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Review

Leadership importance in construction productivity improvement

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In construction, higher productivity means seeing the final result sooner, which in turn creates satisfaction. The work dissatisfaction can be one factor that will increase costs, produce time delays and generally reduce productivity on most types of projects. One way that construction managers can influence productivity is by determining how smooth the work will flow and how much work can be accomplished. Construction managers also influences productivity by how they influence worker's attitude, which is a major element in worker motivation and determining how much work will be accomplished. The aim of this research is to identify and present the effect of leadership in construction productivity improvement; through leadership skills and styles, because productivity is one of the most important factors affecting the over all performance of any organization large or small. At the construction projects, improved productivity decreases costs and time duration as an indcator of project performance.

Keywords: Leadership, Construction, Productivity Improvement.

INTRODUCTION

There is no doubt that construction is a key activity within any economy. Improving consrtuction productivity is a major concern for any profit-oriented organization. In order to improve productivity, a study of the factors affecting it whether positevely or negatively is necessary. Making use of these factors that positively affect productivity and controlling factors that have a negative effect, will altimately improve the productivity.

Leadership is one of the most important factors that afffect construction productivity, this research mainly focuses on the importance of the leadership in construction productivity improvement. The first part of the research presented leadership definition from different viewpoints of the researchers, the second part presented construction productivity definitions and several concepts of productivity, the third part presented the relationship between leadership and management since both of them are essential part of building and improving productivity, the fourth part presented the leadership in practice in addition to the importance of leadership in different fields, and the final part presented the importance of leadership in productivity improvement

through presenting the leadership as an important factor for improving productivity along with leadership skills and styles as tools for improving constuction productivy.

Leadership Definitions

There are many diverse definitions of leadership. Many researchers research for the leadership definition, in order to identify the importance of leadership, factors affecting leadership and leadership improvement.

Farmer and Aguinis (2005) mentioned that there are alternative definitions of leadership, for example Yuki and Van Fleet (1992) defined leadership as a process through which power is used to direct and coordinate the activities of group members to meet a goal and they add that leadership is a process of moving others toward a good. Hirtz et al. (2007) defined leadership as the process by which managers influence subordinators to work toward organizational goals.

Supervisory leadership is defined as a behavior intended to provide guidance, support, and corrective feedback for the day-to-day activities of work unit members (House and Aditya, 1997).

Hogan et al. (1994) defined leadership as involves persuading other people to set aside for a period of time their individual concerns and to pursure a common goal that is important for the responsibilities and welfare of a group.

Leadership is partly a function of skilful deployment of personal qualities but probably more of the interactive processes between leaders and their followers and the more general processes through which purpose and commitment are generated and sustained within an organization (Pettigrew, 1979 in Bjerke, 1999).

Yuki (2006) defined leadership as an influence process that make other understand and agree to what need to be done, how things should be done, and the process that make individuals and groups able to meet mutual goals.

Gharehbaghi and McManus (2003) mentioned that leadership is vision, motivation, organization, and action. Good leaders developed through a never-ending process of self-analysis, and the utilization of education, training, and experience to improve.

KirKpatrick and Locke (1991) mentioned that leadership motivation involves the desire to influence and lead others and is often equated with the need for power. People with high leadership motivation think a lot about influencing other peoples winning an argument, or being the greater authority. The leader must want to gain the power to exercise influence over others. Effective leaders must give power to others as a means of increasing their own power.

Gharehbaghi and McManus (2003) also defined leadership as a complex process by which a person influences others to accomplish a mission, task, or objective and directs the organization in a way that makes it more cohesive and coherent.

Productity Definitions

The term “productivity” has different meanings for different people. Depending on who is explaining productivity, whether he is a politician, accountant, economist, industrial engineer, or construction manager, you will get a wide range of different meaning of the term “Productivity”. Some will define it as production rate, efficiency, effectiveness, performance or merely production. This term was probably first mentioned by the French mathematician Quesnay in an article in 1766. In 1883, another Frenchman, Littre, defined productivity as the “faculty to produce.” In 1950, the Organization for European Economic Cooperation (OEEC), one of the oldest organizations espousing productivity enhancement, particularly in the Europe, issued a formal definition (Sumanth 1998):

“Productivity is the quotient obtained by dividing output by one of the factors of production. In this way it is possible to speak of the productivity of capital, investment, or raw materials according to whether output is being considered in relation to capital, investment or raw materials, etc.”

The Concise Oxford Dictionary (9th edition) defines productivity as the ‘capacity to produce, the state of being productive; effectiveness of productive effort; especially in industry; production per unit of effort’. While providing a good starting points, this definition uses the word ‘productive’ in defining productivity but, importantly, three distinct productivity concepts are brought out: (i) the capacity to produce, that is the force behind production itself, (ii) effectiveness of productive effort as a measure of how well the resources are utilized and (iii) the production per unit of effort (or rate) to measure output of the factors of production over a defined period time (Paul et al., 1998).

Thomas and Napolitan (1995) defined productivity as the work hours during a specified time frame divided by the quantities installed during the same time frame. The time frame can be found daily, weekly, or at the end of the entire project (cumulative), which is commonly called the unit rate measurement.

In another study, productivity is considered as a measurement dimension that sufficiently describes an operator’s performance. The productivity in this context represents the quantity produced per operator hour and the number of work cycles performed per operator minute. To judge the level of performance, the actual productivity must be compared with the estimated productivity. The performance Ability Ratio (PAR) is given as the ratio of the estimated productivity to the current productivity. A (PAR) value close to (1) indicates that the

current productivity is relatively good, while a (PAR) value for greater than (1) indicates a poor productivity, which was presented by Elazouni and Basha (1996).

