

Tension between Productivity and Respect for People in Construction

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Abstract. Productivity in the construction industry is declining in real-time. The decline in productivity is a source of worry for practitioners and researchers. The purpose of this paper is to ascertain major factors influencing productivity in relation to the notion of respects for people (RfP) in construction. The reviewed literature influences the semi-structured questionnaire used to survey construction professionals in Johannesburg, South Africa. The results reaffirm the tension productivity increment and the enhancement of RfP as both ideas appear to be moving in opposite directions on a typical construction site. It was discovered that respect for workers on a construction site is a major concern. The paper argues that ethical reasoning affects productivity. Therefore, an appropriate management system is required to improve the workers' perception of productivity and RfP working on construction sites.

Keywords: Construction, Productivity, Respect, Working Conditions

1 Introduction

The economist, contractors, and organized labour argued that to remain competitive in the industry, one needs to produce more for each money spend on projects and that every worker at a job site must contribute to improving productivity [1]. According to Abdel-Wahab and Vogl [2], the productivity of the construction industry is a key driver of the economic growth in any country. In construction, productivity is influenced by people, although the use of technology and machinery have moderating effects on specific projects [3]. In fact, Crawford and Vogl [4] state that construction productivity does not move in tandem with technological change, not with factor replacement, where cost and equipment may be replaced for labour.

In brief, low productivity is a source of anxiety for stakeholders in the construction sector [5] because it is declining in real-time for several decades [6]. The decline of productivity is a source of worry for professionals and researchers worldwide and the phenomenon is increasing unemployment rate in developing country like South Africa [7]. There are numerous factors contributing to the decline of productivity in the construction industry. For

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example, in South Africa, productivity has been worsening due to labour unrest, leading to a negative impact on the cost and quality of the product as well as the livelihood and moral of the workers [7]. The industrial factors causing productivity to decline are connected to behaviours towards people working in the construction industry.

Respect for people (RFP) is described as a method designed to create organizational culture and climate in which improvements to the work method and procedures are being made every day, by every single member of the organizations in every area of the organization within the workplace [8](47). The concept of RfP in the industry relates to the improvements of working conditions and that they are judged purely in relation to their contribution to efficiency and profitability rather than in term of moral imperatives or fairness of the organizations [9]. Therefore, the aim of this study was to ascertain major factors influencing productivity in relation to the notion of respects for people (RFP) in construction.

2 Productivity in the construction industry

To understand the term productivity, production function, in general, should be understood. The term production is defined as a network of processes and operations used in the industry [10]. Process in the industry represents a flow of material in time and space, resulting in the transformation from raw material to the semi-processed component to finished product. Operation in the industry represents the work performed to accomplish this transformation, the interaction and flow of equipment and operators in time and space [10]. Secondly, stakeholders need to understand the factors affecting productivity ‘ask why productivity is declining?’ [2].

According to Li and Liu [6], the term productivity has been described as a technical concept which refers to a ratio of the input to real output as a measure of the efficiency of projects. The ratio of the input in the construction industry includes labour, materials, equipment, energy, and capital, and while, the output includes; the quantity, and labour productivity of the construction projects [11]. Productivity in the construction industry refers to making use of production resources, operators that do not waste imports, for example, increasing growth rates while decreasing the use of resources [3]. According to Arditi and Mochtar [11] productivity is not only influenced by labour, but also by other factors such as materials, equipment, construction methods, and site management. However, the impact of labour productivity is the main factor in the industry. For example, the Department of Labour in South Africa reported that in 2013 the industry lost about R6.7 billion (\$527 166 787.00), due to the participation of workers in wages, bonus, and other compensation strikes or protest [7].

The productivity in the sector is measured by contractors, project consultants and the clients. For example, labour productivity is measured by contractors in the bidding stage of the project and it is monitoring the daily activities at a job site. The total productivity is used by the project consultants for specific programme planning and by the clients for conceptual cost and period, estimating on individual projects [11]. The best way to comprehend productivity improvement in the construction industry is to understand the construction procedures as a visual complete system. For example, to define the management practices of the projects (i.e. scheduling, planning, data collection, job analysis, and control), material, timelines of the projects (i.e. proper procurement, scheduling, and site layout), and labour effectiveness of the projects (motivation, job safety, environmental factors, and physical limitations) [1].

3 The impact of working conditions on construction sites

According to Abrey and Smallwood [12], poor working conditions in the construction industry are part of the problems causing poor quality of work, which lead to the decline of productivity and overall performance at the job site. In the construction industry, working conditions are linked directly to construction productivity and workers' performance on-site projects [13]. There are numerous factors causing poor working conditions in the construction industry. These factors include noise, irritant or sensitising materials, dust, fumes and gases, and other hazardous materials such as asbestos [12]. These factors affect workers negatively, and often management fails to address them, which end up resulting in poor working conditions at the job site [14]. The outcomes of poor working conditions do not only reduce productivity but also raise questions about respect for safety and safe practice at job sites [1]

4 Research Methodology

Several authors have investigated the impact of productivity in the industry [1-3, 5, 7, 11]. The authors flagged a range of causal factors in their publications. The causal factors were conceptualised with the notion of RfP to produce a semi-structured survey questionnaire for this study. For example, three principle productivity factors include, site management, working conditions and construction workers' morale and satisfaction.

