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Effective Productivity in Construction through Labour Management

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ABSTRACT: This paper describes the effective productivity in construction through labour management, Construction is the second largest industry after agriculture in India. The most challenging issue in construction industry is effective productivity and good labour performance. In construction productivity has direct interrelationship with the three constraints there are time, cost and quality. The objectives of this research investigate identification factors reducing and increasing productivity in construction through labour management. The principal tool used for collection of data questionnaire survey; questionnaires for field survey. Data for the survey are obtained through a structured questionnaire administrated to respondents in number 122. The respondents involve 80 labours and 42 managerial peoples. The responses from all respondents are analyzed by using SPSS software using statistical analysis is used to check the opinions of all respondents. From the descriptive statics analysis result, the opinion of all respondents on factors on reducing and increasing productivity in construction through labour management are identical. Identified factors used to provided appropriate conclusion and recommendations about this thesis

KEY WORDS: Reducing and increasing factors, SPSS, Effective productivity through labour management.

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I INTRODUCTION

Construction industry faces challenges with regard to problems associated with effective productivity and good labour management. Insufficient labour management on construction to result in low productivity. Proper labour management can help in effective productivity. Most construction industry 30% to 50% of total cost of project is spent on labours and labour management. So construction industry avoids to labour management issues.

There are number of factors that directly affect the productivity of labour, thus it is important for any organization to study and identify those factors and take an appropriate action for improving productivity. At the micro level, if we improved productivity, ultimately it reduces or decreases the unit cost of project and gives overall best performance of project. For every project, productivity, cost, quality, and time have been the main concern. Better productivity and improving labour performance can be achieved if project labour management includes the skills of education and training, the work method, personal health, motivational factors, the type of tools, machines, required equipment and materials, personal skills, the workload to be executed, expected work quality, work location, the type of work to be done, and supervisory personnel.

II BACKGROUND OF THIS STUDY

Many researchers have done research on importance of productivity and labour management function in construction projects. Such literature were collected from the various sources such as construction management books, journals, articles, web sources etc. the relevant research was studied in detail and reviewed for identify the effective productivity in construction projects. The following topic defines various reducing and increasing productivity factors and labour performance in construction projects. Every individual paper has given the intense information about the effective productivity through labour management.

Proverbs et al, **(1999)** Compared the four countries labour management practices in labour utilization. Investigation on labour management. number of supervisors working in labour management, work time start to end time and break time, work hours per day , size of work force, modes of employment this are all the function investigate on four countries and compare the labour management function in construction company.

Adnanenshassi and Sherif, **(2007)** identified this paper on important negative factors are affecting productivity, identified that factor using questionnaire survey and analysis. The factor was analysis and using relative importance index method. To ranking the negative factors to measure the factors affecting labour

productivity. Analysis this factors and to improving productivity suggestion and make this are all the negative factors identified.

Aminakhavan and Abubakar, **(2008)** Identified the type labour involve in the construction projects(skilled, semiskilled, unskilled labours, others.).identifying barriers to labour training and motivation in construction projects that factors are Low Education, Low Income, Family Problems, Lack of Motivation, Others. using questionnaire survey and analysis method to use Improve in labour training performance and motivation to human resource.

Fagbenleolabosipo et al, **(2011)** Identified the factors affecting the performance of labour. The factors are lack of training and retraining, unfair wages, design changes, recruitment of unskilled labour. Poor (communication, motivation, and specification), this are all the factors find the affect on labour performance that factors was improving sufficient management to improve labour performance.

Dayakar and Jothikrishnan, **(2012)** found the affecting factors they are divided Four group and each group 52 factors affecting labour productivity. That factors was analysis and ranking 1)regulation, 2)work force issue, 3)work content issue, 4)work environment issue, Factors are identified. To improving productivity suggestion or to make recommendation for improving labour productivity.

Olga, **(2015)** found this paper barriers of Professional training to worker in construction industry, how to train ,training duration of separate worker, to develop the labours performance in proper work of demands and supply. Dominate the difficulty of works was simplified. To use construction industry workers professional.

Thiyagu and Dheenadhayalan**, (2015)** studied on improvement of labour productivity. Most factors affecting the labour productivity to labour living environment, Overtime, shortage and poor quality of material, improper equipment, payment delays, misunderstanding to laborers. Comfort Labour work environment to labour productivity is more

Sudamchavan et al, **(2016)** studied on productivity analysis to use Identification factors affecting labour productivity. In prepare a innovative strategy to reduce in efficiencies and to improve the effectiveness of the construction project. Measurement techniques study on the labour productivity. The most commonly used techniques include: The direct observation technique, Time study technique, Activity sampling technique, Foreman delay surveys technique, Craftsman questionnaire sampling, Group timing technique, recording methods.