Productivity may also be defined as the quantity of work produced per man hour, equipment hour, or crew hour (Finke in Lee et al., 2005).

In the construction industry, the meaning of the term productivity varies with its application to different areas. The term productivity usually refers to the output produced per unit input. Thomas et al. (1992) defined labor productivity as the "ratio of the input in terms of labor hours to the output in terms of units of work".

$$P_i = \frac{WH_i}{Q_i}$$

Where:

Pi = productivity for time period i

WHi = total work hours charged by the crew for time period i.

Qi = quantity of work placed during time period i.

This measure of productivity has several advantages: the meaning of the term labor productivity is relatively well understood; labor productivity is often the greatest source of variation in overall construction productivity; and the productivity of other inputs can often be measured with respect to labor productivity. The inverse of labor productivity, unit man per hours, is also commonly used (Halligan et al., 1994).

The term productivity also defined as follows: "Productivity is a relationship (usually a ratio or an index) between output (goods and/or services) produced by a given organizational system and quantities of input (resources) utilized by the system to produce that output" (Sink in Hannula, 2002).

This definition can be directly connected to the financial effects of productivity changes. For example, the cost effect of input changes can be directly calculated when the amount and the unit cost of the input are both known (Hannula, 2002).

Other definitions of productivity may relate to cost. For example, the following definition (Thomas et al., 1990) relates productivity to dollars of output per labor cost:

$$\text{Productivity} = \frac{\text{Dollars of Output}}{\text{Labor Cost}}$$

Or

$$\text{Productivity} = \frac{\text{Dollars of Output}}{\text{Man-hours}}$$

Cottrell (2006) also defined productivity as the monetary value of the completed work divided by the man-hours required to execute the project:

Productivity

$$= \frac{\text{Monetary Value of completed work}}{\text{Expended labor (Man-hours)}}$$

As can be seen, productivity is defined in many ways that reflect the different perspective of the construction industry. To avoid confusion, it is important to know how productivity will be defined before entering in to a substantive discussion by Thomas et al. (1990), Sonmez and Rowings (1998).

Several concepts of productivity

Productivity has several sub-concepts as the following:

a- Partial Productivity is the ratio of output to one class of input. For example, output per man-hour (a labor productivity measure) is a partial productivity concept. So are output per ton of material (a material productivity ratio) and interest revenue generated per dollar of capital (a capital productivity ratio) and so on (Sumanth 1998, Hannula 2002).

b- Total Factor Productivity (TFP) is the ratio of net output to the sum of associated labor and capital (factor) inputs. The net output here is sometimes called value-added output (Sumanth 1998, Hannula 2002).

In this ratio, we explicitly consider only the labor and capital input factors in the denominator. Since materials account for as much as 65% of product costs in consumer goods such as TVs, VCRs, and computers, this measure is not the best one in most cases (Sumanth 1998).

Thomas et al. (1990) mentioned TFP that used by the several government agencies including the U.S. Department of commerce that defined it as follow:

$$\text{TFP} = \frac{\text{Total Output}}{\text{Labor} + \text{Material} + \text{Equipment} + \text{Energy} + \text{Capital}} \quad (1)$$

TFP is an economic model, in which input and output are measured in terms of dollars.

$$\text{TFP} = \frac{\text{Dollars of Output}}{\text{Dollars of Input}} \quad (2)$$

TFP is not very useful for contractors, as it can be highly in accurate if applied to a specific project because of difficulties in predicting the various inputs.

Various agencies may modify Eq. 1 by adding maintenance costs or deleting energy or capital costs. Outputs are expressed in terms of functional units (Thomas et al. 1990). For example, the Federal Highway Administration may be interested in:

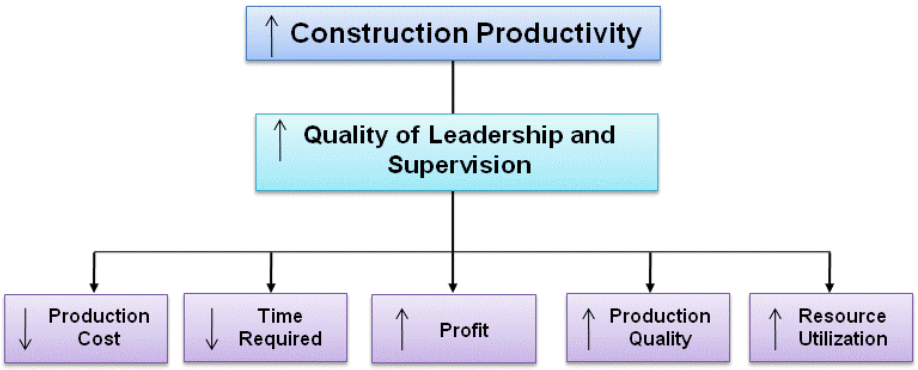


Figure 1. Relation between leadership and construction productivity

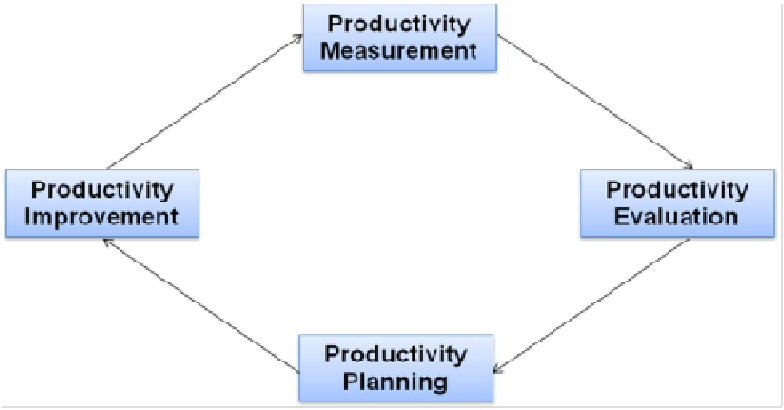


Figure 2. The Productivity Cycle (Sumanth, 1985)

