisor should first create positive motivation based on confidence, which originates from worker competence and/or by the use of incentives. Next the supervisor should set goals in reference to quality of work and safety performance and also the needs of the worker. Finally, once goals are reached the worker should be rewarded with an incentive. Based on this analysis, money was suggested to be the incentive of choice. This proposed subcontractor-based employee motivational model is basically derived from the older research done into the topic of motivation; however it is more specifically and successfully aimed at the subcontractors of the construction industry.

7. Measuring Performance

Key performance indicators (KPI's) are compilations of data measures used to access the performance of a construction operation. They are the methods management uses to evaluate employee performance of a particular task. (Cox et al., 2003). KPIs have a range of applications and methods for which they may be used. As KPI's are generally used for monitoring the progress of construction projects, there are a lot of general models that exist for that purpose; however these fail to identify which indicators will accurately portray the changes in performance. In order to measure performance or calculate the effects of any given change on the construction process, one must first determine the appropriate Key Performance Indicators to focus on to measure its impact. Accurate analysis of construction performance can be attained only after the key indicators are determined and monitored. (Cox et al., 2003).

7.1.1 Productivity Performance

When assessing the impact of a given change in the construction process, one generally refers to the results as a change in in productivity for the task being measured. A classical definition of productivity is a comparison of the output of a production process to its corresponding input, i.e., the output to input ratio. The construction industry commonly tracks this change in progress in terms of work units completely attained during a given period of time and the associated costs in terms of man-hours or dollars (Thomas and Mathews 1996)

In order to accurately identify the KPI's associated with the construction process a baseline must first be determined. A historical baseline defines an average of past performance, knowing past performance gives a reference point to benchmark against and to measure future performance (Alfeld 1988). A baseline can be compilations of years of historical data collected on previous projects of a quick measurement of current production prior to initiating a change for improvement. Oftentimes, any variation from baseline (expected) performance level is an indication of a variance in performance. Variances can be either positive of negative and should bring about a cause for the further management interpretation to determine root causes. (Cox. et al, 2003)

7.1.2 Quantitative Performance

The most commonly accepted performance indicators are those that can be physically measured by dollars, units, or man-hours. Like any other form of business, construction companies look first to the areas which show a change in the amount of revenue generated. Quantitative units of measurement should remain simple, easy to gather, and easy to apply, while not placing a heavy burden on field personnel. The most effective and common units used as measurement are Units/MH, $/Unit, and Cost (Cox et al., 2003).

7.1.3 Qualitative Performance

Qualitative Performance indicators are not commonly accepted as reliable performance and productivity evaluation tools due to their perceived difficulty and/or inability to be measured. (Insert reference) Unlike quantitative performance indicators, qualitative indicators do not appear in the estimating/costing system utilised by the majority of construction firms.

Qualitative Performance indicators include indicators such as Safety, Turnover, Absenteeism, and Motivation.

8. Conclusion

It has been widely acknowledged that a good productive worker is an asset to any facet of an organisation. And once good workers have been made part of the teak it is important to keep them motivated. This will not only increase the happiness of the employee, but it will also increase productivity with benefits to the overall project including reduced costs and time restraints being met. This study was and its overall findings are supported by literature from previous works in the field, and as such no original data was obtained. This study found however that there is a largely untapped resource in the motivation of subcontractors in the construction industry. Despite all the numerous benefits foreseeable from the motivation of subcontractors, it is not effectively utilised by most construction managers.

Concluded from the study conducted so far, it is able to be said that while financial incentives are the most common incentives used currently in the construction industry, they are not necessarily the most effective for the bulk of employees. It was found that techniques such as positive reinforcement, work facilitation and work participation can all be just as effective depending on the type of employee. This was another factor that shone through in this study, that some workers are self-motivated while others are motivated by outside forces. Workers who are self-motivated set their own goals to reach, but it is important for those goals to have incentives attached to them. In the end though, it didn't matter if the employees are self-motivated, extrinsically motivated or both, in order for incentives to be most effective they must address the needs of the individual employee.

This research is significant in that it has the potential to finally bring the standard of productivity on a construction site up to the performance levels achieved in organisations with successful motivation techniques in place. With successful motivation in the construction industry, the productivity on a construction site will be increased as well as the standard of work. Clients will understand that they will be able to get better value out of their investments, and as a result will be more willing to make the investment, and as the construction industry is a cornerstone of most economies then the benefits will be far reaching.

The research conducted throughout this review has been limited in the regard that no original data was able to be collected. For this research to herald significant results then it would be necessary to select a large populous group from which to monitor and acquire data from. It would be suggested that multiple large organisations would be approached about allowing data collection from some of their large scale projects. Collecting data such as this would allow comparisons to be made with how productivity and other performance factors were at the present time and areas where improvement may be achieved. As this topic is a difficult one to research on a short term study, it will be expected that with a longer study of multiple complete construction projects, the results found in this study will be confirmed and solidified as the direction that management in construction field needs to peruse with motivation.

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