Prachi et al, **(2016)** identified this paper importance of productivity measurement. Skilled, semi skilled, unskilled labour productivity has to measure and then distribute the skilled and semi skilled labour, can help labour cost was saving per floor. Work study and work measurement are the techniques useful for data collection of labour and improvement in labour productivity. Using this technique it helped to reduce cost by 20% of labour cost per floor.

Williamibbs and Xiaodan, **(2017)** found the weathers effects on productivity ratio was decreased and increased. Temperature and humidity effects on productivity ratio were measured .Average temperature and humidity to productivity was more In conclusion, previous studies on temperature and humidity's effect on productivity are not consistent in terms of their data definitions, so they cannot be directly compared.

III OBJECTIVES OF THE PROJECT

- To identify major reducing and increasing factors in construction through labour management
- To statistically analysis using the factors ranking
- To make conclusion and recommendation

IV METHODOLOGY

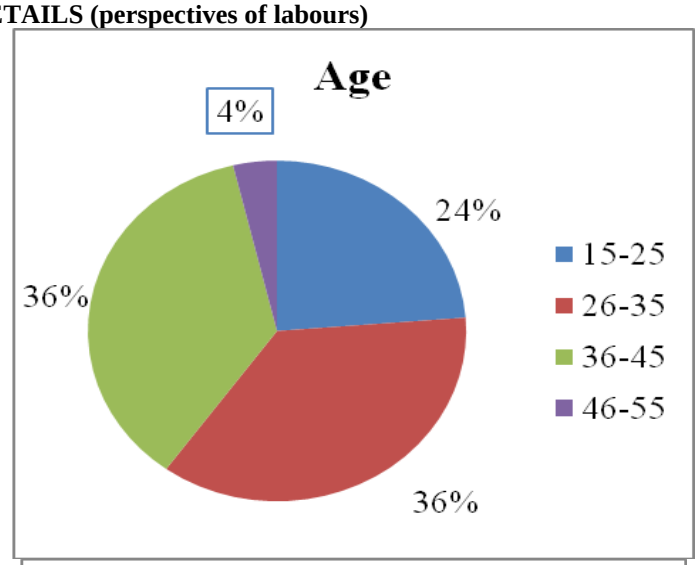
The research methodology of this study was done based on case studies. Here the identification of the problems is productivity decreasing and increasing factors through labour management in identified the issues from literature review. Prepare two set of questionnaire first one perspectives of construction managerial peoples another one is perspectives of construction labours. this part is consisting of the demographic profile of the respondent, information such as age, gender, and designation of the perspectives of labour and managerial peoples The number of question asked them 10 This part Reducing and increasing factors on productivity through labour management Using five point scale method .the scale ratings are as follows,1 – Not importance, 2 – Low importance, 3 – Moderate importance, 4 – Severe impportance,5 – Extreme importance. The survey is based on a sample size is 122.it is conducted among construction managerial peoples and construction labours working in various construction organization in state of Tamilnadu, through the questionnaire survey .This survey to be self administrate and distribute between 80 construction labours and 42 managerial peoples working in various construction organization in tamilnadu. Initially the questionnaire to be distribute to respondent and proposed to collect later. However before handling over the questionnaire ,all questionnaire be explain to every respondent so that they could fill the questionnaire easily and properly. the data have been analysis using descriptive analysis in SPSS software. Descriptive analysis involves the calculation of the

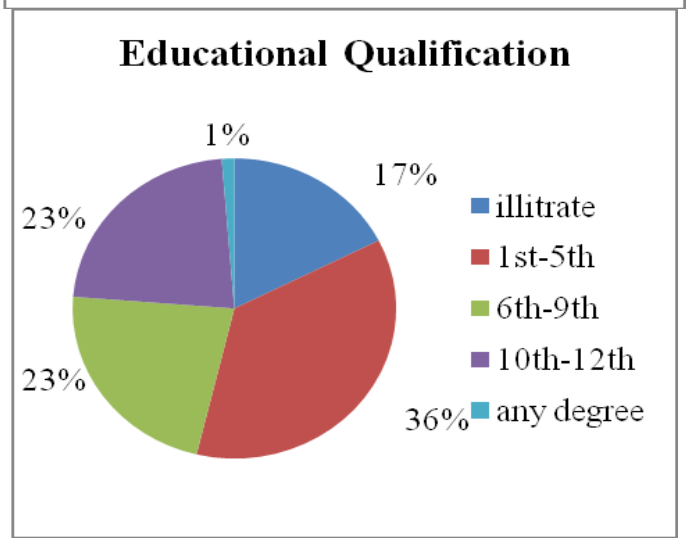
measures the mean, measures of variability and standard deviation. The computed values of the mean and the standard deviation are used to describe, the properties of particular samples and descriptive statics is used to reduce the bulk of data to manageable size.