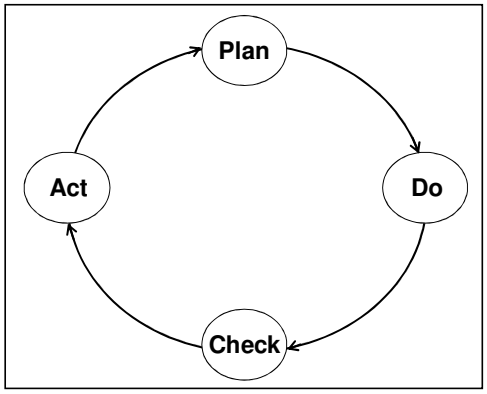


Figure 3. Improvement Cycle (Iso 9000)

$$\text{Productivity} = \frac{\text{Output}}{\text{Design} + \text{Inspection} + \text{Constructi on} + \text{Right - of - way}} \quad (3)$$

$$\text{Productivity} = \frac{\text{Lanemile}}{\text{Dollars}} \quad (4)$$

This definition is also useful in policy-making and for broad program planning (Thomas et al., 1990).

Other companies may modify the inputs, outputs, or reverse the order of the nominator and denominator for productivity measurement to make it suitable for their specific purpose. For example, the design and engineering firms, defined productivity as work hours per

Table 1. Factors Affecting Construction Productivity

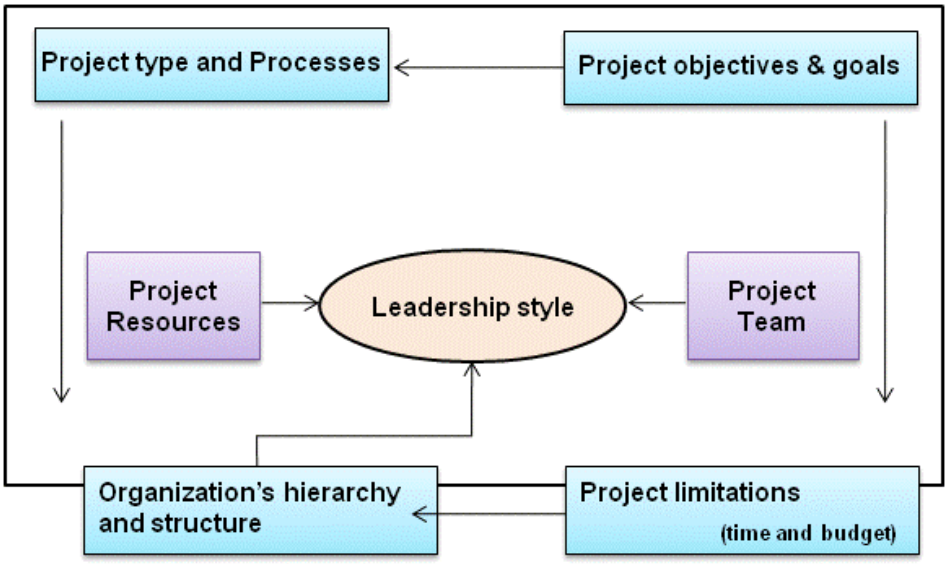
Industry related factors	Labor-related factors	Project-related factors	Management related factors	Government related factors	Marketing related factors	Training related factors	Other factors
• Varied location • Weather • Economic & Investment • Research & Development • Size of Firm • Building Code	• Labor availability • Labor skills • Work rules of labor Union • Size of crew • Risk of work accident • Labor capabilities • Temporary Nature of work	• Project design • The required degree of quantity and specification • Construction method & the use technology • Size of job • Total duration of the project • Available work area • Type of contract • Building element • Design change • Type of project	• Planning & scheduling • Control • Project organization • Leadership & Supervision • Communication • Size layout • Material & tool • Work redoing • Decision making • Motivation of workers	• Safety regulation • Health regulation • Insurance regulation	• Shortage of materials • Lack of market data • Market uncertainly	• Training increase the labor skills	• Social, Economical & political aspect • Sub-contracting • Labor turnover, absenteeism & breaks • Length & number of shifts.

Source: Mohammed (1996)

Table 2. Ranking factors affecting productivity among groups

Factors Groups	Importance Index	Rank
Materials/ Tools factors	77.98	1
Supervision factors	76.12	2
Leadership Factors	73.51	3
Quality factors	70.36	4
Time factors	68.79	5
Manpower factors	68.16	6
Project factors	65.26	7
External factors	62.38	8
Motivation factors	61.85	9
Safety factors	60.90	10

Source: Enshoss et al. (2007)



Source: Charehbaghi and McManus (2003)
Figure 4. Leadership style influences

produced document like sheet of drawing or section of contract specification (Thomas et al., 1999a). One common utilized method for measurement of progress in construction projects is done by comparing the man hours spent versus the planned man hours to be completed at some specific point of time in project. For example, at certain life cycle of project, the actual man-hours spent might be higher or lower that the planned man-hours. This comparison is utilized to determine the contractor's progress (Thomas and Napolitan, 1995; Thomas et al., 1999b; Thomas and Sanvido, 2000; Thomas et al., 2002; Goodrum and Haas, 2004).

