

# Key motivating factors affecting skilled workers' productivity in Construction projects

Adnan Enshassi <sup>1\*</sup> and Mahdi Mahdi <sup>2</sup>

**Abstract:** Human resources development is considered a critical issue for improving productivity of workers in construction industry. The aim of this study is to identify and rank the key motivating factors that impact skilled workers productivity according to their relative importance. A total of 27 factors were identified through a literature review, which were categorized into 2 group financial and un-financial motivators. A questionnaire instrument was adopted in this study. The study revealed that the most significant group which affected skilled workers' productivity in construction projects was financial group with the recognition of the un-financial group importance. The results emphasized that the financial group has an edge over the un-financial group which reflect the priority of need for the respondents. The results indicated that the un-financial group represents a backbone in its importance after the financial group which reflects that un-financial factors can improve productivity. The findings showed that the provision of companies to safety conditions factor such as protective safety clothing and protective equipment was ranked very low by the respondents. This is due to the dominant culture of the workers as well as the lack of their awareness regarding their own safety and lack of companies' interest in safety and health for workers. Construction companies are advised to take the key motivating factors obtained from the results of this study into serious consideration in order to improve the satisfaction of their workers and improve their productivity.

**Keywords:** Motivation, construction, skilled workers, productivity, Gaza Strip.

## I. INTRODUCTION

The construction industry constitutes a vital part to the prosperity of the Palestinian economy. As the construction sector is very labor-based, the situation of the workers plays a major role in the construction industry especially productivity, which would have a direct impact on the economy [1]. One of the most important aspects confronting the management is how to make workers more efficient. The efficient workers play a significant role in raising productivity to match the required levels where the productivity of individuals affects in turn the productivity of a company. Thus the motivation of workers must be borne in mind to avoid the dwindling productivity [2].

It is commonly recognized that motivation is directly linked to productivity where the suitable motivation is a successful instrument for maximizing workers' productivity; motivation strategy can ultimately lead to achieve sustained high levels of distinctive performance and thus a competitive edge. This put motivation at the heart of the most important issues within the organization especially those are seeking for satisfied workers and better efficiency [3].

Productivity is considered as a major concern in the construction industry and today it is becoming more pressing than ever because of its direct effects on cost-time savings and profitability. Consequently, the practitioners of construction industry should make attempts to increase the productivity [4]. This study aims at investigating motivation factors which affect workers' productivity in the construction projects at Gaza Strip.

## II. LITERATURE REVIEW

Human resources still a dominant issue for the development of construction industry [5]. Construction industry is a dynamic industrial environment and the human resources issue is one of the most valuable assets of the construction industry, as it is closely correlated with productivity. Anyim et al. [6] defined motivation as the inner drive that channels human beings to achieve goals. Hallahan [7] defined motivation as a force which heightens and promotes the willingness, interesting and desire of every person to cooperate with every member of the team. The critical role of motivation in higher productivity which contributes a significant positive impact in achieving effectiveness in the work has been asserted by several authors [8, 9]. It is currently recognized that motivation is vital in the process of human resources enhancement and development to achieve the aspirations of the organization [8]. Marisa and Yusof [9] stated that construction projects success can be achieved depending on workers and their effective managers who are able to motivate their teams. Dwivedula and Bredillet [10] considered motivation as a driver to organization's performance, depending on the effort's ability to satisfy some individual need.

Chaudhary and Sharma [3] emphasized that the motivated employee is a valuable asset which delivers huge value to the organization in maintaining and strengthening its business and revenue growth. Enshassi et al. [1] asserted that productivity remains an intriguing subject, and the achieving of maximum productivity is of primary concern in the construction sector. Halepota [11] postulated that motivation is one of the essential factors which strongly influence the productivity. He also revealed that a higher

<sup>1</sup> Distinguished Professor, Gaza Palestine, [aenshassi@gmail.com](mailto:aenshassi@gmail.com) (\*Corresponding Author)

<sup>2</sup> Project Manager, Gaza Palestine, [Mahdi@gmail.com](mailto:Mahdi@gmail.com)

level of motivation can result in higher productivity where motivation is a positive way to improve efficiency, quality as well as productivity in order to achieve the overall goals of the organization.

Ibironke et al. [12] investigated the drivers of motivation for casual workers on the construction sites by identifying the factors responsible for motivation and challenges to the motivation of casual workers in Nigerian construction industry. They concluded that workers' welfare should be a paramount issue of concern to the top management, and it is important that the chief executive officer cooperates with staff. They added, well-motivated staffs have a positive attitude towards work, rewarding good work can contribute to more excellence, and healthy competition as monetary rewards bring out the best in workers. Cong and Van [13] examined a group of motivational factors and they found that pay and promotion are the most important motivational factor followed by good working conditions. Ameh and Shokumbi [14] revealed that the most effective non-financial motivation to workers include provision of personal protective equipment, love and belongingness, leadership, free transportation and free medical facilities.