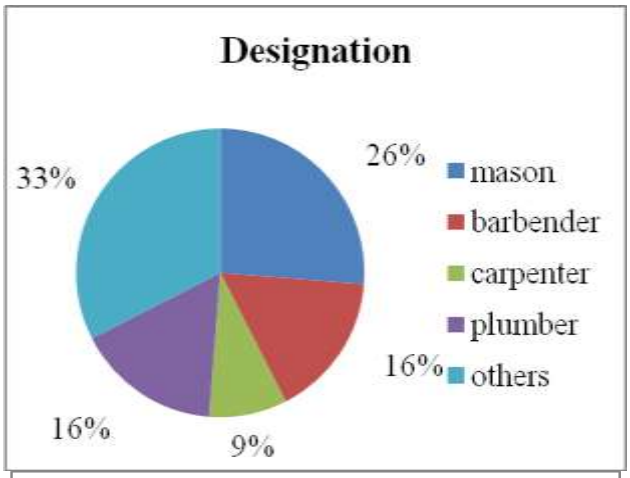
V RESULT AND DISCUSSION

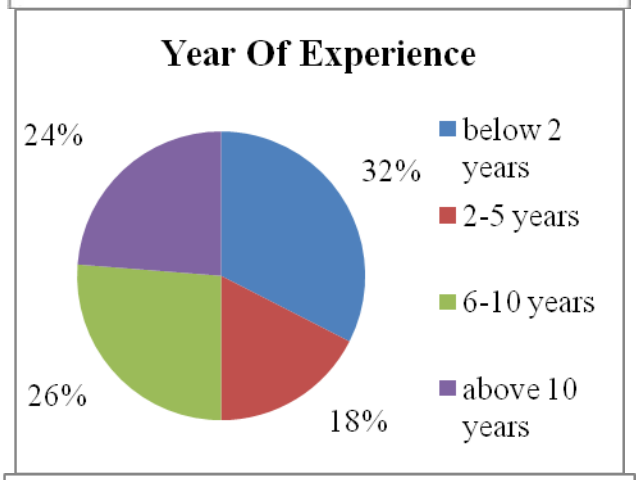
Descriptive Statics Analysis

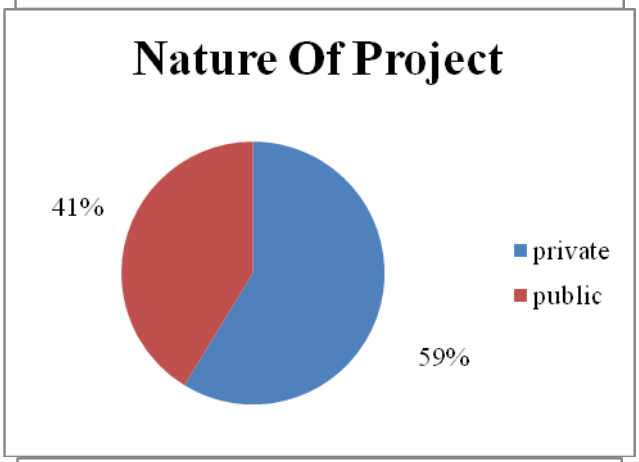
DEMOGRAPHIC DETAILS (perspectives of labours)