At the project site, contractors are usually interested in labor productivity, and it can be defined in one of the following ways (Thomas et al., 1990):

$$\text{Labor Productivity} = \frac{\text{Output}}{\text{LaborCost}} \quad (5)$$

Or

$$\text{Labor Productivity} = \frac{\text{Output}}{\text{Work-hour}} \quad (6)$$

Eq. 6 is usually referred to as the production rate. Sometimes inverse of equation 6 is used by the contractors:

$$\text{Labor Productivity} = \frac{\text{LaborCostor Work-hour}}{\text{Output}} \quad (7)$$

Eq. 7 is usually referred to as unit rate (Thomas and Raynar, 1997).

Gulezian and Samelian (2003) defined Labor productivity, as the output or units of work divided by the man-hours.

Hanna et al. (2008) defined labor productivity also as a ratio between earned work hours and expended work hours, or work hours used.

Leadership / Management Relationship

Leadership and management have different concepts. Leadership is usually contrasted with management, but effective organization need both of them because they are an essential part of building and improving productivity. Leadership is needed to create change, but management is needed to create orderly results. The following part will present the different between leadership and management and their relationship.

House and Aditya (1997) defined management as the behavior of a person in a position of formal authority, intended to obtain compliance of organizational memebers with their normal role or position requirements.

Bennis and Nanus (1985) in barker (1997) mentioned that managers are people who do things right and leaders are people who do right things.

The purpose of management is to stabilize the orientation of the organization by maintaining successful patterns of action through the development and control of standard operating procedures (Barker, 1997).

House and Aditya (1997) also mentioned that

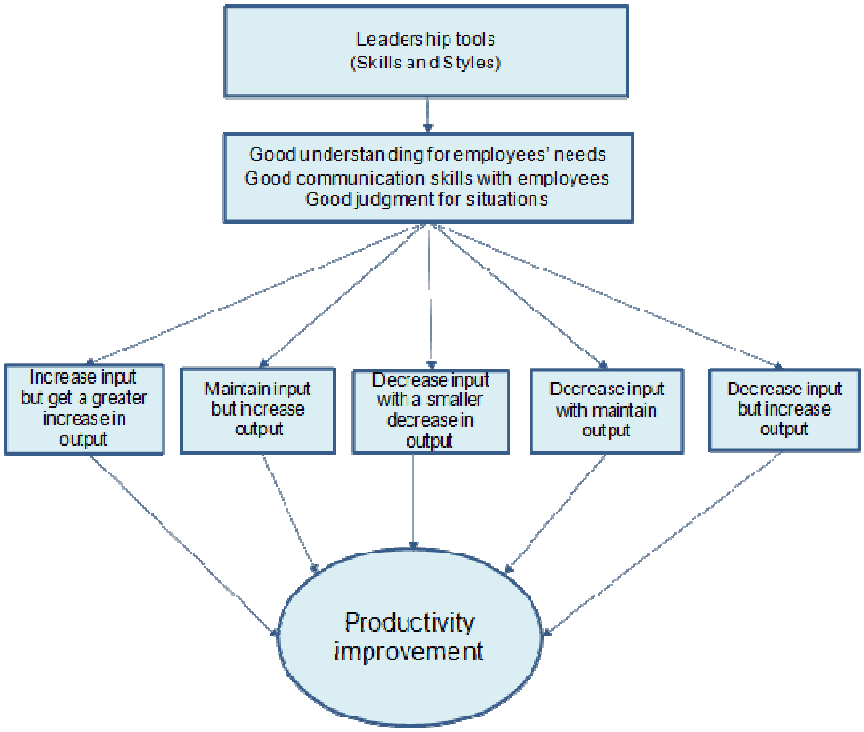


Figure 5. Leadership-Productivity improvement

supervisory leadership consists essentially of the task- and person-oriented leader behaviors specified in the leader behavior paradigm, on the other hand, management consists of implementing the vision and strategy provided by leaders, coordinating and staffing the components of organizations, administering the infra-structures of organizations, and handling the day-to-day problems that inevitably emerge in the process of strategy and policy implementation and ongoing organizational functioning.

Bjerke (1999) reported that Management/ Leadership approaches are influenced by:

a) Forces in the manager, including his or her value system, confidence in his or her subordinates, leadership inclinations and feetings of sensitivity in an uncertain situation.

b) Forces in the subordinates, includeing their need for independence, readiness to assume responsibility, tolerance for ambiguity, interest in the problem, identification with the goals of the organization, knowledge and expectation of decision-sharing.

c) Forces in the situation, including the type of organization, the effectivness of the group, the nature of the problem and the pressure of time.

It appears that where acompany faces in tense competition in its invironment, the chief executive officer not only utilizes a more participative style in decision making but also introduces more control to be sure the delegated decisions are carried out as intended. (Bjerke, 1999).