An expedited literature review discovered factors affecting the productivity of the construction industry. The identified factors were discussed with the construction practitioners working on project sites in Johannesburg, a city in South Africa. The research design of this study adopted a quantitative research approach as explained by Creswell [15]. For a collection of the data, survey research of 20 questionnaires was distributed among construction professionals made up of a client, project consultants, and a contractor. However, only 17 responses were received, resulting in 85%. The questionnaire consisted of questions relating to the demographics of the respondents, open-ended questions, and five-point Likert scale type questions. The five-point Likert scale questions were ranking major factors influencing productivity and respect for people in construction and the ranking factors were designed according to a scale between 1 and 5 [15]. The scale was represented as: 1 = strongly disagree (SD), 2 = disagree (D), 3 = neutral (N), 4 = agree (A), and 5 = strongly agree (SA). The results in the form of the mean score (MS) were used to rank the factors. Most responses were from contractors at 82% (14 out of 17), project consultants at 12% (2 out of 17), and clients at 6% (1 out of 17). The gender of the respondents of this study shows that 52.9% were male and 47.1% were female. In terms of years of experience in the construction industry, 41% of the respondents have 0 > 5 years, 35% have 5 > 10 years, 18% have 10 > 15 years, 0% have 15 > 20 years, and 6% have 20 > years of experience.

5 Results, Analysis and Interpretation

Table 1 indicates the ranking of nine factors causing poor productivity on construction sites. The site management is the principal factor of this listed nine factors, this is because these factors are all addressing the impact of site management on construction sites. The ranking of this factor is in terms of percentage responses to a scale of 1 = strongly disagree (SD) to 5 = strongly agree (SA), and the MS ranking between a minimum value of 1.00 and maximum value of 5.00 [15]. The MS ranking in representing a minimum MS > 2.00 and a maximum MS 5.00. It is discovered that the highest-ranked factor causing poor productivity in the site management of the projects is in MS 4.24, and there are two factors having the same MS 4.24, namely poor management style and unrealistic deadline. It is notable that poor

management style and unrealistic deadline have the same MS 4.24, but their scale ranking was differentiated with the standard deviation rule. For example, both factors scored 0 in the scale 1 and the statistical results start to differ from scale 3 to 5 in scale 3, poor management style > 5.00 and unrealistic deadline > 11.00, and in scale 5, poor management style > 29.00 and unrealistic deadline > 35.00. It is not surprising that these two factors ranked the highest, as it is explained that most of the small, and medium-sized construction business do not undertake detailed site activity planning because of a lack of skilled people and finance [16].

The lowest-ranked factor (9th) is at MS 2.94 namely; accommodation of the workers. The 3rd ranked factors at MS 4.00 is the designed construction method. The training and skills development factor ranked 4th at MS 3.88, the management of material supply factor ranked 5th at MS 3.76, the availability of resources factor ranked 6th at MS 3.41, the distance and location of site factor ranked 7th at MS 3.06, and the language barrier factor ranked 8th at MS 3.00. It is very important for management or supervisors of the projects to address this site management factor to improve productivity since these factors affect the job site of the project. This statement is supported by Valverde-Gascueña et al., [16] that it is widely proven that the most important factors affecting poor productivity in the construction industry can be influenced and improved through jobsite management effort.

Table 1. The site management

Factors affecting productivity	Response (%)					MS	Rank
	SD.....SA						
	1	2	3	4	5		
Poor management style	0.0	0.0	5.9	64.7	29.4	4.24	1
Unrealistic deadline	0.0	0.0	11.8	52.9	35.3	4.24	2
Designed construction methods	0.0	0.0	23.5	52.9	23.5	4.00	3
Training and Skill development	0.0	0.0	23.5	64.7	11.8	3.88	4
Management of material supply	5.9	0.0	29.4	41.2	23.5	3.76	5
Availability of resources	5.9	6.0	35.3	47.1	5.9	3.41	6
Distance and location of sites	5.9	12.0	58.8	17.6	5.9	3.06	7
Language barriers	11.8	24.0	17.6	47.1	0.0	3.00	8
Accommodation of the workers	0.0	29.0	47.1	23.5	0.0	2.94	9