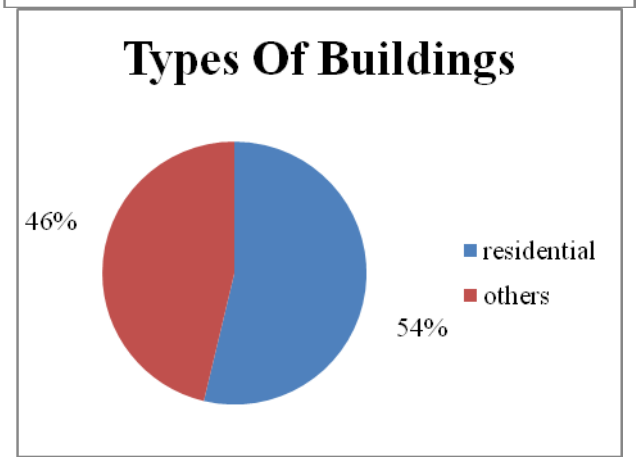




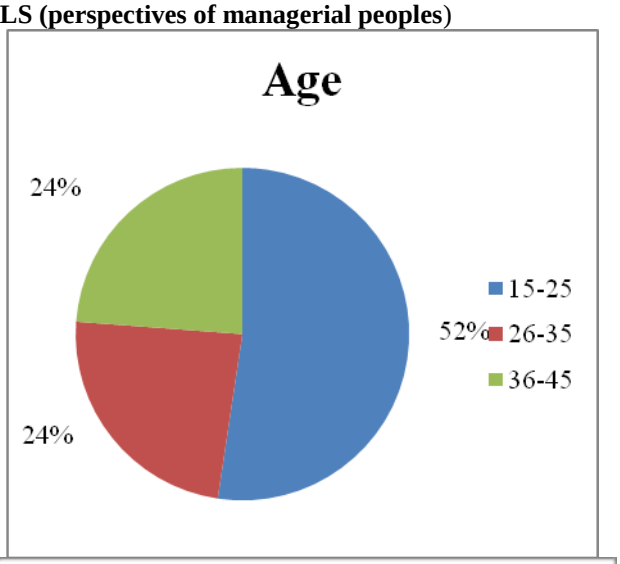

Designation
26%
33%
16%
16%
9%
mason
barbender
carpenter
plumber
others

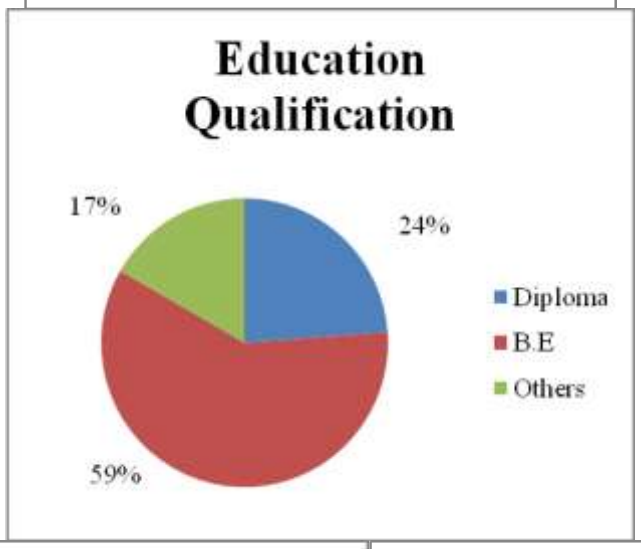

Year Of Experience
24%
32%
26%
18%
below 2 years
2-5 years
6-10 years
above 10 years