Leadership in practice

Bjerke (1999) reported that every epoch in history is asking for it's own type of leadership as an expression of existing values in society. In medieual society, leadership was built in to social institutions and by religion. In information society, discussion is very much about people looking for charismatic leaders who can provide meaning in life and reduce modern uncertainties at the same time as social structures become more horizontal, and time as well as distance is disappearing. In industrial society, leadership had a major role in planning and supervising work-technological rationalism was combined with patriarchal values. The following section will present the researchers study for leadership in the different fields.

Many researches have been conducted to study the leadership affect at different fields. Kenney et al. (1994) conducted three studies: The first one produced a list of everyday exemplars of new leader traits and behaviors, the second study reduced the redundancy in the list generated in study 1, and the theird study revealed the hierarchical structure of the exemplars of new leader traits and behaviors obtained in study (1) and simplified in study (2), in order to identify traits and behaviors

expected of new leaders worthy of followers'acceptance, and to obtain a more complete and representative picture of follower's expectations for a new leader. The researchers determined the structure of the list of followers'expectations to help leaders for increasing influence in leader and follower relationships.

Hammer et al. (2004) used a sample of 1,346 employees from 56 firms in the Norwegain food and beverage industry, to examine the contributions of organizational level norms about work requirements and social relations.

The results shown that organizational level behavioral and social norms are significant additions to the psychosocial work environment commonly defined by the job demands, control, and social support experimenced at the individual level.

Judge and Piccolo (2004) provieded a comprehensive study examination of the full range of transformational, transactional, and Laissez-faire leadership (non leadership) based on 626 correlations from 87 sources. The research based on the three pirvious forms and their dimensions.

Judge et al. (2004) provideed a meta-analysis of the relationship of the Ohio State leadership behaviors-consideration and initiating structure – with leadership. The results through analyzing 163 indepenent correlations for consideration and 159 correlations for initiating structure shown that both consideration and initiating structure have moderately strong, but consideration was more strongly related to follower satisfaction, leader satisfaction, job satisfaction, motivation, and leader effectiveness. The initiating structure was slightly more strongly related to leader job performance and group – organization performance.

Farmer and Aguinis (2005) presented a model that explains how subordinates perceive the power of their supervisors and the causal mechanisms by which these perceptions translate in to subordinate outcomes.

Agle et al. (2006) investigated the impact of Chief executive officers (CEOs) of major U.S. corporation on organizational performance through primary data from a sample of 128 CEOs. The results of the research shown that organizational performance was associated with subsequent perceptions of CEO Charisma but that perceptions of CEO charisma were not associated with subsequent organizational performance, even after the moderating effect of environmental uncertainly was considered. The charismatic strategic leaders my influence organizational performance because of their ability to overcome the three major inertial forces cognitive, motivation, and obligation that keep organizations from successfully adapting to new environment, their ability to inspire and motivate employees.

The importance of leadership in construction productivity improvement

Leadership as productivity improvement factor

Construction is a people industry. There is a strong link between the leadership and construction productivity.

As mentioned before, productivity is simply a measure of the ratio between the output of a process and the input of resources needed for it, it is usually expressed as output divided by input. There are five ways to improve productivity:

1. Increase input but get a greater increase in output.
2. Maintain input but increase output.
3. Decrease input with a smaller decrease in output.
4. Decrease input with maitain output.
5. Decrease input but increase output

A good leadership and supervision in construction projects increased the productivity through decreasing production costs, reducing time required for the operation, improving profit, improving the quality of product and increasing the utilization and conservation of resources.

Figure (1) shows how construction productivity could be improved through leadership controlling. An increase in quality of leadership and supervision; results in improved product quality and service, decrease production cost, time required for the product and improved marketshare and profit. The cost of any product or service is the sum of the costs of the resources used in producing it. The more productive each of those resources can be made, the lower the final cost of the product. In a free market the lower the cost of a product, the greater the demand it generates and the more profitable the enterprise, with ultimately a beneficial effect on the living standards of everyone. A better utilization of resources is just one of the results of increasing in quality of leadership and supervision.

According to Sumanth (1985), the cycle for productivity improvement involves four phases. Productivity measurement, productivity evaluation, productivity planning and productivity improvement as shown in figure (2). The productivity cycle concept shows that productivity improvement and productivity planning must be preceded by measurement and evaluation (Sumanth 1985). Leaders may affect productivity improvement through their decision or actions that should be taken to improve productivity, after their study and observation for the productivity measurement and evaluation.

The effect of leaders on productivity improvement could be more clearly as shows in Fig. (3) which illustrate another cycle for improvement known as (Plan-Do-Check-Act) (PDCA) (ISO 9000):

Plan : The leaders Establish the objectives, processes, methods, resources and procedures necessary to deliver results in accordance with customer requirements and the organization's policies.

Do : Implement the processes through the team work.

Check : Monitor, measure, compare and analysis processes and product against policies, objectives and requirements for the product and report the results through the team work.

Act : Take actions through the leaders to continually improve process performance.

Abd El Razek (2004) mentioned that Construction productivity various are results of several factors. The first step to improve construction productivity is to determine the factors that affect the productivity. Only when these factors are properly and accurately identified, then easier steps could be taken to improve productivity.

Many researchers have identified the factors that affect construction productivity.

Abd El Shakour (1994) grouped factors that affect productivity into four main categories (1) Industry related factors, (2) Project related factors, (3) Management related factors; (4) Labor related factors. In addition Mohammed (1996) grouped these factors and others into eight main categories: (1) Industry related factors; (2) Labor related factors; (3) Project related factors; (4) Management related factors; (5) Government related factors; (6) Marketing related factors; (7) Training related factors, (8) Other factors. Forty-five factors that affect construction productivity are identified as shown in Table (1).