Table 2 indicates the ranking of the five factors causing poor productivity on construction sites. Working conditions are the principal factor of the listed five factors, as explained in the literature that poor working conditions in construction are part of the problems causing poor quality of work, which lead to the decline of productivity and overall performance at the job site [12]. The statistical ranking of the factors in Table 2 highlights a minimum MS > 3.00 and a maximum MS 5.00. The analysed survey responses show that the highest (1st) ranked factor is lack of supervision at MS 4.06. The 2nd ranked factor is poor safety condition at MS 3.71. The 3rd ranked factor is poor housekeeping, and the 4th ranked factor is a hostile work environment at MS 3.59. The lowest (5th) ranked factor is workers fatigues at MS 3.47. This principle factor of working condition is extremely significant to improve the productivity and respect of the workers on construction sites. According to Lee et al. [17], working conditions

have a substantial influence on the workers' quality of life, and workers spend more than a half of their working hours at a project site. Therefore, the working conditions influence the life of the workers, this might be the reason why the respondents did not rate the scale of 1 (SD) in all the five factors.

Table 2. Working conditions

Factors affecting productivity	Response (%)					MS	Rank
	SD.....SA						
	1	2	3	4	5		
Lack of supervision	0.0	0.0	23.5	47.1	29.4	4.06	1
Poor safety conditions	0.0	5.9	23.5	64.7	5.9	3.71	2
Poor housekeeping	0.0	11.8	23.5	52.9	11.8	3.65	3
Hostile work environment	0.0	17.6	11.8	64.7	5.9	3.59	4
Workers fatigue	0.0	5.9	58.8	17.6	17.6	3.47	5

Table 3. Construction workers morale and satisfaction

Factors affecting productivity	Response (%)					MS	Rank
	SD.....SA						
	1	2	3	4	5		
Industrial strikes or protest	0.0	5.9	11.8	47.1	35.3	4.12	1
Racism	0.0	5.9	23.5	47.1	23.5	3.88	2
Workers absence	0.0	0.0	35.3	52.9	11.8	3.76	3
Gender equality	0.0	5.9	41.2	29.4	23.5	3.71	4
Xenophobia or cultural	0.0	11.8	35.3	29.4	23.5	3.65	5
Staff turnover (change of jobs)	6.0	11.8	11.8	64.7	5.9	3.53	6
Disciplinary procedures	6.0	17.6	5.9	70.6	0.0	3.41	7

Table 3 indicates the ranking of seven factors which influences construction workers morale and satisfaction negatively. The scale of the ranking was in terms of percentage responses to a scale of 1 (SD) to 5 (SA), and MS ranking between a minimum value of 1.00

and maximum value of 5.00. These seven-construction workers morale and satisfaction factors could cause low productivity as explained in the literature [5, 7]. It is notable that the highest-ranked factor is at MS 4.12 and the lowest is in MS 3.41. The highest-ranked factor is the industrial strikes or protests ranked at MS 4.12, the 2nd ranked factor is racism at MS 3.88, the 3rd ranked factor is workers' absence at MS 3.76. The 4th ranked factor is gender equality at MS 3.71, the 5th ranked factor is xenophobia or cultural tribalism at MS 3.65, the 6th ranked factor is staff turnover, and the 7th lowest-ranked factor is disciplinary procedures at MS 3.41. It is no surprise that industrial strikes or protest ranked 1st due to the statement issued by CIDB [7] that labour productivity in South African industry has been worsening due to labour unrest, leading to a negative impact on the cost and quality of the product as well as the livelihood and more of the workers. Furthermore, Thomas and Sudhakumar [5] states that labour strikes are a critical factor causing labour productivity to decline in the construction industry

6 Conclusions

The study explored 21 factors which are categorized into three principle productivity factors, the site management principle factor, working conditions principle factor, and construction workers' morale and satisfaction principle factor. Among the 21 factors explored, poor management style, unrealistic deadline industrial strikes or protest, and lack of supervision were identified as the most critical factors impacting productivity. Designed construction method, training and skill development, racism, worker's absence, management of material supply, and poor safety conditions were the other major factors identified in the survey. Based on the survey results, poor management style and unrealistic deadline (the site management principle factor) are the most ranked factors in MS 4.24. The second-highest ranked factor is industrial strikes or protest (construction workers morale and satisfaction principle factor) at MS 4.12. It can be concluded that these three factors influence RfP on one hand and productivity on the other. Also, they discredit the adopted management system in the South African construction industry. Therefore, these factors must be addressed to eradicate low productivity on construction sites. The research findings show the need to improve respect towards construction worker on construction sites. This resonates with the CIDB [7], who contends that productivity is a major issue in South Africa. This research has identified the three principal factors impacting productivity in the construction industry, and the findings will assist contractors in setting strategies to improve productivity. Therefore, it is recommended that the scope of this study should be extended to other cities in South Africa as it is limited to one city with little data. Also, an appropriate management system is required to improve the workers' perception of productivity and respect for themselves and others on a project site.

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