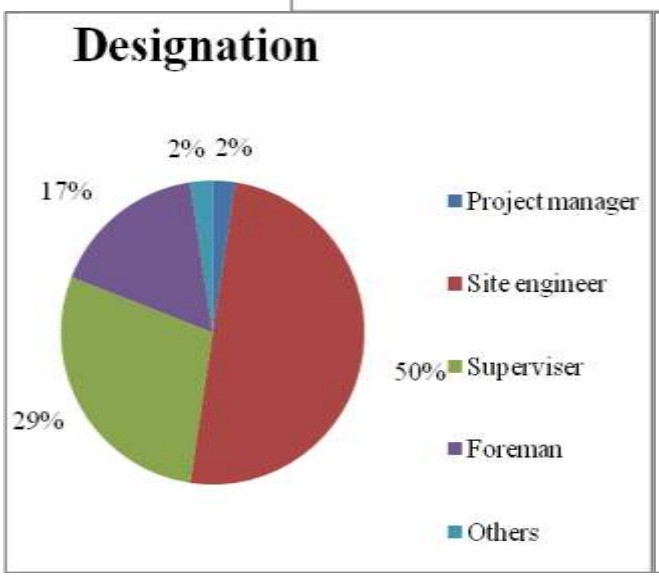

Nature Of Project
41%
59%
private
public

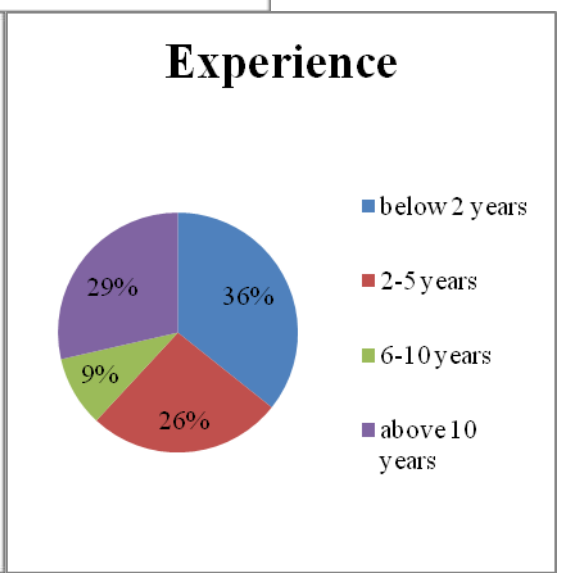

Types Of Buildings
46%
54%
residential
others

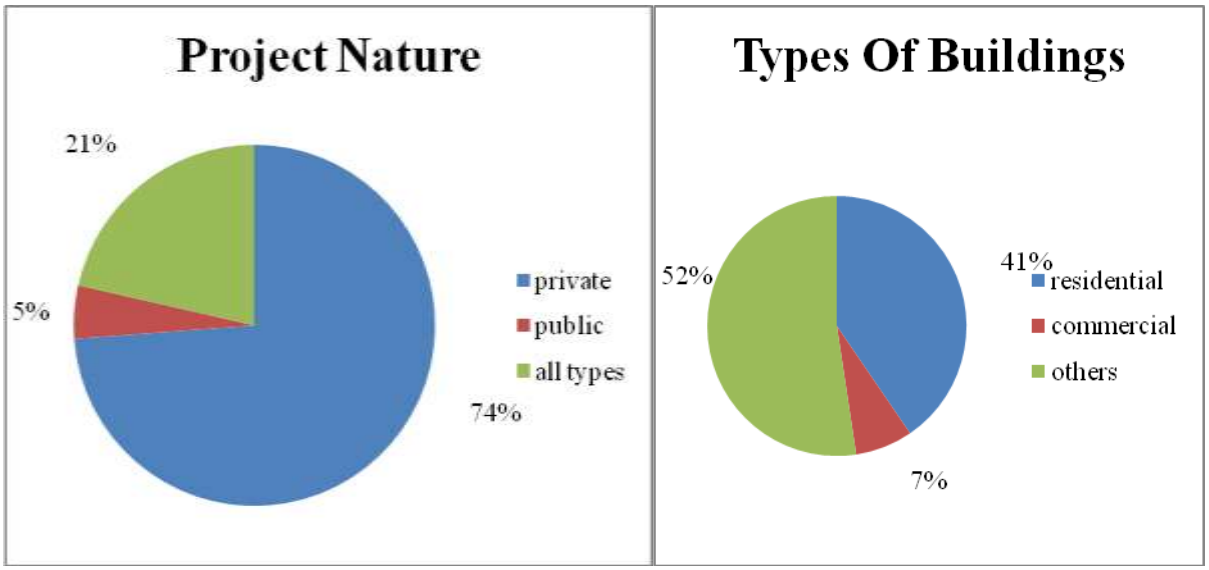
DEMOGRAPHIC DETAILS (perspectives of managerial peoples)











Productivity Reducing factors (Perspectives of labours)

Descriptive static analysis using 80 respondents to compare their means of responses for each of their factors.. The means of responses for the 20 reducing factors in construction through labour management and the standard deviation of their means are found and are shown in Table 4.1

Table 4.1 Descriptive statics of productivity Reducing Factors (Perspectives of labours)

Q.No.	Productivity Reducing Factors	N	Mean	Std. Deviation	Rank
19	Lack of financial motivation system	80	4.97	0.157	1
20	Poor scheduling	80	4.83	0.434	2
5	Poor management of project manager	80	4.80	0.432	3
5	Low leadership skill of project engineers	80	4.62	0.785	4
1	Poor Skill labours	80	4.26	0.758	5
10	Unqualified training for managerial persons	80	4.25	0.893	6
16	Don't distributes new workers with old	80	4.15	1.068	7
13	Difficulty with recruitment of workers	80	4.12	0.972	8
6	Misunderstanding between workers	80	4.11	1.067	9
4	Poor supervision method	80	4.02	0.795	10
2	The labours are not satisfied	80	4.02	0.940	11
12	Unemployment of workers	80	3.70	1.205	12
3	Without taking holiday per week	80	3.57	1.099	13
11	Working overtime	80	3.42	1.028	14
7	Personal problems of the workers	80	3.05	1.349	15
8	Psychological pressure on workers	80	2.88	1.340	16
15	New workers	80	2.63	1.224	17
14	Foreman changes	80	2.58	0.989	18
7	Inspection delay	80	2.56	1.041	19
9	Low labour morale	80	2.41	1.002	20

Productivity Reducing factors (Perspectives of Managerial peoples)

Descriptive static analysis using of 42 respondents to compare their means of responses for each of their factors the means of responses for the 20 reducing factors in construction through labour management and the standard deviation of their means are found and are shown in Table 4.2

Table 4.2 Descriptive statics of productivity Reducing Factors (Perspectives of construction Managerial peoples)

Q.NO.	Reducing Factors	N	Mean	Std. deviation	Rank
19	Lack of financial motivation system	42	4.881	0.632	1
17	Low leadership skill of project engineers	42	4.857	0.646	2
20	Poor scheduling	42	4.690	0.643	3
5	Misunderstanding between workers	42	4.190	1.041	4
4	Poor management of Project manager	42	4.190	0.772	5
1	Poor Skill Labours	42	3.833	0.793	6
13	Difficulty with recruitment of workers	42	3.785	0.898	7
16	Don't distributes new workers with old	42	3.738	1.169	8
3	Without taking holiday per week	42	3.523	0.968	9