The researcher mentioned that leadership and supervision on of the factors under Management related factors affect construction productivity.

Enshassi et al. (2007) identified factors affecting labour productivity within building projects in Gaza strip. Their research based on a survey designed to gatherall necessary information in an effective way. The survey presents 45 productivity factors generated on the basis of related research work on construction productivity. These factors were divided in to 10 groups based on previous literature. Manpower, leadership, motivation, time, materials/ tools, supervision, project, safety, quality, and external factors.

The results in table (2) demonstrate the ranking of 10 groups that affect labour productivity according to their relative importance from a contractor's viewpoint. The analysis of the survey shown that the materials/tools factors group was ranked first, and the leadership factors comes third of 10 factor groups.

Enshassi et al. (2007) also analyized the leadership group factors. They divided this group in to three factors:

1) Lack of labour surveillance.
2) Misunderstanding between labour/ Superinterdents.
3) Lack of periodic meeting with labour.

The results of the ranking of these 3 factors shown that, the lack of labour surveillance was first; misunderstanding between labour and superinterdents was ranked second, and lack of periodic meeting with labour was ranked third.

Hogan et al. (1994) belived that a leaders personality has predictable effects on team performance. For example, leaders with higher surgency scores communicate more with their teams, which increases the possibility that the team understands it's goal and the performance standards required to achieve it in their works, which may increase productivity.

Leadership Skills

Adrian (2004) mentioned two main reasons cause a failure in the construction productivity improvement programs:

1. Constructors often focus on short term results rather than focus on the long term. The construction industry's focus on the short term is caused by the fact that the industry constructs "projects". Often the constructor measures results by means of focusing on project profits; the profit center is a project. Such a focus on short-term results may lead to frustration if efforts are made to improve productivity and benefits are not immediately measurable. It is important to remember that productivity improvement is often more of a marathon, not a one hundred yard dash!

2. One has often heard statements such as in order for a new program or effort to work; "top management" must support the program. One might propose that a program or new effort has a better chance of succeeding if "top leadership" supports and drives the program. "Managers", not "leaders", frequently administer productivity improvement programs. Managers typically possess the important skills such as planning, directing, measuring, and monitoring.

While these are important skills of the construction supervisor, individuals that possess vision, motivation, team building, pride, and trust are skills of individuals that administer productivity programs that work. These skills are typically more identified as "leadership skills".

Kouzes and Posner (1987) in Locke (1991) defined vision as an ideal and unique image of the future. Kirkpatrick and Locke (1991) mentioned that leadership motivation involves the desire to influence and lead others and often equated with the need for power and people with high leadership motivation think a lot about influencing other people.

Adrain (2004) also explaned how the leadership skills apply to the implementation of a susscefful construction productivity improvement program through:

1. Leaders are Idea Driven and are Visionaries

2. Leaders Focus on Processes and Planning for the Desired Result
3. Leaders are Team Builders, They Seek and Obtain Consensus from Participants
4. Leaders are Consistent, But Flexible
5. Leaders do not Accept Failure, They are Not Whiners or Blamers; They are Problem Solvers and Opportunists

Gharehbaghi and Mcmanus (2003) mentioned that good leadership in construction is a result of the effective use and implementation of the important skills such as:

1) Understanding the needs and characteristics of the post,
2) Knowing and using of the resources of the group effectively,
3) Effective communication and planning,
4) Controlling team performance.

Leadership styles

Each leader has a leadership style with which he/ she feels comfortable, different people require different styles of leadership. Therefore leaders may have to switch to a different style of leadership style depends on many factors like, organizational structure, project type, objectives and goals, time availability, team and individual knowledge and skill, and motivation level of the team (Gharehbaghi and McManus, 2003).

There are many type of leadership styles, the most common types according to Gharehbaghi and McManus (2003) are:

1) Official style. Depends on rules and directives, preferably in writing. The leader tends to be fair and impartial when functioning well, uses an impersonal style, and knows the right way to get things done (Hiebert, 2001).

2) Expert style. Operates from personal experience; has skills needed to perform work. The leader feels there is no substitute for preparation and practice, is able to demonstrate how to perform a task, tends to give directions based on what he says, and acts directly to get results under pressure (Hiebert, 2001; Leithwood, 1999).

3) Coach style. Maintains personal relationships with each staff member. The leader tries to build trust, sets mutual goals with each staff member, encourges but also expresses disappointed when a person fails to meet goals (Leithwood, 1999).

4) Democratic style (team builder style). Uses work group for both motivation and discipline. The leader stresses openness and consensus, tries to achieve balance between group choices and organizational goals, shares responsibility with the group but makes sure that organization's expectations are achieved, believes that the team is powerful, involves group memberss in planning and carrying out activities (Hiebert, 2001; Olmstead, 2000).

5) Autocratic style. The leader tell others what to do, limits discussion on ideas and new ways of doing things, and the group does not experience feeling of team work (Hiebert, 2001; McMahon, 2001).

6) Laissez style: The leader gives little or no direction to group/ individuals, opinion is offered only when requested, and an individual does not seem to be in charge (McMahon, 2001).

Gharehbaghi and McManus (2003) also demonestrated the major influences in determining the leadership style to be used as shown in Fig. (4).

Each of leadership styles have impact on reforming and / or creating company or project culture. There are short and long-term affects of each style.