Jarkas and Radosavljevic [15] investigated the impact of motivational factors on the construction productivity in Kuwait. They found that the most ten prominent motivational factors, influencing the productivity in Kuwait are payment delay, rework, lack of a financial incentive scheme, the extent of change orders during execution, incompetent supervisors, delays in responding to requests for information, overcrowding and operatives interface, unrealistic scheduling and performance expectation, shortage of materials on site and quality level of drawings. Kazaz et al. [2] identified the factors linked to construction labor productivity in Turkey. They found that the most effective factors group is organizational factors including quality of site management, material management, systematic flow of work, supervision and site layout. Aiyetan and Olotuah [16] reported that the most used motivators in construction industry are overtime, health care services, provision of transportation facilities, promotion and increase in salary.

### III. METHODOLOGY

A questionnaire survey was adopted in this study; it is divided into two main parts. The first part is related to the general background and information about the respondents. The second part of the questionnaire is related to the motivating factors which is divided into two sections namely financial and un-financial motivating factors. A total of 27 key motivating factors were identified from previous related literature [2, 13, 14, 15, 16, 17]. Prior to sending the questionnaire, a pilot study was conducted by distributing the questionnaire to 15 skilled workers who were selected based on their experience (more than 10 years' experience). The aim of the pilot study was to pre-test suitability and

comprehensibility of the questionnaire [18]. The comments resulted from the pilot study was taken into consideration in the final version of the questionnaire.

A total of one hundred questionnaires were distributed to skilled workers in construction projects in the Gaza Strip and 88 questionnaires were filled and received back to be analyzed. Likert scale was used for ranking factors that have an agreement levels. The respondents were asked to indicate their perceptions regarding the identified motivational factors on five-point scale (1 for the strongly disagree, 2 for disagree, 3 for neutral, 4 for agree and 5 for strongly agree). The mean values and relative importance index (RII) were used in this study to rank the factors according to the agreement level of respondents about each factor. The relative importance index computed using the following equation [1, 19]:

$$\text{Relative importance Index} = \frac{\sum W_i}{AN} = \frac{5n_5 + 4n_4 + 3n_3 + 2n_2 + 1n_1}{5N}$$

Where W is the weighting given to each factor by the respondent, ranging from 1 to 5, (n1 = number of respondents for strongly disagree, n2 = number of respondents for disagree, n3 = number of respondents for neutral, n4 = number of respondents for agree, n5 = number of respondents for strongly agree). A is the highest weight (i.e. 5 in Likert scale) and N is the total number of samples (i.e. 88 in this study). The RII values ranges from 0-1 where the RII with a value greater than 0.5 means that the respondents perceptions about the factor is positive and RII with a value less than 0.5 means that the respondents perception about the factor is negative.

## IV. RESULTS AND DISCUSSION

### A. Respondents' Profile

The results revealed that the illiterates respondents in the sample were 4.54 %, the primary level respondents were 15.90 %, the preparatory level respondents were 67.04 % and 12.5 % for the university level respondents. This indicated that the preparatory educational level represented the majority of sample. For the work position the results showed that plumbers were 5.68 %, steel fixers were 19.31 %, electricians were 3.4 %, stutters were 46.59 %, tillers were 4.54 %, plasterers were 3.4 % and the masons were 17.04 %. The results showed the majority of the respondents were stutters and steel fixers. For the years of experience, 5.68 % of the respondents had experience between 1-5 years, 27.27 % between 6-10 years, 39.77 % between 11-15 years and 27.27 % have experience over 15 years.

### B. Financial Motivating Factors

According to Table 1, the results revealed that the amount of remuneration and the regular remuneration on time

were the most significant motivational factors with ( $\bar{x} = 4.56$ , RII= 0.91) and ( $\bar{x} = 4.53$ , RII= 0.90) respectively. The commitment of a company to pay financial compensation for each overtime hour and the lack of retiring pension in Gaza Strip companies were the latest two factors in the rank with ( $\bar{x} = 3.38$ , RII= 0.67) and ( $\bar{x} = 2.92$ , RII= 0.58) respectively.