4	Poor supervision method	42	3.309	0.975	10
11	Working overtime	42	3.000	1.189	11
10	Unqualified training for Managerial person	42	2.952	1.058	12
9	Psychological pressure on workers	42	2.881	1.310	13
18	Inspection delay	42	2.809	1.087	14
14	Foreman changes	42	2.738	0.989	15
12	Unemployment	42	2.690	1.023	16
2	The labours peoples are not satisfied	42	2.666	0.874	17
9	Low labour morale	42	2.404	0.885	18
7	Personal problems of the workers	42	2.333	1.242	19
15	New workers	42	2.285	1.065	20

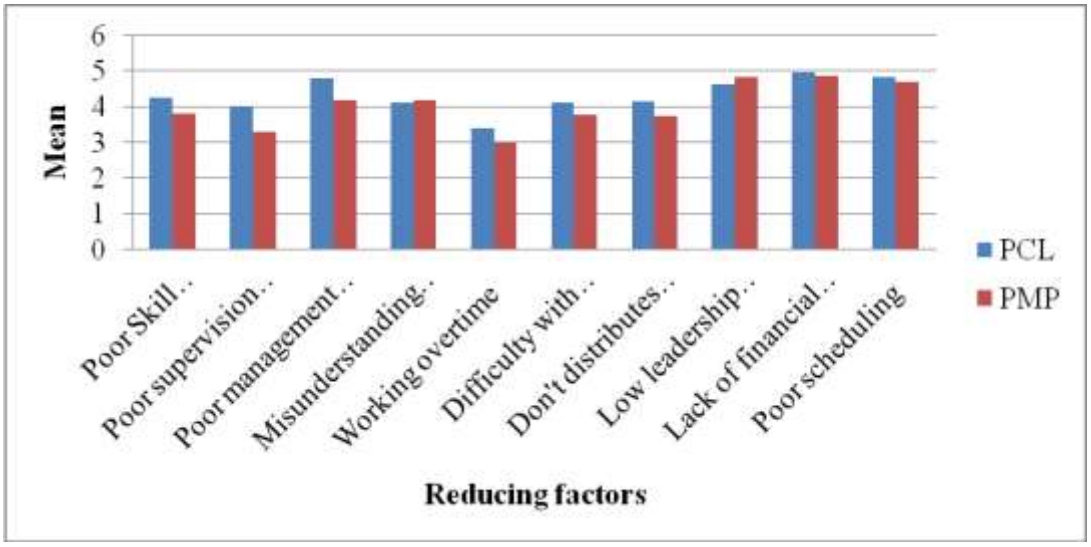


Fig 1-Important reducing factors graphical result

The figure shows compare the responses between PCL (Perspectives of Construction labours and PMP (Perspectives of Managerial peoples). Based on analysis to identified factors mean value to calculated average from PCL and PMP. Respectively the mean values 98.4 % to 64.24% importance of these reducing factors

Productivity Increasing factors (Perspectives of construction labours)

The means of responses for the 25 increasing factors in construction through labour management and the standard deviation of their means are found and are shown in Table 4.3

Table 4.3 Descriptive statics Of productivity Increasing Factors (Perspectives of construction labours)

Q.NO.	Increasing Factors	N	Mean	Std. Deviation	Rank
25	Good pre task planning	80	4.887	0.355	1
9	Bonus and incentives	80	4.750	0.515	2
22	Workers participation in decision making	80	4.750	0.515	2
6	Good relation with working community	80	4.737	0.521	3
7	Good relation between labour and superintendents	80	4.725	0.527	4
5	Facilities at workplace	80	4.687	0.607	5
11	High amount of payment	80	4.650	0.618	6
13	Giving responsibility	80	4.587	0.650	7
8	Good relation between employer and employee	80	4.575	0.725	8
23	Good labour surveillance on construction site	80	4.525	0.795	9
15	Sharing problems and their results between workers	80	4.325	0.742	10
21	Creating competition	80	4.062	0.945	11
1	Good management of workers	80	3.925	0.896	12
16	Insurance for injury workers at the work place	80	3.687	0.820	13
2	Good working disciplines	80	3.675	0.964	14
10	Good health and safety condition	80	3.550	0.840	15
20	Assigns contracts and workers	80	3.425	1.144	16
24	Comfortable working area	80	3.400	1.175	17
3	Satisfaction at work	80	3.237	1.021	18
12	The stability of works	80	3.012	0.987	29
14	Giving places for eating and relaxation	80	2.987	1.307	20

18	Site near to home	80	2.912	1.093	21
4	Recognizance to labour	80	2.900	1.086	22
17	Place welfare facilities	80	2.725	1.113	23
19	Relaxation trips	80	1.987	0.878	24

Productivity Increasing factors (Perspectives managerial peoples)

The means of responses for the 25 increasing factors in construction through labour management and the standard deviation of their means are found and are shown in Table 4.4

Table 4.4 Descriptive statics Of productivity Increasing Factors (Perspectives of Managerial peoples)