For instance, the authoritative style may produce great results in short amount of time. However, excessive use of authority will decrease productivity in long-term. People either get fed up and leave or fall into a dissatisfaction of everyday repetitive tasks without creativity and innovation.

On the other hand, a participative style will be unproductive in the short-term. But , the longer this style of leading, the more productive a company can become. Many leaders never make it to a point of high productivity. They give up before the participative style kicks in and the company/project start to escalate. They see the initial drop in production and cannot wait long enough for the true results.

There are three keys that determin the choice of leadership style:

1. How the leader view and use authority
2. How the leader view and use human resources
3. How the leader view and relate to people

The more the leader keep control, the more authoriative his style, the more the leader share control the more participative his style of leadership.

To see if the leaders and the employees are moving toward a more authorative or a more participative leadership style, the following questions should be concern like:

- Are employees involved in the planning process
- What percentage of total employees know the goals and objectives for the project
- Do employees feel ownership and trusted
- Are relatioships between leaders and employees good most all the time.

As a conclusion, a construction manager as a leader must assess the situation and match the appropriate leadership to the situation and tasks at hand. The construction manager must be able to decide what style of leadership works best for him according to his experience in construction industry, but he must also be able to recognize what style of leadership the followers react best too in order to achevie higher productivity influences.

DISCUSSION

The objective of the research was to present the effect of leadership in construction productivity improvement. The construction manager must act as a leader throughout the life of construction project. Acting as a leader enables the construction manger to plan, monitor, and controll the progress of a project effectively. There are five ways to improve productivity: increase input but get a greater increase in output, maintain input but increase output, decrease input with a smaller decrease in output, decrease input with maintain output, and decrease input but increase output. The leaders could use one of these ways to improve productivity depending on two important tools: leadership skills (vision, motivation, team building and trust) and selecting the most suitable leadership style from different types to lead the employees for the major objective which is productivity improvement.

The need for leadership tools (leadership skills and styles) in productivity improvement will be shown in figure (5), which presented how the leader by using leadership tools could affect productivity improvement through good understanding for employees' needs, good communication skills with employees and workers, and good judgement for the different expected and unexpected situations to take the correct decision for consrtuction productivity improvement.

CONCLUSIONS

Productivity is considered the main value adding function with in the construction sector. Good leadership will increase the leader's knowledge, competitiveness, effectiveness, and interest in the job, and encourge new ways of doing things that will increase work productivity. The aim of this research was to identify and present leadership as a factor affect construction productivity improvement and also study the importance of leadership skills and styles in productivity improvement.

To build productivity, leaders must create an environment where people want to do their best and hand over more responsibility. There are numerous challenges facing today's construction managers, some are new to the construction industry, and some are old. A successful construction manager as a leader must totally understand the organisational environment and monitor and control its structure and progress. The construction manager as a leader must use his knowledge and skills to totally comprehend the project and its demands together with his team and apply the appropriate leadership skills and style to achieve his vision in productivity improvement.

REFERENCES

Abd Elshkour H (1994). "Improving productivity of construction projects via improving on-site construction management." A thesis submitted to Zagazig University in partial Fulfillment of the requirements for the Master of Science degree.

Abdel-Razek RH., (2004). "Productivity of Egyptian Temporary Labor in Excavation Work", *Journal of the Egyptian Society of Engineering*, vol. 43, no. 3, 3-8.

Adrian JJ (2004). "Five leadership skills for implementing productivity improvement". *Construction productivity newsletter Adrian International*, LLC, Vol. (20) no (3).

Agel BR, Nagarajan NJ, Sonnenfeld JA, Srinivasan D (2006). "Does CEO Charisma matter? An empirical analysis of the relationships among organizational performance environmental uncertainty, and top management team perceptions of CEO Charisma" *Academy of management journal*, 49, 161-174.

Barker RA (1997). How can we train leaders if we do not know what leadership is? *Human Relations, 50*(4), 343-362.

Bennis WG, Nanus B leaders (1985). "*The strategies for taking charge*" New York: Harper and Row.

Bjerke B (1999). *Business Leadership and Culture.* Chapters 1-3 (pp. 1-83)

Cottrell DS (2006). "Contractor process improvement for Enhancing Construction Productivity". *Journal of Construction Engineering and Management*, ASCE, Vol. (132), (2), 189-196.

Elazouni AM, Basha IM (1996). "Evaluating the performance of construction Equipment Operators in Egypt". J*ournal of Construction Engineering and Management*, ASCE, 122(2), 109-114.

Enshassi A, Mohamed S, Mustafa AZ, Mayer PE (2007). "Factors affecting labour productivity in building projects in the Gaza Strip". *Journal of Civil Engineering and Management*, 4, 245-254.

Farmer, Steven M, Aguinis, Herman (2005). "Accounting for subordinate perceptions of supervisory power: An identity-dependence model." *Journal of Applied Psychology,* 90, 1069-1083.

Finke MR (1998). "A better way to estimate and mitigate disruption", *Journal of Construction Engineering and Management*, ASCE, 125(2), 96-100.

Gharehbaghi K, and McManus K (2003). "The construction manager as a leader". *Leadership and management in engineering*, 3(1), 56-58.

Goodrum PM, Haas CT (2004). "Long-term impact of equipment technology on labor productivity in the U.S. construction industry at the activity level", *Journal of Construction Engineering and Management*, 130(1), 124-133.

Gulezian R, Samelian F (2003). Baseline determination in construction labor productivity loss claims. *Journal of Management in Engineering*, 19(4), 160-165.