It can be inferred that financial motivational factors play a vital role in motivating workers. Most workers focused on the amount of their remuneration which represents the basic and highest financial motivating factor, the second factor as well as related to remuneration by being regular. Palestine in general and Gaza Strip in particular is a developing area and the majority of population lives under the poverty line. The major concern of workers is trying to secure appropriate remuneration amount which commensurate with the workers efforts in work and standard of living. The workers also expressed their interest in regular remuneration on time which plays a significant role in the stability of the psychological state of the workers.

TABLE 1  
 MEANS AND RANKS OF FINANCIAL MOTIVATING FACTORS

No.	Financial motivational factors	Mean	RII	Rank
1	The commitment of a company to pay financial compensation for each overtime hours may encourage the good performance and productivity.	3.38	0.67	7
2	Pledge of companies to pay rewards at the end of activities may play a vital role in raising the rate of productivity in any coming projects.	4.30	0.86	4
3	Companies covering to the additional expenses of skilled workers such as transportation between house and working site may lead to higher efficiency in performance and productivity.	4.12	0.82	5
4	Regular remuneration on time whether daily, weekly or monthly may create a state of stability among the skilled workers and promote them to work positively.	4.53	0.90	2
5	The amount of remuneration that received by skilled workers play a critical role in affecting the general level of performance and productivity.	4.56	0.91	1
6	The lack of social insurance for skilled workers in Gaza strip companies may play an essential role in the negative performance and productivity.	3.70	0.74	6
7	Discontinuity of work in Gaza Strip companies may cause a decrease in the level of performance and productivity to skilled workers.	4.47	0.89	3
8	The lack of retiring pension in the companies of Gaza Strip may cause frustration to skilled workers in their motivation to work and production.	2.92	0.58	8
	Total	4.00	0.800	

The responses also revealed that discontinuity of work was the 3rd rank in order; this can be justified by the impacts of the discontinuity of work on the construction workers. The discontinuity of work in the construction sector leads to loss of skills and thus creating skills gap. The construction sector will be forced to work with a lower level of skills which affected the general performance and productivity. The 4th rank is related to additional financial incentive that may offer to workers as bonus at the end of well completed project.

The lack of social insurance came in the 6th order which affected workers' productivity. The financial compensation for the overtimes was ranked in the 7th position. In most countries workers get a higher rate payment for the over time than the official working hours, but in Gaza workers received a low payment rate. Therefore, workers have no interest in overtime issue. The lack of retiring pension was in the bottom of the rank which indicates that the majority of the workers did not give attention towards this issue. The majority of Gaza Strip companies followed temporary contracts in their work, this contract system makes a barrier to apply retiring pension, and therefore the respondents were not motivated towards this factor.

### C. Un-financial Motivating Factors

According to Table 2, the results revealed that the un-financial motivational factors group had a mean = 3.76 which indicated that un-financial motivational factors have a significant effects on the respondents productivity. The findings showed that the top five un-financial motivational factors were related to free lunch and drinks, dealing of supervisor with the skilled workers on the basis of appreciation and mutual respect, skills of supervisor, giving a degree of authority to skilled workers and participation of skilled workers with the boss in decision making with ( $\bar{x} = 4.46$ , RII= 0.89), ( $\bar{x} = 4.26$ , RII= 0.85), ( $\bar{x} = 4.15$ , RII= 0.83), ( $\bar{x} = 4.06$ , RII= 0.81), and ( $\bar{x} = 4.04$ , RII= 0.80) respectively. The lowest five un-financial motivational factors were related to luncheons and parties, conviction and satisfaction with the work, provision of training courses, love and belongingness to work and achievement of fairness in the dealing with ( $\bar{x} = 3.42$ , RII= 0.68), ( $\bar{x} = 3.23$ , RII= 0.64), ( $\bar{x} = 3.17$ , RII= 0.63), ( $\bar{x} = 3.06$ , RII= 0.61), and ( $\bar{x} = 2.96$ , RII= 0.59) respectively.

The results revealed that that there is consensus among the respondents that provision of a free lunch or drinks may play a significant role in encouraging skilled workers towards their productivity improvement. This issue might be not a focal issue from the perspective of the companies, but it has strong echo among the respondents due to its direct impacts on increasing the dedication in working. In Gaza Strip many companies provide free drinks to encourage skilled workers and some companies in the last period applied a free lunch system in an attempt to motivate workers towards their tasks. The 2nd and 3rd

ranks are related to the role of supervision team, namely dealing of supervisor with the skilled workers on the basis of appreciation and mutual respect, and skills of supervision in dealing with skilled workers whether in receiving of activities, inspections or giving instructions.