Q.NO.	Increasing factors	N	Mean	Std. Deviation	Rank
25	Good pre task planning	42	4.904	0.297	1
9	Bonus and incentives	42	4.833	0.377	2
7	Good relation between labour and superintendents	42	4.714	0.457	3
6	Good relation with working community	42	4.714	0.457	3
8	Good relation between employer and employee	42	4.619	0.696	4
5	Facilities at workplace	42	4.619	0.538	5
23	Good labour surveillance on construction site	42	4.571	0.737	6
11	High amount of payment	42	4.381	0.794	7
13	Giving responsibility	42	4.333	0.874	8
22	Workers participation in decision making	42	4.238	1.031	9
15	Sharing problems and their results between workers	42	4.142	0.951	10
1	Good management of workers	42	3.952	0.824	11
10	Good health and safety condition	42	3.785	0.781	12
16	Insurance for injury workers at the work place	42	3.595	0.885	13
21	Creating competition	42	3.547	1.063	14
2	Good working disciplines	42	3.214	1.137	15
24	Comfortable working area	42	3.166	1.102	16
3	Satisfaction at work	42	3.000	1.012	17
4	Recognizance to labour	42	2.952	1.058	18
20	Assigns contracts and workers	42	2.857	1.159	19
14	Giving places for eating and relaxation	42	2.714	1.153	20
18	Site near to home	42	2.642	0.932	21
12	The stability of works	42	2.595	1.013	22
17	Place welfare facilities	42	2.404	0.912	23
19	Relaxation trips	42	1.833	0.853	24

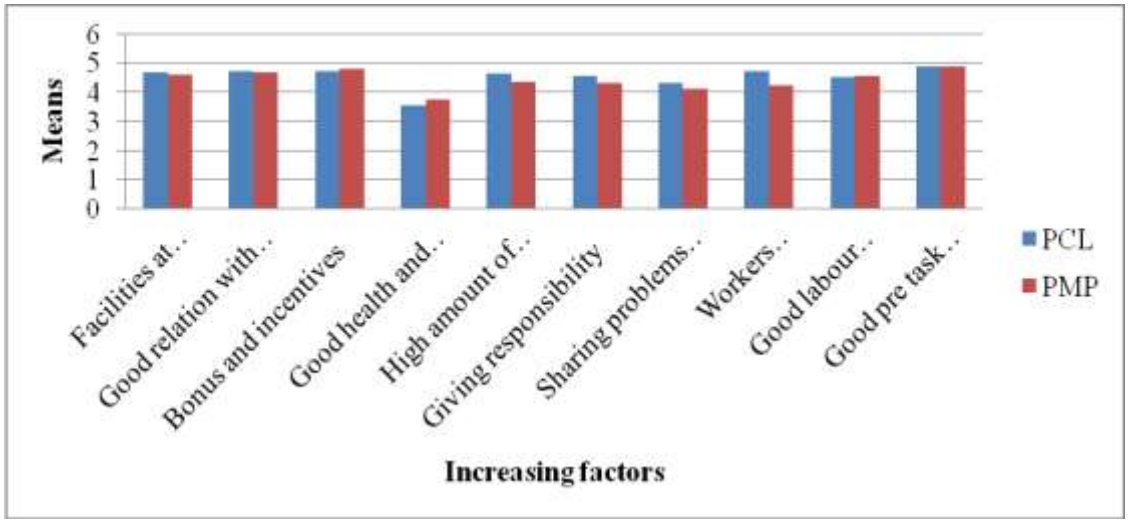


Fig 2 - Important increasing factors Graphical results

The figure shows compare the responses between PCL (Perspectives of Construction labours and PMP (Perspectives of Managerial peoples). Based on analysis to identified factors mean value to calculated average from PCL and PMP. Respectively the mean values 97.86 % to 73.34% importance of these increasing factors

VI CONCLUSIONS & RECOMMENDATIONS

The following conclusions and recommendations were drawn based on this thesis work.

- This thesis identified the affecting and improving productivity factors in construction through labour management.

- The researches were carried out in 122 samples.
- The data were analyzed and found the top important reducing and increasing factors in construction through labour management.
- This study concluded the top reducing factors were drawn
- Poor Skill managing peoples, Poor supervision method, Poor management of project manager, Misunderstanding between workers, Working overtime, Difficulty with recruitment of workers, Don't distributes new workers with old, Low leadership skill of project engineers, Lack of financial motivation system, Poor scheduling
- The all factors are 98.4 % to 64.24 % importance from the responses give productivity reducing factors in construction through labour management.
- This study concluded the top increasing factors were drawn
- Facilities at workplace, Good relation with working community, Bonus and incentives, Good health and safety condition, High amount of payment, Giving responsibility, Sharing problems and their results between workers, Workers participation in decision making, Good labour surveillance on construction site, Good pre task planning
- The all factors are 97.86 % to 73.34 % importance from the responses give productivity increasing factors in construction through labour management
- Based on this research used to some ideas to recommendations to improving productivity in construction through labour management.