Halligan DV, Demsetz LA, Brown JD, Pace CB (1994). "Action-Response model and loss of production in construction." *Journal of Construction Engineering and Management*, ASCE, 120(1), 47-64.

Hammer TH, Saksvik PO, Nytro K, Torvatn H, Bayazit M (2004). Expanding the psychosocial work environment: Workplace norms and work-family conflict as correlates of stress and health. *Journal of Occupational Health Psychology*, 9(1), 83-97.

Hanna AS., P.E., Chang CK, Sullivan KT, Lackney JA (2008), "Impact of shift work on labor productivity for labor intensive contractor". *Journal of Construction Engineering and Management*, ASCE, 134 (3), 197-204.

Hannula M (2002). "Total productivity measurement based on partial productivity Ratios". *International Journal of Production Economics*, 78, 57-67.

Hiebert M (2001). *The encyclopedia of leadership: A practical guide to popular leadership theories and techniques*, 1st edition, New York: McGraw-Hill.

Hirtz, Paul D, Susan L. Murray, Catherine A. Riodan (2007). "The

effects of leadership on quality". *Engineering management journal*, 19(1), 22-27.

Hogan R, Curphy GJ, Hogan J (1994). What we know about leadership - effectiveness and personality. *American Psychologist, 49*(6), 493-504.

House RJ, Aditya RN (1997). The social scientific study of leadership: Quo vadis? *Journal of Management, 23*(3), 409-473.

Judge TA, Piccolo RF, Ilies R (2004). "The forgotten ones? The validity of consideration and initiating structure in leadership research". *Journal of Applied Psychology*, 89, 36-51.

Judge, Timothy A, Piccolo, Ronald F (2004). "Transformational and transactional leadership: A meta-analytic test of their relative validity." *Journal of Applied Psychology,* 89, 755-768.

Kenney RA, Blascovich J, Shaver PR (1994). Implicit leadership theories - prototypes for new leaders. *Basic and Applied Social Psychology, 15*(4), 409-437.

Kirkpatrick SA, Locke A (1991). "Leadership: do traits matter?" *Academy of management executive*, 5(2), 48-60.

Lee HS, Ryu HG, Yu JH, Kim JJ (2005). "Method for calculating schedule delay considering lost productivity". *Journal of construction Engineering and Management,* ASCE, 131(11), 1147-1154.

Leithwood AK (1999). *Changing leadership for changing times*, 1st edition, Philadelphia: Open University Press.

Locke, Edwin A (1991). *The essence of leadership. The four keys to leading successfully*. Lexington. Chapter 4 ("Vision").

McRae McMahon D (2001). *Daring leadership for 21st century*, 1st edition, Sydney, Australia: ABC Books.

Mohammed MH (1996). "Labor productivity in the Egyptian construction industry". A thesis submitted to Cairo University in partial fulfillment of the requirements for the master degree.

Olmstead AG (2000). *Executive leadership building world classes organizations*, 1st edition, Houston: Cashman Dudley.

Paul. O. Olomolaiye, Ananda KW, Jayawardane, Frank C. Harris (1998), *Construction Productivity Management*. Addison Wesley Longman Limited, England.

Sink D (1983), "Much do about productivity: where do we go from here". *Industrial Engineering*, 15(10), 36-48.

Sonmez R, and Rowings JR (1998). "Construction Labor Productivity Modeling with Neural Networks". *Journal of Construction Engineering and Management*, ASCE, vol. 124(6), 498-504.

Sumanth DJ (1985). Productivity Engineering and Management, McGraw Hill Book Co., New York.

Sumanth DJ (1998). Total Productivity Management, CRC Press LLC., US.

Thomas HR, Sanvido VE (2000). "Role of the Fabrication In labor productivity". *Journal of Construction Engineering and management,* Vol. (126), (5), 358-365.

Thomas HR, Sanders SR, Bilas S (1992). "Comparison of labor productivity." Journal of Construction Engineering and Management, ASCE, 118(4), 635-650.

Thomas HR, and Raynar KA (1997). "Scheduled overtime and labor productivity: Quantitative analysis". *Journal of construction engineering and management*, 123(2), 181-188.

Thomas HR, and Napolitan CL (1995). Quantitative effects of construction changes on labor productivity. *Journal of Construction Engineering and Management*, 121(3), 290-296.

Thomas HR, Horman MJ, Souza UE, Zaviski I (2002). "Reducing variability to improve performance as a lean construction principle", *Journal of Construction Engineering and Management*, 128(2), 144-154.

Thomas HR, Maloney WF, Horner RMW, Smith GR, Handa VK, Sanders SR (1990), "Modeling construction labor productivity". *Journal of Construction Engineering and Management*, ASCE, 116, (4), 705-726.

Thomas HR, Riley DR, Sanvido VE (1999b). Loss of labor productivity due to delivery methods and weather, *Journal of Construction Engineering and Management*, ASCE, 125(1), 39-46.

Thomass HR, Korte QC, Sanvido VE, Parfitt MK (1999a). "Conceptual model for measuring productivity of design and engineering". *Journal of Architectural Engineering*, ASCE, 5(1), 1-7.

Yuki G, Vanfleet D (1992). "Theory and research on leadership in organizations". In M.D. Dunnette and L.M. Hough (Eds). Handbook of industrial and organizational psychology Vol. (3), 148-197.

Yukl GA (2006). *Leadership in organizations* (6th ed.). Upper Saddle River, N.J.: Pearson/Prentice Hall, kap.9 , pp. 248-28.