Giving a degree of authority to skilled workers and the participation of skilled workers with the boss in decision making came in the 4th and 5th ranks respectively. Many skilled workers argued that they need to feel that they are an integral part of the project. The significant motivator, which is very important, but it came in the rank 14 was provision of companies to safety conditions such as protective safety clothing and protective equipment. This could be due to the dominant culture of the workers as well as their lack of awareness towards their own safety and lack of companies' interest in health and safety as their main interest is in achieving profit and completion of the project on time.

TABLE 2  
 MEANS AND RANKS OF UN-FINANCIAL MOTIVATING FACTORS

No.	Un-Financial motivational factors	Mean	RII	Rank
1	Providing of free lunch and drinks throughout the duration of the project may motivate skilled workers to improve their efficiency level of performance and productivity.	4.46	0.89	1
2	Making of luncheons and parties after the completion of each stage of the project may play a catalytic role in the dedication of skilled workers in their role performance as required.	3.42	0.68	15
3	Provision of companies to the health conditions at the site such as clean toilets may encourage the skilled workers to work hard in order to raise their performance level.	3.73	0.74	12
4	Provision of companies to safety conditions such as protective safety clothing and protective equipment may raise the feeling of security, and thus achieve a higher level of productivity.	3.62	0.72	14
5	Dealing of supervisor with the skilled workers on the basis of appreciation and mutual respect may affect the performance and productivity positively.	4.26	0.85	2
6	Participation of skilled workers with the boss in decision making may play a vital role in increase their desire to work which may result in better productivity.	4.04	0.80	5
7	The presence of challenging tasks for the skilled workers may raise the level of their enthusiasm to achieve the best performance and productivity.	3.88	0.77	10
8	The presence of good relationship basis with workmates may create a suitable state of work which leads to effective performance and productivity.	3.90	0.78	9
9	The execution of skilled workers to their duties based on conviction and satisfaction with the work plays an essential role in achieving better productivity.	3.23	0.64	16
10	Creating of competition state between skilled workers may promote them to submit a higher productivity with better quality.	3.71	0.74	13
11	Site management quality may affect the	4.02	0.80	6

	performance of skilled workers, and thus their productivity rate.			
12	Skills of supervision in dealing with skilled workers whether in receiving of activities, inspections or giving instructions may have a core role in achieving a higher productivity with effective performance.	4.15	0.83	3
13	Giving a degree of authority to skilled workers in the method statement of activities execution may achieve a better productivity rate.	4.06	0.81	4
14	Work discipline without manipulation or evasion in working time may raise the rate of productivity	3.93	0.78	8
15	Love and belongingness to work can be considered as an essential starting point towards better performance and higher productivity.	3.06	0.61	18
16	Provision of training courses for skilled workers periodically may lead to maintain an acceptable rate of production and develop additional skills.	3.17	0.63	17
17	Work nature which may include dangerous activities or easy activities may affect the rate of productivity according to the nature of these activities.	3.82	0.76	11
18	Achievement of fairness in the dealing of various skilled workers may promote them to focus on the completion of their tasks and not to deviate from the context of the required work.	2.96	0.59	19
19	Application of good planning and scheduling in the projects may avoid any future obstacles which may affect the performance and productivity positively.	3.96	0.79	7
	Total	3.76	0.75	

The lowest ranked five factors were related to luncheons and parties, conviction and satisfaction with the work, provision of training courses, love and belongingness to work and achievement of fairness in the dealing. Making of luncheons and parties after the completion of each stage of the project is not recognized in Gaza Strip companies. The factor which is related to the execution of skilled workers to their duties based on conviction and satisfaction with the work did not play a vital role in comparison to the previous mentioned factors. This can be justified by the bad economic environment of Gaza Strip where the people are forced to join any kind of work regardless of conviction and satisfaction with the work or not. The low ranking for the provision of training courses may be due to the bad reality of vocational training in Gaza Strip. The achievement of fairness in the dealing of various skilled workers was in the bottom of the rank which indicate that the majority of the skilled worker are classified in the same class as not to allow the issue of discrimination or fairness to play a role in the motivating or frustration towards works.

## V. CONCLUSION

This study was based on quantitative approach in order to identify and rank the key motivating factors which impact the skilled workers productivity. 27 factors were identified from previous related literatures which were categorized into financial and un-financial groups. The study concluded that the most significant group was financial group with ( $\bar{x} = 4.002$ ,  $RII = 0.8005$ ) and then un-financial group with ( $\bar{x} = 3.76$ ,  $RII = 0.75$ ). From the obtained results it can be inferred that the financial group is more significant than the un-financial group which reflected the priority of need for the respondents as they are living in a developing area where the financial issue is the most important to them. The un-financial group is considered a backbone in its importance after the financial group which reflects that un-financial factors can improve the productivity by giving attention to un-financial motivators. Construction companies are advised to consider the key motivating factors obtained from the results of this study into serious consideration in order to improve the satisfaction of their workers and hence improving their productivity which ultimately lead to the success of construction firm.