VII RECOMMENDATIONS

- To provide proper finance and financial motivation in construction during period.
- To provide good communication relation between labours and managerial peoples.
- To proper need of material, tools & equipment and welfare facilities
- To prevent the misunderstanding in construction during period.
- To provide a experience managing peoples.
- To provide routine training and sharing the problems.

REFERENCES

[1]. Adnanenshassi and Sherif, (2007), Factors affecting labour productivity in building projects in the Gaza strip, *journal of civil engineering and management*, Vol. XIII, Issue: 4, pp.245–254.

[2]. Aminakhavan and Abubaker,A.H. (2008), Training, motivation,and performance: The case of humanresource management in construction projects in Mashhad, Iran, *Science Direct in International Journal of Project Management*, Vol. 5,Issue:14, pp. 5627-5636.

[3]. Dayakar and JothiKrishnan, (2012), Study on Labour Productiviy Managemen, *International Journal of Engineering Trends and Technology (IJETT)*, Vol. 3, Issue:2,pp.326-339.

[4]. FagbenleOlabosipo., OgundeAyodeji., and OwolabiJames., (2011), Factors Affecting the Performance of Labour in Nigerian Construction Sites, *Mediterranean Journal of Social Sciences.*Vol.2, issue.2, pp2117-2139.

[5]. Farnad and PouyaNojedehi, (2012), Dynamic modeling of labor productivity in construction projects. *Science Direct in International Journal of Project Management*, Vol.7, Issue:3, pp.903–911.

[6]. MatePratibha and Gaikwad, (2015), Analysis of Labour Productivity in Residential Construction projects. *International Journal of Modern Trends in Engineering and Research,*Vol.2,Issue:5, pp.234-226.

[7]. MostafaShehata., Khaled., and Gohary., (2012), Towards improving construction labor productivity and projects' performance, *elsevier in Alexandria Engineering Journal.*vol.23,Issue:15,pp.1573-1580.

[8]. MinLiu., GlennBallard., and WilliamIbbs., (2011), Work Flow Variation and Labor Productivity: Case Study, *Journal of management in engineering,*Vol.19,Issue:231, pp.2022-2034.

[9]. Naychisoe and AyemyaCho, (2014), Current Practices on Labour Management in Building Construction Projects, *International journal of scientific engineering and research*, Vol.03,Issue:10, pp.2017-2021.

[10]. Olga, (2014), The Labor Market in the Construction Industry: Demand, Supply, Professional Training. *International Scientific Conference Urban Civil Engineering and Municipal Facilities,*Vol.117, Issue:10,pp.1058 – 1064.

[11]. Othman., Idrus., and Napiah., (2012), Human resource management in the construction of a sustainable development project: towards successful completion. *Journal of Transactions on Ecology and The Environment*, Vol 162, Issue:174, pp.1743-1752.

[12]. Prachi and Pravinminde, (2016), Importance of Measurement of Labour Productivity in Construction, *research gate Journal of Engineering and Technology,*Vol.13,Issue:07, pp.1-5.

[13]. Proverbs,, Holt., and Olomolaiye., (1999), The management of labour on high rise construction projects: an international investigation. *International Journal of Project Managemen,t* Vol. 17,Issue:3, pp.167-176.

[14]. Serdar., AynurKazazb., and BayramErb., (2014), Planning Engineers' Estimates on Labor Productivity: Theory and Practice. *ScienceDirect in Procedia - Social and Behavioral Sciences,* Vol.5,Issue:7, pp.124-132.

[15]. SudamChavan., Hemant., and Salunkhe., (2016),A Study on Labor Productivity in Construction Industry. *International Journal of Engineering Research*, Vol.5, Issue:1, pp : 247-249.

[16]. Thiyagu and Dheenadhayalan, (2015), Construction Labor Productivity and its Improvement. *International Research Journal of Engineering and Technology*, Vol. 02, Issue:08, pp.0056-0072.

[17]. ThomasNg and ZiweiTang, (2010), Labour-intensive construction sub-contractors: Their critical success factors. *International Journal of Project Management.*Vol.28, Issue:5,pp.732-740.

[18]. VijayAntonyRaj and Kothai, (2014), Improving the Labour Productivity through Other Resources in Construction Field. *International Journal of Engineering Research and General Science.* Vol. 2, Issue: 2, pp. 2091-2730.

[19]. WenYi1 and AlbertChan, (2014), Critical Review of Labor Productivity Research in Construction Journals. *Journal of managemen tin engineering*, Vol.3, Issue:3, pp.145-152.
[20]. WilliamIbbs and XiaodanSun, (2017), Weather's Effect on Construction Labour Productivity. *journal of legal affairs and dispute resolution In engineering and construction.*Vol.5, Issue:8, pp.235-243.

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