## REFERENCES

- [1] A. Enshassi, S. Mohamed, Z. Abu Mustafa, P. E. Mayer, "Factors affecting labor productivity in building projects in the Gaza Strip". *Journal of Civil Engineering and Management*, vol. 13, no. 4, pp. 245-254, 2007.
- [2] A. Kazaz, E. Manisali, S. Ulubeyli, "Effect of basic motivational factors on construction workforce productivity in Turkey". *Journal of Civil Engineering and Management*, 14(2), pp. 95-106, 2008.
- [3] N. Chaudhary, B. Sharma, "Impact of employee motivation on performance (productivity) in private organization". *International Journal of Business Trends and Technology*, vol. 2, no. 4, pp. 29-35, 2012.
- [4] P. Ghoddousi, M. R. Hosseini, "A survey of the factors affecting the productivity of Construction Projects in Iran". *Technological and Economic Development of Economy*, vol. 18, no. 1, pp. 99-116, 2012.
- [5] M. Iatagan, C. Dinu, A. M Stoica, "Continuous training of human resources – A solution to crisis going out". *Procedia Social and Behavioral Sciences*, vol. 2, no. 2, pp. 5139-5146, 2010.
- [6] C. F Anyim, O. C. Chidi, A. E. Badejo, "Motivation and employees' performance in the public and private sectors in Nigeria". *International Journal of Business Administration*, vol. 3, no. 1, pp. 31-40, 2012.
- [7] K. Hallahan, "Enhancing motivation, ability, and opportunity to process public relations messages. *Public Relations Review*, vol. 26, no. 4, pp. 463-480, 2000.
- [8] N. Kokkaew, S. Koompai, "Current practices of human resource management (HRM) in Thai construction industry: A Risk and opportunity perspective". *Review of Integrative Business & Economics Research*, vol. 1, no. 1, pp. 1-14, 2012.
- [9] A. Marisa, N. Yusof, "Motivation among the managers in construction companies". *World Academy of Science, Engineering and Technology*, vol. 6, no. 2, pp. 22-26, 2012.
- [10] R. Dwivedula, C. N. Bredillet, 2010. "Profiling work motivation of project workers". *International Journal of Project Management*, vol. 28, no. 2, p. 158-165, 2010.
- [11] H. A. Halepota, "Motivational theories and their application in construction". *Cost Engineering*, vol. 47, no. 3, pp. 14-18, 2005.
- [12] O. Ibrinke, O. Adedokun, A. Hungbo, "Drivers and challenges of motivation for casual workers on construction sites". *Journal of Emerging Trends in Economics and Management Sciences*, vol. 2, no. 5, pp. 413-417, 2011.
- [13] N. N. Cong, D. N. Van, "Effects of motivation and job satisfaction on employees' performance at petro Vietnam Nghe and Construction Joints Stock Corporation (PVNC)". *International Journal of Business and Social Science*, vol. 4, no. 6, pp. 212-217, 2013.
- [14] O. Ameh, B. Shokumbi, "Effectiveness of non-financial motivational scheme on construction workers output in Nigeria". *Ethiopian Journal of Environmental Studies and Management*, vol. 6, no. 3, pp. 263-272, 2013.
- [15] A. M. Jarkas, M. Radosavljevic, "Motivational factors impacting the productivity of construction master craftsmen in Kuwait". *Journal of Management in Engineering*, vol. 29, no. 4, pp. 446-454, 2013.
- [16] A. O. Aiyetan, A. O. Olotuah, "Impact of motivation on workers' productivity in the Nigerian construction industry" In: Boyd, D (Ed) *Proceedings 22nd Annual ARCOM Conference*, Birmingham, Association of Researchers in Construction Management, pp. 239-248, 4-6 September 2006.
- [17] S. O. Ogunlana, W. P. Chang, "Worker motivation on selected construction sites in Bangkok, Thailand". *Engineering, Construction and Architectural Management*, vol. 51, pp. 68-81, 1998.
- [18] S. G. Naoum, "Dissertation research and writing for construction students". 2nd ed. Oxford: Butterworth-Heinemann, 2007.
- [19] A. Enshassi, J. Al-Najjar, M. kumaraswamy, "Delays and cost overruns in construction projects in the Gaza Strip", *Journal of Financial Management of Property and Construction*, vol. 14, no. 2, pp.126-251, 2009.